

# Research Highlights the Benefits of Healthy School Meals for All Students: An Annotated Bibliography

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## Methodology

The methodology employed in constructing this annotated bibliography began with a thorough review of existing reports and research briefs from the Food Research & Action Center (FRAC), aiming to identify seminal papers and critical themes within the field. Duplicates within the retrieved reports were then removed. Sources were then filtered to include only those published after 2012, with exceptions for essential papers that provided foundational knowledge. Searches were conducted on platforms including Google Scholar, The University of Texas at Dallas library database, and Research Rabbit to locate newer papers by the same authors or related topics, ensuring updated information and insights were included. Additionally, general searches were performed using specific keywords related to universal school meals, broadening the scope of the bibliography. Systematic reviews were incorporated into the search process, and primary papers within these reviews were examined to include pertinent research findings. The culled papers were mapped out in Research Rabbit to identify any additional important or highly cited papers that were overlooked initially. Most papers had robust citations, but exceptions were made for papers published after 2022. The results of these searches are included below and organized by subject. Each citation includes a source, description, and key takeaway.

## Harms of Childhood Food Insecurity

- Source: Shankar, P., Chung, R., & Frank, D. A. (2017). Association of Food Insecurity with Children’s Behavioral, Emotional, and Academic Outcomes: A Systematic Review. *Journal of Developmental and Behavioral Pediatrics*, 38(2), 135–150. <https://doi.org/10.1097/DBP.0000000000000383>
  - Description: This review offers a comprehensive analysis of 23 peer-reviewed articles originating from developed nations. It examines the connections between food insecurity and detrimental childhood developmental outcomes, encompassing early cognitive development, academic performance, inattention, and other outcomes across four age groups: infants and toddlers, preschoolers, school-aged children, and adolescents. Household food insecurity, even at marginal levels, correlates with various behavioral, academic, and emotional challenges in children from infancy to adolescence.
  - **Takeaway: Food insecurity within households is linked to various behavioral, academic, and emotional difficulties experienced by children from infancy through adolescence.**
  
- Source: Jackson, D. B., Newsome, J., Vaughn, M. G., & Johnson, K. R. (2018). Considering the role of food insecurity in low self-control and early delinquency. *Journal of Criminal Justice*, 56, 127–139. <https://doi.org/10.1016/j.jcrimjus.2017.07.002>
  - Description: This study utilized data from the Fragile Families and Child Wellbeing Study (FFCWS), a nationwide investigation tracking a substantial cohort of children born in the U.S. between 1998 and 2000. Children raised in households facing food insecurity display notably diminished levels of self-control during early childhood and heightened tendencies toward delinquency during late childhood, in contrast to those raised in food-secure environments, even when accounting for other factors. The presence of both temporary and persistent food insecurity correlates significantly and positively with low self-control and early delinquent behavior, with sustained food insecurity associated with even greater increases in these risks. Supplementary analyses suggest that the relationship between food insecurity and early delinquency is partially mediated by low self-control.
  - **Takeaway: Children growing up in food-insecure households, as studied through the Fragile Families and Child Wellbeing Study, exhibit decreased self-control in early childhood and increased delinquent behavior in late childhood, even after considering other factors, with persistent food insecurity exacerbating these risks.**

- Source: Burke, M. P., Martini, L. H., Çayır, E., Hartline-Grafton, H. L., & Meade, R. L. (2016). Severity of Household Food Insecurity Is Positively Associated with Mental Disorders among Children and Adolescents in the United States. *The Journal of Nutrition*, 146(10), 2019–2026. <https://doi.org/10.3945/jn.116.232298>
  - Description: This paper uses cross-sectional data from the 2011–2014 National Health Interview Survey involving 16,918 children and 14,143 adolescents from participating families. Mental disorders were assessed using the brief Strengths and Difficulties Questionnaire, while food security status was measured using the 10-item USDA Household Food Security Survey Module. A significant linear trend in odds ratios was observed, indicating that as household food insecurity severity increased, so did the likelihood of youth experiencing a mental disorder ( $P < 0.001$ ). Noteworthy findings included higher odds of mental disorder with impairment among youth in marginally food-secure households compared to those in food-secure households. Additionally, youth in very-low-food-secure households exhibited higher odds of severe mental disorder impairment relative to those in food-secure households.
  - **Takeaway: The severity of household food insecurity, as revealed by the National Health Interview Survey, is positively associated with an increased likelihood of mental disorders among youth, with particularly elevated risks observed in marginally food-secure and very-low-food-secure households.**
  
- Source: Shonkoff, J. P., & Garner, A. S. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics* (Evanston), 129(1), e232–e246. <https://doi.org/10.1542/peds.2011-2663>
  - Description: This paper delves into the evidence concerning the disruptive effects of toxic stress, providing compelling insights into the underlying causal pathways linking early adversity to subsequent challenges in learning, behavior, and overall physical and mental health. The implications stemming from this framework can bring about significant transformations in pediatrics. It suggests a paradigm shift, wherein numerous adult diseases are reframed as developmental disorders originating in early life. Furthermore, it posits that persistent health disparities linked to factors like poverty, discrimination, or maltreatment may be mitigated through the alleviation of toxic stress during childhood.
  - **Takeaway: Early adversity is linked with later challenges in learning, behavior, and health. Adult diseases can be seen as developmental disorders, and there is a potential to address persistent health disparities by mitigating childhood toxic stress.**

- Source: Gennetian, L. A., Wolf, S., Hill, H. D., & Morris, P. A. (2015). Intra-year Household Income Dynamics and Adolescent School Behavior. *Demography*, 52(2), 455–483. <https://doi.org/10.1007/s13524-015-0370-9>
  - Description: This study explores the connection between fluctuations in household income within a year and the behavioral outcomes of adolescents in educational settings. It draws on data from a nationally representative sample of households with adolescents, sourced from the 2004 panel of the Survey of Income and Program Participation. The findings reveal a negative relationship between income instability and various positive school-related behaviors among adolescents. Income instability is shown to reduce the likelihood of adolescents being highly engaged in school, regardless of their income level. Moreover, income instability predicts incidents of adolescent expulsions and suspensions.
  - **Takeaway: There is a negative association between income instability and adolescent school-related behaviors, irrespective of income levels, suggesting a significant impact on school engagement and increased risk of expulsions and suspensions, especially among low-income, older, and racial minority adolescents.**
- Source: Bidopia, T., Carbo, A. V., Ross, R. A., & Burke, N. L. (2023). Food insecurity and disordered eating behaviors in children and adolescents: A systematic review. *Eating Behaviors: An International Journal*, 49, 101731–101731. <https://doi.org/10.1016/j.eatbeh.2023.101731>
  - Description: This systematic review identified a correlation between food insecurity (F.I.) and various behaviors among children and adolescents, including binge eating, loss-of-control eating, eating when not hungry, engaging in unhealthy weight control practices, and displaying picky eating tendencies. However, the strength of this association differed based on the type of disordered eating behavior examined and the severity of food insecurity. These findings underscore the significance of screening for disordered eating behaviors in young individuals experiencing food insecurity, as it can aid in the prevention and intervention of eating disorders.
  - **Takeaway: Food insecurity is correlated with a range of disordered eating behaviors among children and adolescents, emphasizing the importance of early screening to prevent and intervene in eating disorders among those affected.**
- Source: Huang, J., Barnidge, E., & Kim, Y. (2015). Children Receiving Free or Reduced-Price School Lunch Have Higher Food Insufficiency Rates in Summer. *The Journal of Nutrition* (Vol. 145, Issue 9, pp. 2161–2168). Elsevier B.V. <https://doi.org/10.3945/jn.115.214486>
  - Description: This study aimed to evaluate the link between NSLP participation and household food insufficiency by analyzing food insufficiency trends over a 10-month period. Using data from the Survey of Income and Program Participation, the study considered only students who were eligible for free or reduced-price meals and compared the households of those who opted to receive the meals with those who did not. Among NSLP participant households, the rate

of food insufficiency remained steady from January to May at around 4 percent, then rose to over 5 percent in June and July. In contrast, food insufficiency among eligible nonrecipients remained consistent throughout the year, averaging about 2 percent.

- **Takeaway: Among households participating in the NSLP, there is a steady rate of food insufficiency with notable increases in summer months, highlighting the importance of addressing food insecurity dynamics beyond the academic year.**
- Source: Gundersen, C., & Ziliak, J. P. (2015). Food Insecurity And Health Outcomes. In *Health Affairs* (Vol. 34, Issue 11, pp. 1830–1839). *Health Affairs* (Project Hope). <https://doi.org/10.1377/hlthaff.2015.0645>
  - Description: Approximately 50 million Americans face food insecurity, a prominent health and nutrition concern. This review assesses recent research on food insecurity's health impacts across age groups. It begins by outlining measurement methods and prevalence trends, followed by a survey of studies linking food insecurity to negative health outcomes. Findings consistently show that food insecurity correlates with poorer health, such as higher rates of asthma in children and comparable limitations in daily activities for seniors. The Supplemental Nutrition Assistance Program (SNAP) significantly reduces food insecurity and is vital for curbing associated health risks.
  - **Takeaway: Food insecurity has significant adverse health effects across different age groups, with programs like the NSLP and SNAP playing a crucial role in alleviating this issue.**

## Benefits of School Meals

### School Meals Reduce Childhood Food Insecurity

- Source: Fletcher, J. M., & Frisvold, D. E. (2017). The Relationship between the School Breakfast Program and Food Insecurity. *The Journal of Consumer Affairs*, 51(3), 481–500. <https://doi.org/10.1111/joca.12163>
  - Description: This study investigates the connection between the School Breakfast Program (SBP) and outcomes related to food insecurity. The SBP holds promise in alleviating food insecurity by providing breakfast to students and providing implicit income support to households. This study uses state-level thresholds linked to school-level poverty rates that mandate the implementation of the SBP to compare food security outcomes of students in similar schools but with varying obligations to offer breakfast. The findings indicate that state policies mandating schools to provide the SBP have led to a decrease in food insecurity among young children.
  - **Takeaway: State policies mandating SBP have been effective in reducing food insecurity among young children.**

- Source: Gundersen, C., Kreider, B., & Pepper, J. (2012). The impact of the National School Lunch Program on child health: A nonparametric bounds analysis. *Journal of Econometrics*, 166(1), 79–91. <https://doi.org/10.1016/j.jeconom.2011.06.007>
  - Description: Children from households receiving free or reduced-price school meals tend to display more adverse health outcomes compared to peers with similar observable characteristics who are not enrolled. However, assessing the program's causal effects poses challenges due to the lack of clear counterfactuals and systematic underreporting of participation. This study combines survey data with supplementary administrative information on NSLP caseload sizes, introducing a novel approach akin to a regression discontinuity design by extending nonparametric partial identification methods, which account for endogenous selection and nonrandom classification error simultaneously. The paper provides evidence, under relatively mild assumptions, that receiving free or reduced-price lunches positively impacts children's health outcomes.
  - **Takeaway: Children from households receiving free or reduced-price school meals experience improved health outcomes, indicating the program's potential benefits despite inherent limitations in evaluating its effects.**
  
- Source: Huang, J., & Barnidge, E. (2016). Low-income Children's participation in the National School Lunch Program and household food insufficiency. *Social Science Medicine* (Vol. 150, pp. 8–14). Elsevier B.V. <https://doi.org/10.1016/j.socscimed.2015.12.020>
  - Description: This study undertakes an examination of the impact of NSLP on household food insufficiency. Utilizing data from four longitudinal panels of the Survey of Income and Program Participation, the sample encompassed 15,241 households with at least one child (aged 5–18) benefiting from free or reduced-price lunch through the NSLP. The findings from fixed-effects regression analysis revealed that during summer months when schools are not in session, and low-income families are unable to participate in the NSLP, the food insufficiency rate among NSLP recipients is estimated to be 0.7 percent higher. This result underscores the association between NSLP participation and a notable reduction in the risk of food insufficiency by nearly 14 percent, highlighting the program's significance in mitigating food insecurity among vulnerable populations.
  - **Takeaway: This study demonstrates that participation in NSLP reduces the risk of household food insufficiency during the months in which children are eating in school as compared to the summer months when they are not.**
  
- Source: Arteaga, I., & Heflin, C. (2014). Participation in the National School Lunch Program and Food Security: An analysis of transitions into kindergarten. *Children and Youth Services Review*, 47, 224–230. <https://doi.org/10.1016/j.chilcyouth.2014.09.014>
  - Description: This study examines the impact of the National School Lunch Program (NSLP) on household food security by utilizing state kindergarten eligibility date variations, focusing on households with kindergarten-age children in the Early Childhood Longitudinal Study — Birth cohort (ECLS-B). Findings

indicate that NSLP participation reduces food insecurity, particularly for students from households earning below 185 percent of the federal poverty line. Paying full price for school lunches in these low-income households is associated with increased food insecurity. Sensitivity analyses confirm that changes in child care hours do not affect the NSLP's impact, and school entry does not reduce food insecurity for families with higher incomes. These results highlight the critical role of school lunch programs during early school years.

- **Takeaway: The NSLP effectively mitigates food insecurity. Paying full price for school lunches correlates with heightened levels of food insecurity within the low-income cohort.**
- Source: Toossi, S. (2024). The effect of universal free school meals on children's food hardship. *Food Policy*, 124. <https://doi.org/10.1016/j.foodpol.2024.102606>
  - Description: Children residing in states where universal free school meals (UFSM) programs were not extended showed a 12.6 percent decrease (equivalent to a 38.3 percent reduction compared to the sample mean) in participation in school meals programs. Conversely, they were 1.5 percent more likely (a 9.8 percent increase over the sample mean) to encounter food insufficiency compared to their counterparts in states that extended UFSM programs.
  - **Takeaway: The absence of UFSM program extension in certain states resulted in a significant decrease in school meals program participation among children, accompanied by a higher likelihood of encountering food insufficiency compared to counterparts in states with extended UFSM programs.**

## School Meals Improve Student Nutritional Intake and Outcomes

- Source: Cohen, J. F. W., Hecht, A. A., McLoughlin, G. M., Turner, L., & Schwartz, M. B. (2021). Universal School Meals and Associations with Student Participation, Attendance, Academic Performance, Diet Quality, Food Security, and Body Mass Index: A Systematic Review. *Nutrients* (Vol. 13, Issue 3, p. 911). MDPI AG. <https://doi.org/10.3390/nu13030911>
  - Description: This systematic review scrutinizes research on the relationship between universal free school meals and various facets such as students' school meal participation rates, dietary habits, attendance, academic performance, Body Mass Index (BMI), and school finances. The analysis encompassed 47 studies, with bias assessed using the Newcastle-Ottawa Scale (NOS). The prevailing trend across most studies indicates positive associations between universal free school meals and school meal participation rates. The majority of investigations, particularly those incorporating free lunches, reveal favorable connections with diet quality, food security, and academic performance. Lastly, providing free meals to students may lead to enhanced household incomes, particularly among lower-income families with children.
  - **Takeaway: Universal free school meals programs are associated with increased school meal participation rates, improved diet quality, food**



**security, academic performance, and potentially enhanced household incomes, particularly benefiting lower-income families with children.**

- Source: Vernarelli, J. A., & O'Brien, B. (2017). A Vote for School Lunches: School Lunches Provide Superior Nutrient Quality than Lunches Obtained from Other Sources in a Nationally Representative Sample of U.S. Children. *Nutrients*, 9(9), 924. <https://doi.org/10.3390/nu9090924>
  - Description: This study aimed to discern whether meals served after the Healthy Hunger-Free Kids Act (HHFKA) implementation had better nutritional value. The study sampled 2,190 children from across the nation; it was discovered that consuming school-provided lunches was associated with superior nutritional quality compared to lunches obtained from alternate sources, spanning various age and income groups. Notably, children eligible for no-cost school lunches but not enrolled in NSLP exhibited significantly different dietary patterns. Specifically, they consumed approximately 60 percent more energy, 58 percent more total fat, 60 percent more saturated fat, 50 percent more solid fat, 61 percent more sodium, double the amount of added sugars, and less than half the amount of fruit compared to NSLP participants (all  $p < 0.001$ ). These findings highlight the nutritional advantages of school lunches over alternatives, particularly benefiting children from low-income backgrounds.
  - **Takeaway: Post-HHFKA implementation, school-provided lunches offer significantly better nutritional quality compared to lunches from other sources, emphasizing their importance, especially for children from low-income backgrounds.**
  
- Source: Au, L. E., Gurzo, K., Gosliner, W., Webb, K. L., Crawford, P. B., & Ritchie, L. D. (2018). Eating School Meals Daily Is Associated with Healthier Dietary Intakes: The Healthy Communities Study. *Journal of the Academy of Nutrition and Dietetics*, 118(8), 1474–1481.e1. <https://doi.org/10.1016/j.jand.2018.01.010>
  - Description: This study investigates the link between children's dietary intake and their frequency of participation in NSLP and SBP, utilizing data from the Healthy Communities Study, a cross-sectional observational study conducted from 2013 to 2015. Children who consumed school breakfast daily, as opposed to 0 to 4 days per week, reported higher intake of fruits and vegetables, dietary fiber, whole grains, dairy, and calcium. Similarly, children who consumed school lunch daily, in comparison to less frequent consumers, had higher intakes of dairy and calcium.
  - **Takeaway: Daily participation in NSLP and SBP is associated with increased intake of fruits, vegetables, whole grains, dairy, and essential nutrients among children, highlighting the positive impact of regular school meal consumption on dietary quality.**
  
- Source: Hecht, A. A., Dunn, C. G., Kinsey, E. W., Read, M. A., Levi, R., Richardson, A. S., Hager, E. R., & Seligman, H. K. (2022). Estimates of the Nutritional Impact of Non-Participation in the National School Lunch Program during COVID-19 School Closures. *Nutrients* (Vol. 14, Issue 7, p. 1387). MDPI AG. <https://doi.org/10.3390/nu14071387>

- Description: This study estimates changes in lunchtime calorie intake and nutrient consumption among participants in the NSLP in 2020 compared to the same period in 2019. NSLP participants who did not receive school meals would likely experience a weekly increase of 640 calories in their intake, alongside a reduction in nutrients like calcium and vitamin D. As there was a notable decrease in lunches served per week from March to November 2020 compared to the preceding year, it is projected that students across the nation may have collectively consumed an additional 3 to 10 billion calories per week.
- **Takeaway: Changes in NSLP participation in 2020 likely led to increased calorie intake and reduced nutrient consumption among children, potentially resulting in a significant nationwide increase in weekly calorie consumption.**
- Source: Cohen, J. F. W., Gorski Findling, M. T., Rosenfeld, L., Smith, L., Rimm, E. B., & Hoffman, J. A. (2018). The Impact of 1 Year of Healthier School Food Policies on Students' Diets During and Outside of the School Day. *Journal of the Academy of Nutrition and Dietetics* (Vol. 118, Issue 12, pp. 2296–2301). Elsevier B.V. <https://doi.org/10.1016/j.jand.2018.07.009>
  - Description: This study delves into the collective impact of enhanced standards on both school meal and snack choices, as well as dietary preferences beyond the school setting. Additionally, it scrutinizes how these standards influence the intake of essential nutrients. Post-implementation, there was a notable uptick in the proportion of students selecting school meals. Although there were no discernible shifts in competitive food purchases, there was a significant drop in the consumption of unhealthy snacks after school. Throughout the entire day, students, on average, consumed 22 grams less sugar post-implementation compared to pre-implementation (86 g vs. 108 g; P = 0.002).
  - **Takeaway: Following implementation of enhanced nutritional standards, there was an increase in school meal selection, a decrease in unhealthy snack consumption after school, and a reduction in daily sugar intake among students, indicating the positive impact of these standards on dietary choices both within and outside the school setting.**
- Source: Kinderknecht, K., Harris, C., & Jones-Smith, J. (2020). Association of the Healthy, Hunger-Free Kids Act With Dietary Quality Among Children in the U.S. National School Lunch Program. *JAMA* (Vol. 324, Issue 4, p. 359). American Medical Association (AMA). <https://doi.org/10.1001/jama.2020.9517>
  - Description: The Healthy, Hunger-Free Kids Act (HHFKA) of 2010 was found to have a positive impact on the dietary quality of lunchtime meals across diverse income brackets, including students from low-income, low-middle-income, and middle-high-income backgrounds who were presumed participants in the NSLP. In a sequential cross-sectional study involving 6,389 students, notable disparities were noted in the average Healthy Eating Index-2010 (HEI-2010) scores before and after the implementation of HHFKA. The principal focus was on assessing the dietary quality of lunch consumption gauged by HEI-2010. A score of 0

denotes non-adherence to the 2010 Dietary Guidelines for Americans, while a score of 100 indicates complete adherence to these guidelines. These discrepancies were particularly pronounced among low-income NSLP participants (mean difference: 11.9) in comparison to low-income NSLP nonparticipants (mean difference: -0.7), low-middle-income NSLP participants (mean difference: 14.3) versus low-middle-income nonparticipants (mean difference: 2.0), and middle-high-income NSLP participants (mean difference: 12.8) relative to middle-high-income nonparticipants (mean difference: 4.7).

- **Takeaway: The Healthy, Hunger-Free Kids Act of 2010 significantly improved the dietary quality of lunchtime meals for students across various income brackets, as evidenced by increased Healthy Eating Index-2010 (HEI-2010) scores compared to nonparticipants.**
- Source: Cullen, K. W., & Chen, T. A. (2017). The contribution of the USDA school breakfast and lunch program meals to student daily dietary intake. *Preventive Medicine Reports* (Vol. 5, pp. 82–85). Elsevier B.V. <https://doi.org/10.1016/j.pmedr.2016.11.016>
  - Description: This study assesses the impact of SBP and NSLP meals on the dietary intake of 5–18-year-olds using data from the National Health and Nutrition Examination Surveys (NHANES) spanning 2007 to 2012. Analysis of covariance, considering covariates such as BMI, ethnicity, sex, age, and poverty level, determined that nearly half of the day's energy intake came from these school meals for the 448 participants who consumed both on a weekday. The contribution of school meals to major food groups ranged from 40.6 percent for vegetables to 77.1 percent for milk, underscoring their significance in the daily dietary intake of children from low-income households.
  - **Takeaway: SBP and NSLP play a crucial role in providing nearly half of the daily energy intake for children from low-income households ages 5–18 in the U.S., highlighting their substantial contribution to their dietary needs.**
- Source: Johnson, D. B., Podrabsky, M., Rocha, A., & Otten, J. J. (2016). Effect of the Healthy Hunger-Free Kids Act on the Nutritional Quality of Meals Selected by Students and School Lunch Participation Rates. *JAMA Pediatrics* (Vol. 170, Issue 1, p. e153918). American Medical Association (AMA). <https://doi.org/10.1001/jamapediatrics.2015.3918>
  - Description: This study aimed to evaluate the impact of the Healthy Hunger-Free Kids Act on the nutritional quality of school meals and participation rates in a Washington state urban school district with 7,200 students, 54 percent eligible for free and reduced-price meals. Over 16 months before and 15 months after policy implementation, data from 1,741,630 meals were analyzed. Results showed significant improvements in nutritional quality post-implementation, with an increased mean adequacy ratio and decreased energy density of selected foods, while student meal participation remained stable. These findings suggest that improved nutrition standards positively influence food selection without negatively affecting participation rates, emphasizing the effectiveness of such policies in promoting healthier dietary habits among students.

- **Takeaway: Implementation of the Healthy Hunger-Free Kids Act led to improved nutritional quality of school meals without affecting student meal participation rates, highlighting the effectiveness of nutrition standards in promoting healthier food choices among students.**
- Source: Schwartz, A. E., & Rothbart, M. W. (2019). Let Them Eat Lunch: The Impact of Universal Free Meals on Student Performance. *Journal of Policy Analysis and Management* (Vol. 39, Issue 2, pp. 376–410). Wiley. <https://doi.org/10.1002/pam.22175>
  - Description: This study examines the impact of universal free meals (UFM) on academic performance and school lunch participation in New York City middle schools. Findings reveal that UFM positively affects academic performance in both mathematics and English Language Arts, with larger effects observed for non-poor students. Additionally, UFM increases participation in school lunch programs for both poor and non-poor students. Further analysis suggests that increased school lunch participation enhances academic performance for all students. Importantly, there is no evidence of adverse effects on student weight outcomes, with some indications that school lunch participation improves weight outcomes for non-poor students.
  - **Takeaway: Extending free school lunches to all students in New York City middle schools, regardless of income, has a positive impact on academic performance, particularly in mathematics and English Language Arts, with increased participation in school lunch programs. Increased participation in school lunch programs improves academic performance for students without adversely affecting student weight outcomes.**

### School Meals for All Increases Student Participation

- Source: Soldavini, J., & Ammerman, A. S. (2019). Serving Breakfast Free to All Students and Type of Breakfast Serving Model Are Associated with Participation in the School Breakfast Program. *Journal of the Academy of Nutrition and Dietetics*, 119(7), 1142–1149. <https://doi.org/10.1016/j.jand.2019.03.001>
  - Description: Cross-sectional study on SBP using data from 2,285 North Carolina public schools. Breakfast in the Classroom (BIC) and BIC plus “grab and go” serving models were positively associated with SBP participation among elementary and high school students. “Grab and go” and second-chance models were positively associated with SBP participation among middle and high school students.
  - **Takeaway: Breakfast serving models such as BIC and “grab and go,” alongside offering breakfast at no charge to all students, are positively associated with SBP participation across various North Carolina public schools.**

- Source: Long, M. W., Marple, K., & Andreyeva, T. (2021). Universal Free Meals Associated with Lower Meal Costs While Maintaining Nutritional Quality. *Nutrients* (Vol. 13, Issue 2, p. 670). MDPI AG. <https://doi.org/10.3390/nu13020670>
  - Description: Engaging in universal free meals (UFM) programs, such as those offered through the Community Eligibility Provision (CEP), has the potential to decrease meal expenses due to enhanced efficiencies and reduced administrative burdens. When comparing full costs, medium and large schools experienced slightly lower lunch costs in UFM schools and significantly lower breakfast costs. However, there was no discernible association between UFM and meal costs in smaller schools. Notably, Healthy Eating Index scores did not exhibit significant differences across UFM settings, suggesting that cost reductions could be achieved without compromising nutritional quality.
  - **Takeaway: Universal free meals programs like those offered through the CEP have the potential to reduce meal expenses, particularly for medium and large schools, without compromising nutritional quality, indicating potential cost savings and efficiency gains.**
  
- Source: Bullock, S. L., Dawson-McClure, S., Truesdale, K. P., Ward, D. S., Aiello, A. E., & Ammerman, A. S. (2022). Associations between a Universal Free Breakfast Policy and School Breakfast Program Participation, School Attendance, and Weight Status: A District-Wide Analysis. *International Journal of Environmental Research and Public Health* (Vol. 19, Issue 7, p. 3749). MDPI AG. <https://doi.org/10.3390/ijerph19073749>
  - Description: This longitudinal study examined whether a universal free breakfast (UFB) policy implemented in a school district was associated with changes in breakfast participation, school attendance, and student weight. On average, across schools in the district, there was an increase in breakfast participation of 4.1 percent following the implementation of the policy. Increases in SBP participation were not associated with significant changes in attendance or weight.
  - **Takeaway: Implementation of a universal free breakfast policy in a school district led to an average increase in breakfast participation by 4.1 percent.**

## Community Eligibility Provision — Evidence for School Meals for All

- Source: Hecht, A. A., Pollack Porter, K. M., & Turner, L. (2020). Impact of The Community Eligibility Provision of the Healthy, Hunger-Free Kids Act on Student Nutrition, Behavior, and Academic Outcomes: 2011–2019. *American Journal of Public Health* (Vol. 110, Issue 9, pp. 1405–1410). American Public Health Association. <https://doi.org/10.2105/ajph.2020.305743>
  - Description: This study compiles evidence and policy suggestions for CEP use by eligible schools. The evidence strongly supports that universal free meals significantly boost meal participation rates. Additionally, there is encouraging evidence that CEP positively affects weight outcomes, food security, disciplinary referrals, and timely grade promotion. CEP benefits both students who were

previously eligible and those ineligible for free or reduced-price meals. This is significant, as approximately 15 percent of marginally food-secure and 10 percent of food-insecure students do not meet the income criteria for free or reduced-price meals.

- **Takeaway: Policy approaches to increase the utilization of CEP by eligible schools are supported by growing evidence of benefits, including increased meal participation rates and promising outcomes related to weight, food security, disciplinary referrals, and grade promotion, with mixed evidence regarding test scores and attendance.**
- Source: Andreyeva, T., & Sun, X. (2021). Universal School Meals in the U.S.: What Can We Learn from the Community Eligibility Provision? *Nutrients* (Vol. 13, Issue 8, p. 2634). MDPI AG. <https://doi.org/10.3390/nu13082634>
  - Description: Using data from the Early Childhood Longitudinal Study: Kindergarten Class of 2010–2011, this study assessed the effects of CEP on various outcomes including school meals participation, attendance, academic achievement, and household food security. On average, CEP participation increased the probability of children eating free school lunch by 9.3 percent. The study found no evidence that CEP participation affected body weight, test scores, and household food security among elementary schoolchildren. CEP participation showed beneficial effects for children from low-income families, reducing the likelihood of being overweight by 3.1 percent and enhancing reading scores for Hispanic children by 0.055 standard deviations.
  - **Takeaway: CEP participation increased free school lunch uptake and daily attendance, with specific benefits for children from low-income households, including reduced overweight probability and improved reading scores for Hispanic students.**

## Community Eligibility Provision Increases Meal Participation

- Source: Pokorney, P. E., Chandran, A., & Long, M. W. (2019). Impact of the Community Eligibility Provision on meal counts and participation in Pennsylvania and Maryland National School Lunch Programs. *Public Health Nutrition* (Vol. 22, Issue 17, pp. 3281–3287). Cambridge University Press (CUP). <https://doi.org/10.1017/s1368980019002246>
  - Description: This study aims to investigate whether the adoption of CEP at the school level is linked to changes in school meals participation rates. The study utilizes negative binomial regression to forecast meal count rates per student year, considering overall and reimbursement level adjustments while accounting for the proportion eligible for free and reduced-price lunch and operating days. Results indicate that CEP was associated with a modest, albeit non-significant, 6 percent increase in total NSLP meal counts after adjusting for free and reduced-price lunch eligibility, enrollment, and operating days. After controlling for participation rates in the year prior to CEP implementation, the program exhibited a significant 8 percent increase in meal counts.

- **Takeaway: Adoption of the CEP at the school level was associated with a significant 8 percent increase in meal counts after controlling for prior participation rates.**
- Source: Turner, L., Guthrie, J. F., & Ralston, K. (2019). Community eligibility and other provisions for universal free meals at school: impact on student breakfast and lunch participation in California public schools. *Translational Behavioral Medicine* (Vol. 9, Issue 5, pp. 931–941). Oxford University Press (OUP).  
<https://doi.org/10.1093/tbm/ibz090>
  - Description: This study examines the impact of school-level adoption of universal free meals provisions on student participation rates in California's School Breakfast and National School Lunch Programs from 2013–2014 to 2016–2017. Results showed that when eligible schools adopted a provision that allows a school to offer free meals, participation rates increased by an average of 3.48 percent for breakfast and 5.79 points for lunch the following year. By 2016–2017, over half of eligible schools had adopted universal free meals provisions. Adoption of these provisions significantly increased participation rates, particularly benefiting children at risk of food insecurity.
  - **Takeaway: Adoption of universal free meals provisions in California schools significantly increased student participation rates in breakfast and lunch programs, particularly benefiting children at risk of food insecurity.**
- Source: Tan, M. L., Laraia, B., Madsen, K. A., Johnson, R. C., & Ritchie, L. (2020). Community Eligibility Provision and School Meal Participation among Student Subgroups. *Journal of School Health* (Vol. 90, Issue 10, pp. 802–811). Wiley.  
<https://doi.org/10.1111/josh.12942>
  - Description: This research investigates the relationship between CEP and student participation rates among those eligible for free or reduced-price meals (FRPM). Utilizing data from the 2013–2015 Healthy Communities Study, it compared the participation rates in school breakfast and lunch programs among 842 students in K–8 attending 80 CEP schools and 1,463 students in 118 non-CEP schools. Overall, FRPM students demonstrated high participation rates in both breakfast and lunch programs across both types of schools. Adjusted models revealed that lunch participation among near-cutoff students was 12 percent higher in CEP schools compared to non-CEP schools. Similarly, breakfast participation among full-price students was 20 percent higher, and lunch participation was 19 percent higher in CEP schools compared to non-CEP schools.
  - **Takeaway: CEP schools saw a significant increase in lunch participation among near-cutoff students by 12 percent and among full-price students by 20 percent and 19 percent for breakfast and lunch, respectively.**
- Source: Ferris, D., Jabbari, J., Chun, Y., & Sandoval, J. S. O. (2022). Increased School Breakfast Participation from Policy and Program Innovation: The Community Eligibility

Provision and Breakfast after the Bell. *Nutrients* (Vol. 14, Issue 3, p. 511). MDPI AG. <https://doi.org/10.3390/nu14030511>

- Description: Schools have the opportunity to enhance participation in meals programs through various policy mechanisms like CEP and breakfast after the bell (BATB). This study investigates the longitudinal adoption of CEP and BATB and assesses their impact on increasing participation in free and reduced-price (FRP) breakfast programs. The findings indicate a notable increase in FRP breakfast participation among schools implementing both CEP and BATB, with a 14-percentage-point rise. Moreover, schools participating in CEP are more inclined to employ BATB strategies, such as breakfast in the classroom, “grab and go” carts, and second-chance breakfast. The study reveals that BATB alone adoption contributes to a 1.4-percentage-point increase in FRP school breakfasts served.
  - **Takeaway: Implementing CEP and BATB significantly increases participation in free and reduced-price breakfast programs, with schools adopting both showing a 14-percentage-point rise and BATB adoption alone contributing to a 1.4-percentage-point increase.**
- Source: Schneider, K. R., Oslund, J., & Liu, T. (2021). Impact of the community eligibility provision program on school meal participation in Texas. *Public Health Nutrition* (Vol. 24, Issue 18, pp. 6534–6542). Cambridge University Press (CUP). <https://doi.org/10.1017/s1368980021003712>
    - Description: This study aimed to assess the impact of opting into the Community Eligibility Provision (CEP) on school meal participation among Texas students. Using a quasi-experimental design with a two-way fixed effects panel difference-in-difference model, the study analyzed data from 2797 eligible public and charter K–12 schools over a span of six years. Results showed that opting into CEP increased school breakfast participation by 4.59 percent and lunch participation by 4.32 percent, with slightly larger effects persisting even when excluding summer months. These findings indicate that CEP adoption in Texas schools has a modest yet significant positive effect on both breakfast and lunch participation rates.
    - **Takeaway: CEP enrollment in Texas leads to a modest increase in school meal participation, with both breakfast and lunch participation rising by approximately 4.5 percent each.**

## Community Eligibility Provision and Improvement in Health, Behavior, and Attendance

- Source: Localio, A. M., Knox, M. A., Basu, A., Lindman, T., Walkinshaw, L. P., & Jones-Smith, J. C. (2024). Universal Free School Meals Policy and Childhood Obesity. *Pediatrics*. American Academy of Pediatrics (AAP). <https://doi.org/10.1542/peds.2023-063749>
  - Description: This study analyzed 3,531 schools eligible for CEP, with school-level obesity prevalence derived from BMI measurements. Initially, the student population comprised, on average, 72 percent Hispanic, 11 percent White, and 7



percent Black students, with 80 percent eligible for free or reduced-price meals. The baseline obesity prevalence stood at 25 percent. Upon implementing CEP, participating schools experienced a net decrease of 0.60 percent in obesity prevalence compared to eligible nonparticipating schools, translating to a 2.4 percent relative reduction from baseline. Notably, only CEP-participating schools saw an increase in meal servings during the six-year period.

- **Takeaway: Implementing the CEP led to a modest reduction in obesity prevalence in eligible schools, with a net decrease of 0.60 percent compared to nonparticipating schools.**
- Source: Davis, W., & Musaddiq, T. (2018). Estimating the Effects of Subsidized School Meals on Child Health: Evidence from the Community Eligibility Provision in Georgia Schools. *SSRN Electronic Journal*. Elsevier B.V. <https://doi.org/10.2139/ssrn.3155354>
  - Description: This study assesses the impact of implementing universal free school meals under CEP on the proportion of students with healthy weights and the average Body Mass Index (BMI) score across K–12 schools in Georgia. The findings indicate that CEP participation is associated with a rise in the proportion of students with healthy weights attending schools and a decline in the average student BMI. Moreover, the study does not identify statistically significant evidence to suggest any harmful effects of CEP participation on overall measures of child weight.
  - **Takeaway: Participation in CEP is linked to an increase in the proportion of students with healthy weights and a decrease in average student BMI in K–12 schools in Georgia.**
- Source: Gordon, N., & Ruffini, K. (2021). Schoolwide Free Meals and Student Discipline: Effects of the Community Eligibility Provision. *Education Finance and Policy* (Vol. 16, Issue 3, pp. 418–442). MIT Press. [https://doi.org/10.1162/edfp\\_a\\_00307](https://doi.org/10.1162/edfp_a_00307)
  - Description: The study's findings indicate that the implementation of schoolwide free meals led to a statistically significant reduction in suspensions by around 17 percent for White male elementary students. Although the point estimates for other subgroups in elementary schools and overall were negative, they were of smaller magnitude. While the treatment effects for Black students were not statistically significant, the paper could ascertain that the treatment effects between Black and White students were not equal.
  - **Takeaway: Implementation of schoolwide free meals resulted in a significant 17 percent reduction in suspensions for White male elementary students, with smaller effects observed for other subgroups.**
- Source: Bartfeld, J. S., Berger, L., & Men, F. (2020). Universal Access to Free School Meals through the Community Eligibility Provision Is Associated with Better Attendance for Low-Income Elementary School Students in Wisconsin. *Journal of the Academy of Nutrition and Dietetics* (Vol. 120, Issue 2, pp. 210–218). Elsevier B.V. <https://doi.org/10.1016/j.jand.2019.07.022>

- Description: This study evaluated the impact of the CEP on school attendance among elementary students in Wisconsin. The study focused on two outcome measures: the attendance rate (percentage of school days attended) and low attendance (fewer than 95 percent of days attended) during the first and second years of CEP implementation. In the first year, CEP showed no significant effect on attendance. However, in the second year, CEP implementation was associated with a 3.5-percentage-point decrease in the proportion of students with low attendance from economically disadvantaged backgrounds.
- **Takeaway: CEP implementation was associated with a 3.5-percentage-point reduction in low attendance among economically disadvantaged elementary school students in Wisconsin during the second year, highlighting its potential to mitigate attendance issues.**
- Source: Domina, T., Clark, L., Radsky, V., & Bhaskar, R. (2024). There Is Such a Thing as a Free Lunch: School Meals, Stigma, and Student Discipline. *American Educational Research Journal* (Vol. 61, Issue 2, pp. 287–327). American Educational Research Association (AERA). <https://doi.org/10.3102/00028312231222266>
  - Description: The implementation of CEP enables high-poverty schools to provide free meals to all students irrespective of their family income. By viewing the universal meals provision as a means to mitigate the stigma associated with school meals, the authors posit that CEP adoption decreases suspension rates, especially among students from low-income backgrounds and marginalized groups. By merging student educational records from Oregon public schools spanning from 2010 to 2017 with administrative data detailing their families' incomes and participation in social safety net programs, our difference-in-differences analyses reveal that CEP demonstrates protective effects on suspension likelihood for students in participating schools, particularly those from low-income households, recipients of free or reduced-price meals pre-CEP, and Hispanic students.
  - **Takeaway: Implementation of CEP in high-poverty schools is associated with reduced suspension rates, particularly benefiting students from low-income backgrounds, previous recipients of free or reduced-price meals, and Hispanic students.**

## Community Eligibility Provision and Academic Outcomes

- Source: Gordanier, J., Ozturk, O., Williams, B., & Zhan, C. (2020). Free Lunch for All! The Effect of the Community Eligibility Provision on Academic Outcomes. *Economics of Education Review*, 77, 101999-. <https://doi.org/10.1016/j.econedurev.2020.101999>
  - Description: This research evaluates the impact of the Community Eligibility Provision (CEP) on the academic performance and attendance of elementary and middle school students in South Carolina. Employing a difference-in-differences approach, the study demonstrates that CEP results in approximately a 0.06 standard deviation increase in math test scores for elementary students. These effects vary depending on factors such as student poverty, school poverty, and locality. Notably, students who were previously eligible for free lunches but not enrolled in other public assistance programs benefit the most from CEP.
  - **Takeaway: Implementation of CEP in South Carolina led to a notable increase of approximately 0.06 standard deviations in math test scores for elementary students, particularly benefiting those previously eligible for free lunches but not enrolled in other public assistance programs.**
  
- Source: Ruffini, K. (2022). Universal Access to Free School Meals and Student Achievement: Evidence from the Community Eligibility Provision. *The Journal of Human Resources*, 57(3), 776–820. <https://doi.org/10.3368/jhr.57.3.0518-9509R3>
  - Description: This research investigates the impact of CEP, the most utilized federal option for providing free school meals to entire schools, on academic achievement. It examines variations in the timing of CEP participation both within and across states. The findings reveal that universal free meals under CEP lead to a 38 percent increase in breakfast participation and a 12 percent increase in lunch participation. Moreover, it shows that in districts with initially low eligibility for free meals, particularly among racial and ethnic groups with low-income-based participation rates, there are improvements in math performance.
  - **Takeaway: CEP implementation significantly boosts meal participation and math performance.**

## Community Eligibility Provision and Economic Impact for Families

- Source: Marcus, M., & Yewell, K. G. (2022). The Effect of Free School Meals on Household Food Purchases: Evidence from the Community Eligibility Provision. *Journal of Health Economics* (Vol. 84, p. 102646). Elsevier B.V. <https://doi.org/10.1016/j.jhealeco.2022.102646>
  - Description: The study reveals implementation of CEP significantly influenced grocery spending for households with children. On average, monthly food purchases decreased by approximately 5 percent. In zip codes with greater exposure to CEP, this decline reached as high as \$39 per month, corresponding to a 19 percent decrease. Furthermore, following the implementation of CEP, there were notable changes in the composition of food purchases, particularly among low-income households, who experienced an enhancement in dietary

quality. Lastly, exposure to CEP was linked to a nearly 5 percent reduction in households classified as food insecure.

- **Takeaway: CEP implementation led to a significant decrease in grocery spending for households with children, particularly in areas with greater exposure to CEP, while also improving dietary quality and reducing food insecurity.**

## Strategies and Innovation to Increase Participation

- Source: Hecht, A. A., Olarte, D. A., McLoughlin, G. M., & Cohen, J. F. W. (2023). Strategies to Increase Student Participation in School Meals in the United States: A Systematic Review. *Journal of the Academy of Nutrition and Dietetics* (Vol. 123, Issue 7, pp. 1075-1096.e1). Elsevier B.V. <https://doi.org/10.1016/j.jand.2023.02.016>
  - Description: This systematic review synthesized evidence from peer-reviewed and government studies in the U.S. up to January 2022, focusing on interventions, initiatives, and policies aimed at increasing school meal participation. Thirty-four articles met the inclusion criteria. Findings indicated that alternative breakfast models (such as breakfast in the classroom or “grab and go” options) and restrictions on competitive foods consistently boosted meal participation rates. Moreover, the review suggested that implementing stronger nutrition standards did not adversely affect participation and could, in certain instances, enhance meal uptake.
  - **Takeaway: Alternative breakfast models and restrictions on competitive foods consistently increase school meal participation, while stronger nutrition standards may also have a positive impact.**

## Innovations in Breakfast

- Source: Polonsky, H. M., Davey, A., Bauer, K. W., Foster, G. D., Sherman, S., Abel, M. L., Dale, L. C., & Fisher, J. O. (2018). Breakfast Quality Varies by Location among Low-Income Ethnically Diverse Children in Public Urban Schools. *Journal of Nutrition Education and Behavior* (Vol. 50, Issue 2, pp. 190-197.e1). Elsevier B.V. <https://doi.org/10.1016/j.jneb.2017.09.009>
  - Description: This study presents a cross-sectional analysis of fourth to sixth graders in 2013. Consuming breakfast at school was associated with an increased likelihood of consuming fruit, opting for lower saturated fats and added sugar (SFAS) items, and meeting the nutritional criteria of the SBP compared to other dining locations. Among the students who ate breakfast, 46.0 percent did so at home, 13.1 percent at school, 41.0 percent at multiple locations, and 21.8 percent at a corner store. Those who had breakfast at school had greater odds of consuming at least one fruit or vegetable and lower odds of consuming at least one SFAS food.
  - **Takeaway: Consuming breakfast at school is associated with healthier dietary choices and an increased likelihood of meeting SBP nutrition requirements compared to other dining locations.**

- Source: Hartline-Grafton, H., & Levin, M. (2022). Breakfast and School-Related Outcomes in Children and Adolescents in the U.S.: A Literature Review and its Implications for School Nutrition Policy. *Current Nutrition Reports* (Vol. 11, Issue 4, pp. 653–664). Springer Science and Business Media LLC. <https://doi.org/10.1007/s13668-022-00434-z>
  - Description: Despite the generally positive attitudes of school personnel, parents, and students towards breakfast and its perceived benefits for learning, recent research presents mixed evidence regarding breakfast's impact on objectively measured grades and test scores. Few recent studies have focused on behavioral outcomes, making it difficult to draw definitive conclusions about the relationship between breakfast and school behavior. However, several studies have noted improved attendance rates with increased access to and participation in school breakfast programs, particularly when breakfast is provided free of charge to all students.
  - **Takeaway: While attitudes towards breakfast are positive, there is mixed evidence of its impact on grades and test scores. Improved attendance is observed with increased access and participation, particularly when breakfast is offered free to all students.**
  
- Source: Olarte, D. A., Tsai, M. M., Chapman, L., Hager, E. R., & Cohen, J. F. W. (2023). Alternative School Breakfast Service Models and Associations with Breakfast Participation, Diet Quality, Body Mass Index, Attendance, Behavior, and Academic Performance: A Systematic Review. *Nutrients* (Vol. 15, Issue 13, p. 2951). MDPI AG. <https://doi.org/10.3390/nu15132951>
  - Description: This study reviews the impact of breakfast after the bell (BATB) on students' diet and academic outcomes, including various factors such as participation, diet quality, body mass index (BMI), academic performance, and more. In the 37 studies included, the review found BATB increased school breakfast participation, improved diet quality, and improved classroom behavior, particularly among students from racial and ethnic minority backgrounds and students eligible for free or reduced-price meals. The impact of BATB on BMI, weight status, academic achievement, and attendance was mixed.
  - **Takeaway: BATB increases school breakfast participation and improves diet quality and classroom behavior, especially among minority students and students from low-income households, but its effects on BMI, academic achievement, and attendance vary.**
  
- Source: Farris, A. R., Roy, M., Serrano, E. L., & Misyak, S. (2019). Impact of Breakfast in the Classroom on Participation and Food Waste. *Journal of Nutrition Education and Behavior* (Vol. 51, Issue 7, pp. 893–898). Elsevier B.V. <https://doi.org/10.1016/j.jneb.2019.04.015>
  - Description: This study was conducted in the rural region of southwest Virginia and examined breakfast in the classroom (BITC) participation and food waste across seven elementary schools. Measurement of participation and waste occurred over four days in each school, both before and after the implementation of BITC. The findings revealed a notable decrease in food waste across all schools,

declining from 43.0 percent to 38.5 percent with the introduction of BITC. This reduction was particularly significant for entrée items, juice, and savory snacks.

- **Takeaway: BITC reduces food waste and improves dietary intake in elementary schools, particularly in rural regions, with significant reductions observed in waste percentages for entrée items, juice, and savory snacks.**
  
- Source: Nanney, M. S., Leduc, R., Hearst, M., Shanafelt, A., Wang, Q., Schroeder, M., Grannon, K. Y., Kubik, M. Y., Caspi, C., & Harnack, L. J. (2019). A Group Randomized Intervention Trial Increases Participation in the School Breakfast Program in 16 Rural High Schools in Minnesota. *Journal of the Academy of Nutrition and Dietetics* (Vol. 119, Issue 6, pp. 915–922). Elsevier B.V. <https://doi.org/10.1016/j.jand.2018.12.007>
  - Description: This study aimed to assess two interventions, enhancing access and increased marketing, designed to improve participation in SBP within high schools. The initial component concentrated on augmenting SBP participation by enhancing student access to breakfast through breakfast service practices such as introducing “grab and go” carts in the atrium and extending breakfast service hours. The second component focused on promoting school breakfast through student-targeted marketing campaigns. The median change in SBP participation rate between the baseline and follow-up periods was 3 percent among the eight schools in the intervention group, while it stood at 0.5 percent in the control group. This difference in the rate of change between the two groups was statistically significant. Moreover, the intervention's effect progressively intensified throughout the intervention period, with the mean change in SBP participation rate by the end of the school year reaching 10.3 percent.
  - **Takeaway: Environmental interventions in high schools, including breakfast service modifications and student-targeted marketing, significantly increase participation in SBP.**
  
- Source: Larson, N., Wang, Q., Grannon, K., Wei, S., Nanney, M. S., & Caspi, C. (2018). A Low-Cost, Grab-and-Go Breakfast Intervention for Rural High School Students: Changes in School Breakfast Program Participation Among At-Risk Students in Minnesota. *Journal of Nutrition Education and Behavior* (Vol. 50, Issue 2, pp. 125-132.e1). Elsevier B.V. <https://doi.org/10.1016/j.jneb.2017.08.001>
  - Description: This study assesses the effectiveness of a “grab and go” initiative integrated into a broader intervention aimed at promoting participation in SBP in rural schools across Minnesota. Eight schools participated solely in the “grab and go” component of the intervention. The study observed increases in SBP participation at the school level, from 13.0 percent to 22.6 percent, during the intervention year compared to the baseline among schools enrolled in the “grab and go” component. Increases in SBP participation were noted within the at-risk sample of students who reported eating breakfast less than three times a week. Within the at-risk sample, SBP participation rose from 7.6 percent to 21.9 percent, as well as across various subgroups based on eligibility for free or reduced-price meals and ethnic or racial background. Participation in SBP rose

among students eligible for free or reduced-price meals, from 13.9 percent to 30.7 percent, and among ineligible students, from 4.3 percent to 17.2 percent.

- **Takeaway: Implementing a “grab and go” initiative as part of a broader intervention significantly increases SBP participation in rural Minnesota schools.**

## School Food Waste

- Source: Cohen, J. F. W., Richardson, S., Parker, E., Catalano, P. J., & Rimm, E. B. (2014). Impact of the New U.S. Department of Agriculture School Meal Standards on Food Selection, Consumption, and Waste. *American Journal of Preventive Medicine* (Vol. 46, Issue 4, pp. 388–394). Elsevier B.V. <https://doi.org/10.1016/j.amepre.2013.11.013>
  - Description: The study evaluates the impact of recent U.S. Department of Agriculture (USDA) changes to school meal standards on meal selection, consumption, and waste. Plate waste data from four schools in an urban, low-income district were analyzed before and after implementation. Results indicate increased fruit selection and consumption post-implementation, along with stable entrée and vegetable selection but increased consumption. Despite decreased milk consumption due to an unrelated policy change, overall diet quality improved, challenging media claims of increased food waste. The study suggests that the new standards positively affect students' meal habits, advocating against legislative efforts to weaken them.
  - **Takeaway: Changes to USDA school meal standards positively impact meal selection and consumption, improving overall diet quality and challenging media claims of increased food waste.**

## Challenges During the COVID-19 Pandemic

- Source: Ogundari, K. (2023). The Effects of School Food Assistance on Children's Food Sufficiency During the COVID-19 Pandemic in the U.S. *Journal of Poverty* (pp. 1–20). Informa U.K. Limited. <https://doi.org/10.1080/10875549.2023.2259897>
  - Description: The findings indicate a notable increase in the likelihood of children achieving food sufficiency, with significant boosts observed among households utilizing school pickup, Pandemic-EBT, on-site school meals, and home delivery. The impact of school food assistance on children's food sufficiency varies across racial and ethnic groups. While all forms of school food assistance consistently affect food sufficiency levels among White children, only school meals obtained through school pickup, on-site consumption, and home delivery appear to influence food sufficiency among Black children.
  - **Takeaway: School pickup, Pandemic-EBT, on-site meals, and home delivery were interventions that increased food sufficiency in households with children.**
- Source: Harper, K., Bode, B., Gupta, K., Terhaar, A., Baltaci, A., Asada, Y., & Lane, H. (2023). Challenges and Opportunities for Equity in U.S. School Meal Programs: A Scoping Review of Qualitative Literature Regarding the COVID-19 Emergency. *Nutrients* (Vol. 15, Issue 17, p. 3738). MDPI AG. <https://doi.org/10.3390/nu15173738>
  - Description: This study is a qualitative literature review on challenges faced by schools in increasing equity including supply chain issues, safety, and limited staff capacity. Using the Getting to Equity Framework, the review assessed factors that influenced nutrition behavior. Programs addressed equity through various interventions. Federally issued waivers and enhanced communications reduced barriers, enabling programs to provide meals to families who previously



- lacked access. Collaborations and partnerships bolstered community capacity, facilitating expanded meal distribution.
- **Takeaway: Supply chain issues, safety concerns, and limited staff capacity were barriers to achieving equity in school meals programs. Solutions included waivers, enhanced communication, and community collaborations.**
- Source: 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* (Vol. 13, Issue 8, p. 2691). MDPI AG. <https://doi.org/10.3390/nu13082691>
    - Description: The COVID-19 pandemic disrupted access to critical U.S. Department of Agriculture National School Lunch and Breakfast Programs, prompting temporary policy changes allowing meal distribution outside of school buildings. This mixed methods study examines challenges faced by 12 major urban School Food Authorities (SFAs) in the U.S. during the pandemic. Interviews with SFA leaders and quantitative financial data analysis revealed operational reconfigurations, staff safety concerns, stakeholder management complexities, and financial strain due to reduced student participation and revenue despite ongoing costs. Future crisis response plans should prioritize disaster preparedness to support SFAs in transitioning to sustainable community meal distribution methods.
    - **Takeaway: During the COVID-19 pandemic, major urban SFAs faced operational, financial, and logistical challenges in transitioning to community meal distribution methods, highlighting the need for improved disaster preparedness planning.**

## Literature From States With Healthy School Meals for All

- Source: Cohen, J. F. W., Polacsek, M., Hecht, C. E., Hecht, K., Read, M., Olarte, D. A., Patel, A. I., Schwartz, M. B., Turner, L., Zuercher, M., Gosliner, W., & Ritchie, L. D. (2022). Implementation of Universal School Meals during COVID-19 and Beyond: Challenges and Benefits for School Meals Programs in Maine. *Nutrients* (Vol. 14, Issue 19, p. 4031). MDPI AG. <https://doi.org/10.3390/nu14194031>
  - Description: This study assessed the effects of COVID-19 alongside the simultaneous introduction of universal school meals (USM) in Maine. Surveys were completed by a total of 43 school food authorities (SFAs) across the state. SFAs highlighted various advantages of USM, such as heightened participation in school meals programs, decreased stigma for students from economically disadvantaged backgrounds and their families, and the elimination of unpaid meal charges and debt. However, SFAs also encountered challenges associated with the COVID-19 pandemic, particularly regarding financial costs.
  - **Takeaway: The introduction of USM in Maine during the COVID-19 pandemic yielded benefits such as increased participation and reduced stigma for economically disadvantaged students, yet also**

**posed financial challenges for SFAs.**

- Source: Zuercher, M. D., Cohen, J. F. W., Ohri-Vachaspati, P., Hecht, C. A., Hecht, K., Polacsek, M., Olarte, D. A., Read, M., Patel, A. I., Schwartz, M. B., Chapman, L. E., Orta-Aleman, D., Ritchie, L. D., & Gosliner, W. (2024). Parent perceptions of school meals and how perceptions differ by race and ethnicity. *Health Affairs Scholar* (Vol. 2, Issue 1). Oxford University Press (OUP). <https://doi.org/10.1093/haschl/qxad092>
  - Description: This study evaluated how California parents perceived school meals during the COVID-19 crisis, particularly with the introduction of federally funded universal free school meals (UFSM), and whether these perceptions varied based on race/ethnicity. Surveying 1,110 parents of K–12 students in California, the majority expressed that school meals provided tangible benefits to their families, notably in terms of saving money (81.6 percent), time (79.2 percent), and reducing stress (75.0 percent). A small percentage indicated concerns that their child might feel embarrassed to eat school meals (11.7 percent). Moreover, fewer parents viewed school lunches favorably in terms of quality (36.9 percent), taste (39.6 percent), or healthiness (44.0 percent). Parents of Hispanic and Asian students tended to hold less favorable views regarding the quality, taste, and healthiness of school meals compared to parents of White students.
  - **Takeaway: Parents in California generally perceive school meals positively during the COVID-19 crisis, citing benefits such as saving money and time and reducing stress, but they express concerns about meal quality, taste, and healthiness, particularly Hispanic and Asian parents compared to White parents.**
  
- Source: Zuercher, M. D., Cohen, J. F. W., Hecht, C. E., Hecht, K., Ritchie, L. D., & Gosliner, W. (2022). Providing School Meals to All Students Free of Charge during the COVID-19 Pandemic and Beyond: Challenges and Benefits Reported by School Foodservice Professionals in California. *Nutrients* (Vol. 14, Issue 18, p. 3855). MDPI AG. <https://doi.org/10.3390/nu14183855>
  - Description: This research examined the viewpoints of school food authorities (SFAs) regarding the federal universal school meals (USM) program amid the COVID-19 pandemic during the 2021–22 school year. Findings indicated notable benefits such as increased student meals participation (79.2 percent) and diminished stigma (39.7 percent). Chief challenges included staffing issues (76.9 percent) and concerns regarding meal packaging and solid waste (67.4 percent). Additionally, more than 40 percent expressed that federal reimbursements fell short of covering expenses. Among the top requests for resources to facilitate the implementation of California's USM were additional facilities/equipment (83.8 percent), communication/marketing support (76.1 percent), boosting meal participation (71.5 percent), and enhanced financial management (61.5 percent). The majority of California SFAs noted that the adoption of federal USM successfully resulted in reaching more children with meals.
  - **Takeaway: California SFAs perceived benefits from the federal school meal waivers amid COVID-19, including increased student**

**participation and reduced stigma, but faced challenges with staffing, packaging, waste, and inadequate federal reimbursements.**

## Stigma, Shaming, and a Call for Equity in Child Nutrition Programs

- Source: Spruance, L. A., McConkie, M., Patten, E., & Goates, M. C. (2021). A Thematic Analysis of Unpaid School Meals in the News Media. *Journal of Hunger & Environmental Nutrition* (Vol. 17, Issue 6, pp. 850–859). Informa U.K. Limited. <https://doi.org/10.1080/19320248.2021.1971590>
  - Description: Media coverage frequently addresses the issue of unpaid school meal fees and meal shaming in schools. This study aimed to analyze trends and themes in media coverage related to meal shaming and unpaid meal fees. Three hundred and fifty-five articles from two databases were analyzed for thematic patterns. The findings reveal widespread coverage of meal shaming across various states, with many articles referencing state and local school district policies. The study underscores the significance of meal shaming as a highlighted problem in the media, suggesting that universal no-cost meals programs could alleviate many issues associated with unpaid school meal fees.
  - **Takeaway: Media reports on meal shaming and unpaid school meal fees in schools emphasize the widespread nature of the issue and suggest universal no-cost meals programs as a potential solution.**
- Source: Karnaze, A. (2018). You Are Where You Eat: Discrimination in the National School Lunch Program. *Northwestern University Law Review*, 113(3).
  - Description: The NSLP, serving millions of children daily across the U.S., is federally regulated but implemented with significant local authority, leading to practices in some schools that stigmatize participating students. This study examines two such practices: segregation in cafeterias and meal "shaming," especially affecting minority students, to assess their potential "disparate impact" under Title VI of the Civil Rights Act of 1964.
  - **Takeaway: School practices may lead to stigmatization and "disparate impact" under the Civil Rights Act of 1964.**
- Source: Fleischhacker, S., & Campbell, E. (2020). Ensuring Equitable Access to School Meals. *Journal of the Academy of Nutrition and Dietetics* (Vol. 120, Issue 5, pp. 893–897). Elsevier B.V. <https://doi.org/10.1016/j.jand.2020.03.006>
  - Description: This study discusses the growing problem of unpaid meal debt and lunch shaming in schools across the country and outlines the Academy's policy stance on addressing this issue, as developed by the Child Nutrition Reauthorization working group and approved by the Academy Board of Directors. The Academy advocates for tackling the root cause of lunch shaming — unpaid meal debt — by advocating for the expansion and enhancement of universal school meals policies and programs, including CEP, to promote equitable access to school meals.
  - **Takeaway: Promoting equitable access to nutritious school meals is crucial to address the growing issue of unpaid meal debt and lunch**

**shaming, with the Academy of Nutrition and Dietetics advocating for strengthened universal school meals policies and programs.**

- Source: 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* (Vol. 97, Issue 6, pp. 759–775). Springer Science and Business Media LLC. <https://doi.org/10.1007/s11524-020-00476-0>
  - Description: During public health emergencies, reduced access to school meals can worsen food insecurity, especially for children from urban and low-income households. To address health disparities, understanding meal distribution in large urban districts during emergencies is crucial. Our case study of four such districts during COVID-19 aimed to fill these gaps. Using the Getting to Equity framework, we evaluated meal distribution strategies, finding variations across districts. Strategies included offering healthy options, reducing barriers, building community capacity, and increasing resources. Geospatial analysis revealed potential gaps in meal site reach. These findings can inform efforts to combat food insecurity during and beyond the pandemic through programs like the Summer Food Service Program. Future research should explore the rationale behind meal site placement and changes over time.
  - **Takeaway: Understanding meal distribution strategies in large urban districts during emergencies is crucial for addressing health disparities and combating food insecurity, as revealed by a case study of four districts during COVID-19.**

- Source: Cohen, J. F. W., Stowers, K. C., Odoms-Young, A., & Franckle, R. L. (2023). A Call for Theory to Guide Equity-Focused Federal Child Nutrition Program Policy Responses and Recovery Efforts in Times of Public Health Crisis. *Journal of the Academy of Nutrition and Dietetics* (Vol. 123, Issue 1, pp. 15–28). Elsevier B.V. <https://doi.org/10.1016/j.jand.2022.07.016>
  - Description: Theory plays a pivotal role in guiding long-term strategies, improving federal nutrition assistance programs, fostering the well-being of children and families, and addressing systemic disparities in health. Policymakers should explore strategies such as streamlining application and certification processes across all programs, including the Supplemental Nutrition Assistance Program. This would ensure uninterrupted access to eligible nutrition assistance programs for children while reducing the administrative burden of multiple application procedures. Moreover, frameworks should be implemented to evaluate the outcomes of child nutrition programs, ensuring equitable impacts. Leveraging existing tools like the Racial Equity Scorecard can facilitate this process.
  - **Takeaway: Theory can guide policymakers in improving federal nutrition assistance programs along with streamlining application processes, implementing frameworks for evaluating outcomes, and applying tools like the Racial Equity Scorecard.**

This report was compiled by Maria Islam, a 2024 Bill Emerson National Hunger Fellow at the Food Research & Action Center, and provides a comprehensive overview of the existing literature on school meals, summarizing key findings and insights from a diverse range of academic sources. The document is intended to help researchers and policymakers understand the current state of knowledge on school meals for all, identify gaps or areas for further investigation, and make informed decisions about policy and practice. Additionally, this annotated bibliography serves as a resource for advocacy efforts, providing evidence-based support for initiatives aimed at improving access to nutritious meals for all students. By synthesizing and evaluating recent research, this document contributes to a more robust understanding of the benefits and challenges associated with Healthy School Meals For All.

## About FRAC

The Food Research & Action Center (FRAC) improves the nutrition, health, and well-being of people struggling against poverty-related hunger in the United States through advocacy, partnerships, and by advancing bold and equitable policy solutions. For more information about FRAC, or to sign up for FRAC's e-newsletters, go to <http://www.frac.org>.