Community Preventive Services Task Force

Social Determinants of Health: Healthy School Meals for All

Community Preventive Services Task Force
Finding and Rationale Statement
Ratified July 2022

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CPSTF Finding and Rationale Statement

Context

Food and nutrition security is an established social determinant of health (CDC 2022, Serchen et al. 2022). It exists when people have consistent physical, social, and economic access to affordable foods and beverages that promote health and prevent adverse health outcomes (CDC 2022, Mozaffarian et al. 2021). Families from historically disadvantaged racial and ethnic populations and populations with lower incomes often lack access to affordable nutritious foods (CDC 2020). In 2020, 14.8% of households with children in the United States experienced food insecurity, and rates were even higher for those below 185% of the federal poverty level (33.7%) and Black or African American (27.3%) and Hispanic or Latino (21.8%) households (Coleman-Jensen et al. 2021). Children experiencing food insecurity are at higher risk of poor physical and mental health, obesity, increased hospitalizations, poor academic performance, and behavioral problems (Au et al. 2019, Cook et al. 2006, McIntyre et al. 2013, Shankar et al. 2017).

The National School Lunch Program (NSLP) and the School Breakfast Program (SBP) — two key U.S. Department of Agriculture (USDA) meal programs — operate in public and non-profit private schools, and residential child-care centers (USDA 2021, 2022a). Studies have shown these programs reduce food insecurity (Ralston et al. 2017). Children from households experiencing food insecurity receive significantly more of their daily energy from school meals than children from households that are not experiencing food insecurity (Forrestal et al. 2021). Studies have also shown that school meals provide the best diet quality of major U.S. food sources among children and improve the nutritional quality of students' diets (Fox et al. 2019, Liu et al. 2021). School meals are not linked with increases in obesity and have been associated with decreases in obesity among children from households with lower incomes (Kenney et al. 2020). Studies have also shown a favorable association between SBP and school attendance and academic performance (County Health Rankings & Roadmaps 2019).

NSLP and SBP have the potential to benefit millions of students in the United States, many of them from households with lower incomes (National Center for Education Statistics 2021, 2022). Estimates indicate more than half of students in U.S. public schools are eligible for free or reduced-price lunches (NCES 2021). In schools that offer NSLP and SBP, however, it is estimated that only 79% of students from households experiencing food insecurity participate in NSLP and only 38% participate in SBP (Forrestal et al. 2021).

The traditional payment model under which NSLP and SBP operate requires students to apply and meet certain income-based eligibility requirements to receive free or reduced-price meals (). Students who do not apply or meet these requirements must pay full price for their meals (USDA 2021, 2022a). This system presents economic, administrative, and language barriers that may make it more difficult for students from households with lower incomes to participate. Families with low to moderate monthly incomes undergo income fluctuations that cross the eligibility threshold for reduced-price lunches an average of five times a year (Newman 2006). The certification process for free or reduced-price meals also presents barriers, as errors on applications or in administrative procedures may lead to eligible students being denied benefits (Milfort et al. 2021). In the 2017-18 school year, an estimated 34 percent of students who were denied free or reduced-price meals were actually eligible to receive them (Milfort et al. 2021). Another issue is families with limited English proficiency may be unaware of the availability of free or reduced-price meals and may have difficulties with the application process if there are not translation services or forms available in their primary language (USDA 2016a, 2016b).

The traditional payment model also presents social barriers to participation. Students who are unable to pay for school meals may be denied nutritious meals and face stigmatization due to what is commonly referred to as "lunch shaming" practices. In some schools, students who have unpaid meal debt are identified with a wristband or hand stamp and receive an alternate meal of minimal nutritional value or no meal at all (Fleischhacker et al. 2020.

Intervention Definition

Healthy School Meals for All offers free, nutritious meals (i.e., breakfast, lunch, or both) to all students in a qualifying school, regardless of household income. It augments the traditional model of the U.S. Department of Agriculture's National School Lunch Program (NSLP) and School Breakfast Program (SBP) which uses household income-based requirements to determine eligibility for free and reduced-price meals. The intervention aims to do the following:

- Improve access to NSLP and SBP for students from households with lower incomes by removing economic, administrative, language, and social barriers that may limit their participation
- Increase participation in NSLP and SBP overall to improve diet quality and promote health and well-being for all students

Policy Context

Healthy School Meals for All is implemented through policies at federal, state, and local levels (Table 1). Federal policies are authorized by Congress and administered by the USDA (USDA 2014, 2019, 2022b). The Community Eligibility Provision, the most widely used federal policy, allows schools and school districts to offer Healthy School Meals for All if at least 40% of enrolled students are directly certified for free meals based on their participation in other means-tested programs, such as the Supplemental Assistance Program, Temporary Assistance for Needy Families, or Food Distribution Program on Indian Reservations (Billings et al. 2020, National Archives 2022, USDA 2019).

Some cities and states have policies that authorize Healthy School Meals for All in their jurisdictions. Qualifying criteria vary by location and have changed over time (Food Research & Action Center 2022, New York City Department of Education 2022).

In response to the COVID-19 pandemic, Congress granted the USDA authority to establish nationwide waivers that support Healthy School Meals for All in all schools operating NSLP and SBP. These waivers were implemented in March 2020 and scheduled to expire in September 2022 (USDA 2022b).

Table 1. Healthy School Meals for All Policies

Policy	School Eligibility Requirements*	Start Date	End Date
USDA Provision 1 [https://www.fns.usda.gov/cn/provisions-1-2-and-3]	≥ 80% of enrolled students eligible to receive free or reduced-price meals	1980	Ongoing
USDA Provisions 2 and 3 [https://www.fns.usda.gov/cn/provisions-1-2-and-3]	None, but schools must pay for free meals given to students not covered through federal reimbursements	Provision 2: 1980 Provision 3: 1995	Ongoing

Policy	School Eligibility Requirements*	Start Date	End Date
USDA Community Eligibility Provision (CEP) [https://www.fns.usda.gov/cn/community-eligibility-provision]	≥ 40% of enrolled students directly certified for free school meals based on their participation in other means-tested assistance programs, such as the SNAP, TANF, or FDPIR	Selected states: 2011-2014 Nationwide: 2014	Ongoing
USDA nationwide waivers in response to the COVID-19 pandemic [https://www.fns.usda.gov/fns-disaster-assistance/fns-responds-covid-19/child-nutrition-covid-19-waivers]	Must participate in NSLP and/or SBP	March 2020	September 2022
City or state-wide policies	Varies	Varies	Varies

*To implement Healthy School Meals for All, a school must participate in NSLP and/or SBP.

FDPIR= Food Distribution Program on Indian Reservations
SNAP=Supplemental Nutrition Assistance Program
TANF=Temporary Assistance for Needy Families

CPSTF Finding (July 2022)

The Community Preventive Services Task Force (CPSTF) recommends Healthy School Meals for All based on strong evidence of effectiveness in increasing student participation in the U.S. Department of Agriculture's National School Lunch Program (NSLP) and School Breakfast Program (SBP) and sufficient evidence of effectiveness in reducing school absenteeism. In the broader literature, participation in NSLP and SBP is associated with reduced food insecurity, improved nutritional quality of students' diets, and improved academic outcomes (County Health Rankings & Roadmaps 2019, Fox et al. 2019, Liu et al. 2021, Ralston et al. 2017).

Healthy School Meals for All is expected to advance health equity in the United States by removing barriers to consistent access to free and healthy foods for students from households with lower incomes. Healthy School Meals for All is often implemented in schools in which a large proportion of enrolled students are from households with lower incomes (Billings et al. 2020, National Archives 2022, USDA 2019), and most of the studies included in the systematic review evaluated outcomes for this population.

Rationale

Basis of Finding

The CPSTF recommendation is based on evidence from a systematic review of 14 studies. Studies were identified from a published systematic review (Cohen et al. 2021a, 11 studies from 13 publications, search period through December 2020) and an updated search that used the same search terms (3 studies, search period January to December 2021).

Studies included in the review compared Healthy School Meal for All to the traditional model of the NSLP and SBP that used household income-based requirements to determine eligibility for free and reduced-price meals. The median study duration was 30 months (interquartile interval [IQI]: 21 to 51 months).

To assess intervention effectiveness, a team of specialists in systematic review methods and subject matter experts synthesized outcomes for school meal participation (breakfast, lunch, or both); school attendance (i.e., days present, days absent); academic performance (i.e., math, reading, science test scores); dietary intake and meal patterns (i.e., breakfast skipping, breakfast dietary intake, full-day dietary intake); and food security (i.e., household food security status).

Evidence from the included studies showed Healthy School Meals for All increased participation in the NSLP and SBP and reduced school absenteeism (Table 2). Studies did not show consistent or meaningful improvement in academic performance. There were not enough studies to determine whether Healthy School Meals for All improved dietary quality, meal patterns, or food security.

Table 2. Summary of Findings for Healthy School Meals for All

Outcome	Number of Studies	Summary Effect Estimates	Direction of Effect
Meal participation: Overall	9	**Absolute difference:** Median increase of 4.5 pct pts (IQI: 3.6 to 8.2 pct pts, 7 studies) **Relative difference** Median increase of 8.5% (IQI: 7.5% to 16.8%, 7 studies) 2 studies provided narrative results that were favorable and statistically significant	Favors the intervention
Meal participation: Breakfast	6	**Absolute difference:** Median increase of 4.6 pct pts (IQI: 3.6 to 15.5 pct pts, 5 studies) **Relative difference** Median increase of 11.0% (IQI: 9.0% to 54.2%, 5 studies) 1 study provided narrative results that were favorable and statistically significant	Favors the intervention

Outcome	Number of Studies	Summary Effect Estimates	Direction of Effect
Meal participation: Lunch	7	**Absolute difference:** Median increase of 4.3 pct pts (IQI: 3.6 to 5.4 pct pts, 5 studies) **Relative difference** Median increase of 7.7% (IQI: 6.1% to 8.3%, 5 studies) 2 studies provided narrative results that were favorable and statistically significant	Favors the intervention
School attendance: Overall	7	2 studies favorable and statistically significant, 3 studies favorable, 1 study unfavorable and statistically significant, 1 study no change	Inconsistent results
School attendance: Days present in school	6	2 studies favorable and statistically significant, 2 studies favorable, 1 study unfavorable and statistically significant, 1 study no change	Inconsistent results
School attendance: Days absent from school	3	2 studies favorable and statistically significant, 1 study favorable	Favors the intervention
Academic performance: Overall	7	5 studies no change, 2 studies mixed results	Inconsistent results
Academic Performance: Math test scores	7	5 studies no change, 2 studies mixed results	Inconsistent results
Academic Performance: Reading test scores	7	7 studies no change	No change
Academic Performance: Science test scores	2	1 study favorable, 1 study no change	Inconsistent results
Dietary Intake: Overall	1	1 study mixed results across study outcomes	Not enough studies to determine
Dietary Intake: Breakfast skipping	1	1 study no change	Not enough studies to determine

Outcome	Number of Studies	Summary Effect Estimates	Direction of Effect
Dietary Intake: Breakfast dietary intake	1	1 study favorable and statistically significant	Not enough studies to determine
Dietary Intake: Full-day dietary intake	1	1 study no change	Not enough studies to determine
Food Security: Household food security status	1	1 study no change	Not enough studies to determine

IQI: interquartile interval
pct pts: percentage points

Applicability and Generalizability Issues

Intervention Settings

The CPSTF finding is applicable to elementary, middle, and high schools that implement the NSLP and/or the SBP in urban, suburban, and rural settings in the United States.

All studies were conducted in the United States (14 studies). Five were implemented in multiple U.S. regions and the remainder were distributed across the Western (1 study), Midwestern (2 studies), Northeastern (3 studies), and Southern (3 studies) regions as defined by the U.S. Census Bureau.

Studies were implemented in elementary schools (5 studies), middle schools (1 study), a combination of elementary and middle schools (4 studies), or a combination of elementary, middle, and high schools (4 studies). No studies were conducted exclusively in high schools. One study found similar increases in meal participation and reductions in absenteeism among students in elementary and middle schools. Studies were conducted in urban (3 studies) or a mix of urban, suburban, and rural (11 studies) areas. One study found similar reductions in absenteeism among students in rural and urban areas.

Population Characteristics

The CPSTF finding is applicable to students regardless of gender, race and ethnicity, or household income level.

Seven studies provided data on gender and reported a similar distribution of females and males (median 48.8% female). Two studies found similar changes in school attendance for males and females. The thirteen studies that reported race and ethnicity of participants had a higher percentage of students who self-identified as Hispanic or Latino or as Black or African American compared with U.S. population estimates. Studies included participants who self-identified as Hispanic or Latino (median 28.0%; 10 studies), Black or African American (median 25.2%; 11 studies), White (median 21.4%; 8 studies), Asian (3.3%; 5 studies), or other race/ethnicity (median 10.9%; 4 studies). In one study including 9,583 schools, 28.9% of schools reported Hispanic students made up at least 75% of the population. One study found that although meal participation increased among Hispanic or Latino students, the increase was lower than that of the total sample.

Most of the data came from students from households with lower incomes. Across thirteen studies, a median of 63.3% of students came from households that either had incomes below 185% of the federal poverty level, or were eligible for

free or reduced-price school meals or other federal assistance programs. Two studies stratified intervention effects on meal participation by the proportion of students in a school who qualified for free meals. They found increased participation across schools with the greatest increases reported for schools where fewer than 40% of students qualified for free meals. Eight studies stratified meal participation by whether students qualified for free or reduced-price meals. They found increased participation among all students with the greatest increases reported for students who were not eligible for free or reduced-price meals. Six studies stratified school attendance by whether students qualified for free or reduced-price meals and found similar changes for all students.

Intervention Characteristics

The CPSTF finding is applicable to interventions that offered free breakfast, lunch, or both. All studies reported which meals were offered for free during the study evaluation period. These included breakfast and lunch (8 studies), breakfast only (4 studies), or lunch only (2 studies).

The CPSTF finding is applicable to interventions regardless of the policy through which they were implemented (see Table 1). Evaluated interventions were implemented through the Community Eligibility Provision (at least 40% of students eligible for specific means-tested programs; 8 studies); Provision 2 (no eligibility requirements but schools cover added cost; 1 study); or a city-wide policy (1 study). In one study, interventions were supported by either Provision 1 (at least 80% of students eligible to receive free or reduced-price meals), Provision 2 (no eligibility requirements but schools cover added cost), Provision 3 (no eligibility requirements but schools cover added cost), or the Community Eligibility Provision (at least 40% of students eligible for specific means-tested programs). Three studies did not report this information.

Data Quality Issues

Study designs included randomized control trials (1 study), pre-post with concurrent comparison groups (11 studies), a retrospective cohort (1 study), and a single group pre-post (1 study).

Study risk of bias was assessed using an adapted Newcastle-Ottawa Scale (Cohen et al. 2021a). All included studies had a low risk of bias; studies deemed to have a high or very high risk of bias (9 studies) were excluded from the review. The most common bias identified was for sampling issues (not having a representative intervention or comparison group; 4 studies).

Other Benefits and Harms

CPSTF considered potential additional benefits and harms from exposure to Healthy School Meals for All. CPSTF postulates potential benefits of the intervention could include the following: the elimination of stigma associated with receiving free or reduced-price meals; the elimination of “lunch shaming” school practices for students who are unable to pay for school meals; a reduction in administrative costs associated with distributing and collecting applications for free and reduced-price meals; and a reduction in overall school meal costs due to economies of scale.

CPSTF postulates a potential harm of the intervention could be increased obesity; however, two studies included in the review found no negative impact (Andreyeva et al. 2021, Schwartz et al. 2020). CPSTF also postulates increased plate waste (i.e., the quantity of edible portions of food served that is uneaten) as a potential harm, but none of the included studies evaluated the impact of the intervention on plate waste (Buzby et al. 2002).

Considerations for Implementation

The following considerations for implementation are drawn from studies included in the existing evidence review, the broader literature, and expert opinion.

Strategies to improve school meal consumption and reduce plate waste

A published systematic review of 96 studies (Cohen et al. 2021b) identified the following strategies as effective in improving school meal consumption and reducing plate waste:

- Offering more menu choices
- Adapting recipes to improve the palatability and cultural appropriateness of foods
- Providing pre-sliced fruits
- Rewarding students who try fruits and vegetables
- Enabling sufficient time to eat by extending the lunch period
- Limiting access to competitive foods during the school day

Strategies to improve participation in school breakfast programs

Participation in school breakfast programs tends to be lower than in school lunch programs (USDA 2022c). Implementing alternative breakfast models may boost participation (Bernstein et al. 2004; Larson et al. 2018). One study included in the review found breakfast participation was substantially higher when breakfast was served in the classroom rather than in the school cafeteria (Bernstein et al. 2004). Other examples of alternative models include grab-and-go breakfast, second chance breakfast (e.g., breakfast offered during morning break or recess), and breakfast on the bus (USDA 2016c).

Strategies to address schools' loss of free and reduced-price meals data

When schools implement Healthy School Meals for All, they stop collecting household income data to assess students' eligibility for free and reduced-price meals. Schools have historically used these data to justify eligibility for other needs-based educational initiatives such as Title I funding. Schools may use alternative data sources to assess the income level of enrolled students to qualify for these initiatives. The following guidance is available for schools electing the Community Eligibility Provision to support Healthy School Meals for All:

- Updated Title I Guidance for Schools Electing Community Eligibility [https://www.fns.usda.gov/cn/updated-title-i-guidance-schools-electing-community-eligibility]
- Updated E-rate Guidance for Schools Electing Community Eligibility [https://www.fns.usda.gov/cn/updated-e-rate-guidance-schools-electing-community-eligibility#:~:text=Updated%20Guidance&text=The%20new%20rules%20require%20school,by%20the%20district's%20total%20enrollment.]

Implementation resources

The following site provides information about the benefits of U.S. school meal programs and a resource list:

- CDC Healthy Schools: School Meals [https://www.cdc.gov/healthyschools/npao/schoolmeals.htm]

The following resources provide guidance and tools for implementation of Healthy School Meals for All using the Community Eligibility Provision:

- USDA Community Eligibility Provision Resource Center [https://www.fns.usda.gov/cn/community-eligibility-provision-resource-center]
- USDA Community Eligibility Provision Planning and Implementation Guidance [https://www.fns.usda.gov/cn/fall-2016-cep-planning-and-implementation-guidance]
- Community Eligibility Provision: Alternative Breakfast Models [https://fns-prod.azureedge.us/sites/default/files/cn/cep_increasingbfast.pdf]

Evidence Gaps

CPSTF identified several areas that have limited information. Additional research and evaluation could help answer the following questions and fill remaining gaps in the evidence base.

CPSTF identified the following questions as priorities for research and evaluation:

- What is the impact of Healthy School Meals for All on dietary intake and household food security?
- What are the barriers to participation in Healthy School Meals for All for students from households with lower incomes? Which strategies effectively address these barriers?

Remaining questions for research and evaluation identified in this review include:

- How does the effectiveness of Healthy School Meals for All vary between high schools and elementary and middle schools?
- How did the USDA nationwide waivers issued during the COVID-19 pandemic affect meal participation and academic outcomes? In response to the COVID-19 pandemic, Congress granted the USDA authority to establish nationwide waivers to support Healthy School Meals for All schools operating NSLP and SBP.
- What is the impact of Healthy School Meals for All on plate waste?

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Document last updated August 31, 2022