

RESEARCH ARTICLE

# Prevalence and Types of School-Based Out-of-School Time Programs at Elementary Schools and Implications for Student Nutrition and Physical Activity

SARAH A. SLIWA, PhD<sup>a</sup>  HANNAH G. CALVERT, PhD<sup>b</sup> HEATHER P. WILLIAMS, PhD<sup>c</sup> LINDSEY TURNER, PhD<sup>d</sup> 

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## ABSTRACT

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**BACKGROUND:** Out-of-school time (OST) programs are an important setting for supporting student health and academic achievement. This study describes the prevalence and characteristics of school-based OST programs, which can inform efforts to promote healthy behaviors in this setting.

**METHODS:** A nationally representative sample of public elementary schools ( $N = 640$ ) completed surveys in 2013-2014. Administrators reported on OST programs and policies at their school. Multivariable logistic regression models estimated the prevalence of school-based OST programs, adjusting for school characteristics. Among schools with OST programs ( $N = 475$ ), chi-square tests identified school characteristics associated with having an OST policy about physical activity or nutrition.

**RESULTS:** Three fourths of elementary schools (75.6%) had a full- or partial-year school-based OST program, with 30.8% having both. Full- and partial-year programs were significantly less prevalent in rural and township areas versus urban settings. Only 27.5% of schools with OST programs reported having physical activity and/or nutrition policies.

**CONCLUSIONS:** Most US elementary schools have an on-site OST program, but disparities in access exist, and most lack policies or awareness of existing policies regarding physical activity and nutrition. To maximize OST programs' potential benefits, strategies are needed to increase access to programs and physical activity and/or nutrition policy adoption.

**Keywords:** child health; nutrition; policy; public health; after-school; physical activity.

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To support children's health and accelerate progress in childhood obesity prevention, the Institute of Medicine recommends that settings where children spend substantial time provide opportunities for being physical active and eating healthy foods and beverages, as well as reinforce these behaviors through their messaging.<sup>1</sup> Experts have emphasized that schools are a key setting for obesity prevention efforts,<sup>1-4</sup> and systematic reviews have highlighted

the effectiveness of comprehensive school-based approaches that address physical activity, nutrition, and parent and/or community engagement to reduce obesity.<sup>5,6</sup> Out-of-school time (OST) programs, which can run before-school, after-school, and during the summer, are another setting where children spend a large portion of their waking hours, which highlights their importance in obesity prevention efforts.<sup>7,8</sup> In the United States, over 10 million children

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<sup>a</sup>Health Scientist, (ssliwa@cdc.gov), Division of Population Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, 4770 Buford Highway, GA 30341.

<sup>b</sup>Research Assistant Professor, (hannahcalvert898@boisestate.edu), College of Education, Boise State University, 1910 University Drive, #1740, Boise, ID 83725-1740.

<sup>c</sup>Assistant Professor, (hpwilliams@boisestate.edu), College of Education, Boise State University, 1910 University Drive, #1740, Boise, ID 83725-1740.

<sup>d</sup>Research Professor, (lindseyturner1@boisestate.edu), College of Education, Boise State University, 1910 University Drive, #1740, Boise, ID 83725-1740.

Address correspondence to: Sarah A. Sliwa, Health Scientist, (ssliwa@cdc.gov), Division of Population Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, 4770 Buford Highway, GA 30341.

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attend programs after the school day ends.<sup>9</sup> School-sited programs may offer additional convenience for students and parents alike; staying on school grounds may help to reduce transportation barriers to participation.<sup>9-12</sup> In 2009, over half of public elementary schools reported having an after-school program on site, collectively reaching over 4 million children.<sup>13</sup> A larger proportion of families from communities of color and concentrated poverty enroll their children in afterschool programs compared to white families or higher income households.<sup>9,14,15</sup> This is important given persistent disparities in obesity across sociodemographic and socioeconomic groups.<sup>16-18</sup>

Several federal nutrition programs, including the Child and Adult Care Food Program,<sup>19</sup> National School Lunch Program At-Risk Snack and Meal,<sup>20</sup> and Summer Food Service Program,<sup>21</sup> provide healthy foods and beverages to low-income school-aged children in OST programs, and during the summer when school is not in session.<sup>22</sup> These programs can improve diet quality and food security among participants,<sup>22</sup> which may further support student learning, and physical and mental health.<sup>23-26</sup>

Decades of research have consistently illustrated the connection between physical activity, nutrition, and academic achievement in school-aged children.<sup>27</sup> Integrating nutrition and physical activity into OST programming has the potential to increase children's ability to focus and learn. One third of elementary schools start serving lunch before 11:00 AM, and more than 60% of schools serve between 11:00 AM and 12:00 PM.<sup>28</sup> Therefore, most children arrive at afterschool programs hours after they have last eaten. Hunger and thirst can impair students' ability to focus in the short term.<sup>27,29-32</sup> Meta-analyses have shown that physical activity supports children's cognitive functioning,<sup>27</sup> and emerging evidence from school settings suggests that brief intervals of classroom-based physical activity can result in observed improvements in attention and behavior.<sup>33,34</sup> Such activity bursts may also be beneficial in OST settings. Additionally, the Institute of Medicine makes the point that nonsport afterschool programs should include physical activity,<sup>35</sup> and the US Centers for Disease Control and Prevention (CDC) includes before- and after-school activity as part of a national framework for increasing physical education and physical activity.<sup>36</sup>

Policies addressing physical activity and/or nutrition can help provide children with consistent messaging about and opportunities to engage in healthy eating and physical activity both in and out of school. This includes federal policies, such as those regulating the Child and Adult Care Food Program<sup>19</sup>; National School Lunch Program At-Risk Snack and Meal<sup>20</sup>; Summer Food Service Program<sup>21</sup>; state policies, which can include licensing standards<sup>37,38</sup>; and voluntary

standards, including the National Afterschool Association's Healthy Eating and Physical Activity (HEPA) standards and ChildObesity180's Healthy Kids Out of School principles.<sup>39,40</sup> In a nationally representative survey about OST programming, a majority of parents expressed support for healthy eating and physical activity in these settings.<sup>41</sup>

OST programs vary widely in their duration; staffing and leadership; available resources, including equipment, funding, space, professional development offerings; and purpose, whether childcare, tutoring, youth development, athletics, or enrichment. These factors influence the kinds of policies a program has capacity to implement.<sup>7,40</sup> OST programs have the potential to play an important role in supporting wellness and academic achievement for those children who are able to access programming.

To inform program design and to better support integration of healthy eating and physical activity during OST programs on school grounds, researchers and practitioners need to know more about what occurs in school settings outside of school hours and in what types of schools. To date, nationally representative surveys about OST programs have not provided information specific to school-based programs.<sup>9,12,41</sup> This manuscript uses data from surveys provided by a nationally representative sample of elementary schools in the 2013-2014 school year to examine the prevalence and types of school-based OST programs across the country, identifies school characteristics associated with having OST programs, and assesses respondents' awareness of physical activity and/or nutrition-related policies in OST settings.

## METHODS

### Participants

Surveys were gathered from a nationally representative sample of 640 public elementary schools in the United States in the 2013-2014 school year.

### Procedure

The sampling frame was developed from publicly available datasets maintained by the National Center for Education Statistics<sup>42</sup> using a stratified simple random sampling technique, with schools selected within districts. Beginning in January 2014, surveys were mailed to the principals at 1045 elementary schools. Respondents were offered \$100 for completing the 20-page survey, which addressed school practices related to student wellness, nutrition, and physical activity. Reminder letters, emails, and phone calls were used to encourage responses until the end of July 2014, when the survey period closed. Surveys were returned by 640 schools (response rate = 61.2%). Analytic

weights allow for inference to schools nationwide and adjust for potential nonresponse bias.

### Instruments

A literature review about OST policies and practices informed the development of the 10 survey questions that were used in the analyses; however, that search did not identify existing validated measures about these topics. The project director drafted items and a multidisciplinary team of 8 content specialists with expertise in education, health, policy, behavioral sciences, and quantitative methods provided feedback. The research team completed 2 iterative rounds of revision and then pilot tested the draft survey for comprehension and face validity with 2 potential respondents (K-12 educators). No additional revisions were deemed necessary.

A total of 10 items from the physical activity section of the survey were used in these analyses (Figure 1),<sup>43</sup> including 5 questions about full-year OST programs, and the same 5 questions about shorter duration OST programs. The questions assessed when programs were offered, by whom, how many students they reached, and whether programs had any physical activity and/or nutrition policies. The latter was followed by an open-ended question that asked programs to describe existing policies (Figure 1).

An introduction provided context about the 10 OST items:

*At some schools, students can participate in organized out-of-school time programming. These before- or after-school programs may include childcare, sports, arts, or academic activities and can be sponsored by a variety of groups such as the school district or outside organizations (eg, Parks and Recreation departments, YMCA). Some programs operate through the entire school year (eg, daily after-school childcare), whereas others have a limited duration (eg, a 10-week art course). The following questions ask separately about full school-year and shorter programs.*

School demographic data were obtained from public use files from the National Center for Education Statistics. These variables were used as sample descriptors (Table 1) and as covariates in all multivariate regression analyses to examine demographic differences in school-based OST programs (Table 3). US census region was classified as Northeast, Midwest, South, and West. Locale was classified as city, suburban, town, or rural. The total number of students was used as an indicator of school size, coded as smaller ( $\leq 450$  students), medium (451-621 students) or larger ( $\geq 622$  students). Each school's student racial/ethnic composition was coded into 1 of 4 exhaustive and exclusive categories: predominantly white non-Latino ( $\geq 66\%$ ); majority black non-Latino ( $\geq 50\%$ ); majority Latino ( $\geq 50\%$ ); and other (diverse, or majority Asian

or Native American). The percentage of students eligible for free/reduced-priced lunch (FRPL) was used as proxy for school-level poverty and was categorized into 3 groups ( $<40\%$ ;  $\geq 40\%$  to  $<75\%$ ;  $\geq 75\%$ ). The 40% cutoff for FRPL eligibility was chosen to align with the school-level threshold for the USDA's Community Eligibility Provision,<sup>44</sup> and the National Center for Educational Statistics uses  $\geq 75\%$  to identify high poverty schools.<sup>45</sup>

### Data Analysis

We calculated frequencies to describe characteristics of elementary schools in the sample (Table 1). Next, we calculated frequencies to describe OST program characteristics (Table 2), including the timing of programming, the reach of programming (percentage of students served), and the administering organization. We use the term "full-year program" to refer to programs that meet daily for the duration of the school year and "partial-year program" to refer to programs that run less frequently. These terms were not mutually exclusive as schools could offer both full-year and partial-year programming. Logistic regression was used to estimate the adjusted prevalence of full-year and partial-year OST programs (Table 3). The adjusted prevalence represents the percentage of schools that have an OST program, accounting for all other school characteristics.

To determine whether programs had physical activity and/or nutrition policies in place, authors coded the open-ended responses, which mentioned formal written policies at the national, state, or local level as well as established practices. Blank values and responses such as "none" or "no" were interpreted as having no physical activity or nutrition policy or practice in place. Authors coded and grouped the remaining responses into the following categories to allow for quantification of the type of policy or practice that was present in the OST program: mentions physical activity only; mentions nutrition only; mentions physical activity and nutrition; other policy, including local wellness policies; other curriculum/other program; and unable to specify. These categories comprised having a physical activity and/or nutrition policy in place. Reviewing the written descriptions revealed multiple interpretations of the question. For example, 5.1% of schools referenced a general policy and 3.8% described a specific program that offers a framework for health-promoting practices, such as CATCH or SPARK. Given this diversity of responses, the phrase "policies and practices" is hereafter used when referring to respondents' answers to this question.

Chi-square models were used to identify which school characteristics were associated with OST programs having physical activity and/or nutrition policies

Figure 1. Ten Questions Assessed the Availability and Types of Out-of-School Time Programs in a Nationally Representative Sample of Elementary Schools

At some schools, students can participate in organized out-of-school time programming. These before- or after-school programs may include childcare, sports, arts, or academic activities and can be sponsored by a variety of groups such as the school district or outside organizations (e.g., Parks and Recreation departments, YMCA). Some programs operate through the entire school year (e.g., daily after-school childcare), whereas other have a limited duration (e.g., a 10-week art course). The following questions ask separately about full school-year and shorter programs.

29. Do any *full school-year* out-of-school time programs operate at your school?

Yes       No      → **Please go to #34**

30. During what times of day?

Before school       After school

31. Who runs these programs?

*PLEASE CHECK ALL THAT APPLY*

- The school district or the school
- YMCA
- Parks and Recreation department
- Other (please specify): \_\_\_\_\_

32. On average, approximately how many students from your school participate in these full school-year programs on any given day?

\_\_\_\_\_ # students

33. To your knowledge, do these programs have any written policies regarding nutrition and/or keeping children physically active? If yes, please describe:

\_\_\_\_\_

34. Do any *shorter* school-year out-of-school time programs operate at your school?

Yes       No      → **Please go to #39**

35. During what times of day?

Before school       After school

36. Who runs these programs?

*PLEASE CHECK ALL THAT APPLY*

- The school district or the school
- YMCA
- Parks and Recreation department
- Other (please specify): \_\_\_\_\_

37. On average, approximately how many students from your school participate in these full school-year programs on any given day?

\_\_\_\_\_ # students

38. To your knowledge, do these programs have any written policies regarding nutrition and/or keeping children physically active? If yes, please describe:

\_\_\_\_\_

**Table 1. Elementary School Characteristics (N = 640)**

School Characteristics	Number (Unweighted)	Percentage (Weighted)
Locale		
Urban	144	30.8
Suburban	233	36.6
Township	82	10.3
Rural	181	22.3
Percent students eligible for free/reduced-priced school meals		
<40% eligible	213	28.5
>40% to <75% eligible	268	40.0
>75% eligible (high poverty)	154	30.5
School size		
Smaller (≤450 students)	292	41.7
Medium (451-621 students)	212	34.3
Larger (≥622 students)	134	23.8
Region		
Northeast	152	16.9
Midwest	175	24.0
South	209	36.0
West	104	23.2
Race/ethnicity		
>66% white non-Latino students	323	39.9
>50% Black non-Latino students	51	10.8
>50% Latino students	94	20.5
Other racial/ethnic majority or diverse student composition	170	28.6

Regions based on census classifications: Northeast (PA, NY, NJ, CT, RI, MA, VT, NH, ME); Midwest (ND, SD, MN, WI, MI, NE, KS, IA, MO, IL, IN, OH); South (TX, OK, AR, LA, MS, AL, TN, KY, WV, DC, MD, DE, VA, NC, SC, GA, FL); and West (WA, OR, ID, MT, WY, CA, NV, UT, CO, AZ, NM). Percentages sum to 100 within category, but due to small amounts of missing data may not sum to exactly 100%.

(Table 4). Analyses were conducted in Stata/SE statistical software (version 13.1; StataCorp LP, College Station, TX, 2013) using the *svy* command to account for the complex survey design and sampling.

## RESULTS

US elementary schools were located in a variety of urban, suburban, township, and rural locations; ranged in enrollment size from very small to very large; and included students with a wide range of sociodemographic characteristics (Table 1). Almost 70% of the schools were located in urban (30.8%) or suburban (36.6%) locales. Thirty percent of schools served a high poverty population; that is, ≥75% of students eligible for free/reduced-priced meals. In terms of racial and ethnic composition, 40% of schools had a predominantly white population and the remaining 60% of schools were comprised of either a “majority-minority” or diverse student body, where no single racial/ethnic comprises a majority.

Three fourths of elementary schools (75.6%) offered either a full- or partial-year OST program. The majority (62.6%) offered at least a full-year OST program, 43.8% offered at least a partial-year program, and 30.8% offered both (Table 2). Almost half (46.8%) of schools offered both before- and after-school programs

for the entire school-year. Most (71.1%) partial-year programs were after-school only and about one fifth (20.3%) offered both before and after school programs. Few schools offered programs solely before-school.

On average, full-year programs at school served 16.4% (SD = 13.9%) of the enrolled students at each school. The interquartile range shows that in the upper 25% of schools, or at the 75th percentile, ≥20.9% of students were enrolled in full-year OST programs. Partial-year programs served a smaller fraction of the student body, with an average of 11.8% (SD = 8.9%) of students at each school participating.

Most commonly, the school district or school administered OST programs, which accounted for about half of both full-year (50.6%) and partial-year (47.7%) programs, followed by programs with a national presence, such as the YMCA, Parks and Recreation, Boys & Girls Clubs of America, and “Other National Programs,” such as Champions and Girls on the Run. Local organizations, both generic and specific, also administered full-year (23.8%) and partial-year (30.1%) OST programs as did, to a lesser extent, local individuals—including parents and physical education teachers.

Accounting for other school characteristics, both full- and partial-year OST programs were significantly less available in rural areas and townships than in urban areas (Table 3). More than three fourths of urban elementary schools (75.7%) had a program on-site, compared to roughly half of schools in townships (47.2%,  $p < .001$ ) and rural areas (52.7%,  $p < .001$ ). Partial-year programs were available at over half of urban schools (54.3%), but only 35.8% of rural schools ( $p < .01$ ) and 37.7% of schools in townships ( $p < .05$ ). School poverty was significantly associated with the prevalence of partial-year but not full-year OST programs. School size, region of the United States, and school racial/ethnic demographics were not significantly associated with the presence of full- or partial-year OST programs on school grounds.

Overall, 27.5% (N = 118) of schools with an OST program reported having physical activity and/or nutrition policies or practices (Table 4). This prevalence varied significantly across school FRPL eligibility, region of the country, and whether or not the school or school district ran the OST program(s). Physical activity and/or nutrition policies and practices were reported more than twice as frequently in programs run by schools or school districts than those administered by other organizations.

## DISCUSSION

OST programs are seen as a strategic setting for preventing childhood obesity,<sup>7,8</sup> addressing food insecurity,<sup>22,46</sup> and advancing social skills,<sup>47</sup> academic achievement,<sup>48,49</sup> and health equity.<sup>15</sup> Our findings

**Table 2. Characteristics of Out-of-School Time (OST) Programs at Elementary Schools (N = 640)**

	Full-Year Program		Partial-Year Program	
	Number (Unweighted)	Percentage (Weighted)	Number (Unweighted)	Percentage (Weighted)
Program type and timing				
Has any OST program	385	62.6	279	43.8
Before school only	5	0.7	15	5.7
After school only	185	51.0	194	71.1
Both before- and after-school	187	46.8	60	20.3
Unspecified	8	1.5	10	2.9
Total program reach				
Percent of school's students participating in OST program (weighted)	Mean = 16.4% (SD = 13.9%) Median = 13.0%		Mean = 11.8% (SD = 8.9%) Median = 8.9%	
Organization administering OST program				
School district or school	190	50.6	129	47.7
YMCA	101	22.8	38	10.8
Parks and Recreation	60	13.7	68	21.2
Other: Boys and Girls Club of America	16	4.2	3	0.7
Other: Other National Program	19	4.5	25	8.3
Other: Specific Local Programs	50	14.6	39	15.6
Other: Generic local programs	37	9.2	38	14.5
Other: Local individuals	3	0.9	18	6.6
Other: Unable to classify	4	0.8	3	0.9

Schools could have both a full-year and partial-year program so these categories are not mutually exclusive.

*Other National Program* includes both for-profit programs, like Champions, and national nonprofit run programs like Jewish Community Centers (JCC), Girls on the Run; *Specific Local Programs* include Girl Scouts and programs run by a specified university, state, city, or county agency, organization like the Parent Teacher Organization (PTO) or Parent Teacher Association (PTA); *Generic Local Programs* include youth sports, such as "youth basketball/soccer"; *Local Individuals* refers to programs run by specified individuals, including "volunteers," "teachers," or "PE teacher." Respondents could name multiple programs; therefore, the percentages may exceed 100%.

indicate that most elementary schools have OST programs on site and almost half of schools reported offering both before- and after-school programming.

Nationally representative surveys have found that more parents would enroll their children in after-school programs if offerings were available, accessible, and affordable; this is true of parents nationwide, in rural America, and especially in communities of concentrated poverty.<sup>9,12,14</sup> Whereas three quarters of urban elementary schools had full-year OST programs, only about half of rural schools did. This is disconcerting, as the convenience of school-based programs may be especially appealing in rural settings.<sup>11</sup> Child poverty and food insecurity are higher in rural areas and have negative implications for children's mental and physical health.<sup>24,26,50-52</sup> Lower access to school-based OST programs, and the opportunities for physical activity and nutritious meals and snacks they can provide, may have implications for health disparities. Although full-year OST programs were similarly available across school-level poverty levels, partial-year programs were significantly less common at high poverty schools compared to lower-poverty schools.

In addition to identifying disparities in program availability, this study offers insights into the types of programs available on school grounds. Schools and school districts were the most common administrators of both full- and partial-year programs. This presents a

timely opportunity for further integration of messaging and practices regarding healthy foods, beverages, and physical activity throughout the time children spend on school grounds. For example, there may be opportunities to link before-school programming with the School Breakfast program and innovative delivery methods, like prepackaged grab 'n' go meals, to increase participation rates. The presence of OST programs at many elementary schools highlights the role these settings can play in helping children achieve the recommended 60 minutes of daily physical activity and meet dietary requirements.

However, most schools (>70%) with OST programs reported they did *not* have a physical activity and/or nutrition policy. The prevalence of physical activity and/or nutrition policies differed by whether or not a school or school district operated the program. Because most survey respondents were school administrators, they may have been more familiar with policies in programs run by school districts than by other organizations. Results may reflect both a low prevalence of policies as well as low staff awareness of existing policies. Previous studies looking at OST policies have shown lags between policy adoption by a national organization and awareness and adoption by local affiliates and organizations.<sup>53-56</sup> For example, the National Afterschool Association adopted the HEPA standards in 2011 and promoted them to members. Roughly 2 years

**Table 3. Prevalence of OST Programs at Elementary Schools, by School Characteristics (N = 640)**

	Schools With Full-Year Programs Adjusted Prevalence (95% Confidence Interval)	Schools With Partial-Year Programs Adjusted Prevalence (95% Confidence Interval)
Locale		
Urban (Ref)	75.7 (68.0, 83.4)	54.3 (45.2, 63.4)
Suburban	66.5 (59.1, 73.8)	47.3 (40.3, 54.4)
Township	47.2*** (34.8, 59.7)	37.7* (27.2, 48.3)
Rural	52.7*** (43.7, 61.7)	35.8** (27.6, 44.1)
Percent students eligible for free/reduced-priced school meals		
<40% eligible (Ref)	66.3 (58.1, 74.5)	55.2 (46.6, 63.7)
>40% to <75% eligible	66.5 (60.5, 72.5)	45.1 (37.8, 52.4)
>75% eligible (high poverty)	58.5 (47.4, 69.7)	37.6* (29.1, 46.2)
School size		
Smaller (≤450 students; Ref)	60.9 (54.3, 67.5)	48.2 (41.3, 55.1)
Medium (451-621 students)	68.0 (61.0, 74.9)	45.4 (38.1, 52.6)
Larger (≥622 students)	64.8 (54.8, 74.8)	41.9 (32.9, 50.9)
Region		
Northeast (Ref)	66.4 (55.9, 76.8)	46.1 (37.1, 55.2)
Midwest	62.3 (54.3, 70.2)	42.5 (34.2, 50.8)
South	62.5 (55.3, 69.7)	44.6 (37.3, 51.9)
West	67.4 (56.6, 78.1)	51.0 (40.7, 61.3)
Race/Ethnicity of students		
>66% white non-Latino (Ref)	60.3 (51.9, 68.8)	49.3 (41.1, 57.5)
>50% Black non-Latino	54.5 (39.6, 69.5)	35.7 (21.9, 49.6)
>50% Latino	71.5 (61.0, 82.0)	36.7 (25.3, 48.0)
Other racial/ethnic majority or diverse student composition	68.3 (60.2, 76.3)	51.3 (42.7, 59.9)

\*p < .05,

\*\*p < .01,

\*\*\*p < .001.

OST, out-of-school time; Ref, referent category in multiple logistic regression analyses to generate adjusted prevalence.

For each category, adjusted prevalence represents the percentage of schools within each category that have an OST program, accounting for all other school characteristics.

later, in a survey administered through the National Afterschool Association’s membership listserv, about 60% of respondents reported awareness of HEPA standards and less than half (43%) reported using the standards.<sup>56</sup> Several national organizations, including the Boys & Girls Club, National Parks and Recreation Association, and the YMCA, pledged to adopt the HEPA standards or select standards.<sup>57,58</sup> Over 40% of schools with full-year OST programs and almost a third (32.7%) of partial-year OST programs have a relationship with one of those organizations. Schools can pursue partnership opportunities with these OST providers to increase local adoption of HEPA standards.

### Limitations

This study analyzed nationally representative data to describe the types of OST programs on elementary

**Table 4. Prevalence of Policies and Practices Regarding Physical Activity or Nutrition (PA/NUTR), by School and Program Characteristics, Among Elementary Schools With Partial-Year and/or Full-Year OST Program(s) (N = 475)**

	Has a PA/NUTR Policy or Practice	
	% of Schools	p-Value for Chi-Square
All schools	27.5	
Locale		
Urban	28.3	
Suburban	28.7	
Township	29.2	
Rural	22.6	p = .768
Percent students eligible for free/reduced-priced meals		
<40% eligible	24.1	
>40% to <75% eligible	20.6	
>75% eligible (high poverty)	39.0	p = .003
School size (total # students)		
Smaller (≤450)	24.2	
Medium (451-621)	31.9	
Larger (≥622)	26.4	p = .416
Region		
Northeast	19.4	
Midwest	13.3	
South	29.5	
West	44.1	p < .001
Race/ethnicity of students		
>66% white non-Latino	23.3	
>50% Black non-Latino	17.6	
>50% Latino	37.9	
Other majority or diverse	28.7	p = .116
Organization providing OST programming		
School district or school	36.7	
Not a school district	15.7	p < .001

OST, out-of-school time.

Analyses are based on chi-square tests, comparing the proportion of schools with any healthy eating or physical activity-related policy or program to those without such policies, by school characteristics. The p-values were derived from design-based corrected Pearson test (with weights applied).

school grounds and to identify school characteristics associated with having a program on site and having physical activity and/or nutrition policies or practices in place. Several limitations merit discussion.

These data are self-reported. Although the questions were evidence-informed and reviewed by experts and practitioners, they were not validated. School-level respondents may have been more familiar with the types of OST programs available on school grounds than with OST program policies—especially in programs the school or school district does not administer. This potential for lower awareness may have biased results regarding prevalence of physical activity and/or nutrition policies in OST programs run by organizations other than the school or school district. The write-in responses to the question regarding physical activity and/or nutrition policies revealed potential confusion around written policies versus programmatic practices, like having a curriculum. Rather than interpreting

respondents' intentions, we included both policies and practices when coding responses. We are therefore unable to estimate the prevalence of written policies that address physical activity or nutrition in OST settings.

Last, the questions estimated the availability of before- and after-school programming on school grounds. The questions do not address summer programs, which are a key area for future research and programmatic interventions given documented upticks in rates of weight gain and food insufficiency, as well as declines in physical fitness, during summer break.<sup>59-61</sup>

## Conclusions

Across the country, the majority of elementary schools have an on-site OST program; however, most programs have yet to adopt physical activity and/or nutrition policies. Given high levels of staff turnover in OST programs,<sup>55,62,63</sup> policies may help to institutionalize health-promoting practices.<sup>55</sup> School districts or schools administered most school-based OST programs. This presents school administrators and staff with an opportunity to disseminate consistent messages about physical activity and nutrition before, during, and after-school. Additionally, many full-year programs were operated by organizations with national commitments and resources to adopt the National Afterschool Association's HEPA standards. Given the diversity of OST programs available on school grounds, practitioners may need to tailor their approach to local context, capacity, and readiness. For OST programs to maximize their ability to promote healthy lifestyle behaviors and support academic achievement, issues of equitable access and unmet demand need to be addressed.

## IMPLICATIONS FOR SCHOOL HEALTH

The majority of elementary schools in the United States offer out-of-school programming on-site. This presents a timely opportunity to increase the coordination across school and OST settings so that students experience consistent messaging and opportunities related to physical activity and nutrition while they are on school grounds. Schools that are interested in doing more to support physical activity and nutrition in OST settings can start by assessing and becoming familiar with existing policies, practices, and partnership opportunities.

### Use Existing Tools to Assess Current Practices and Plan for Incremental Improvements

The following list provides suggested steps different stakeholders can take.

- OST program administrators and staff: The Healthier Out-of-School Time assessment tool aligns with the National Afterschool Association's HEPA Standards and is especially relevant to National Afterschool Association accredited programs or those with a national commitment to adopt the standards. OST program administrators can communicate with school administrators and staff to learn about relevant policies that are implemented during the school day.
- Schools: The School Health Index<sup>64</sup> includes questions about before- and after-school settings. School teams can use results to develop plans for better integrating physical activity and nutrition programming and messaging on school grounds—whether before, during, or after school. Schools may benefit from engaging afterschool program staff in completing assessments for nutrition and physical activity modules and developing action plans.
- School districts: As part of the ongoing local wellness policy review process, school districts can look for opportunities to increase the comprehensiveness and strength of their wellness policy regarding physical activity and the types of foods and beverages served in OST settings. The Alliance for a Healthier Generation's Model Wellness Policy and the Rudd Center's WellSAT, a tool for assessing wellness policy comprehensiveness and strength, include language that administrators can use in their policies to address physical activity and healthy foods and beverages during the extended day.<sup>65</sup> Districts can also review local wellness committee membership and communications efforts to ensure that OST program staff and volunteers are included and informed of wellness policy provisions.
- State agencies that administer child nutrition programs: Federal programs that provide children with meals and snacks during OST have the potential to reduce food insecurity and, in doing so, support learning. However, these programs are underutilized. To increase participation in the Child and Adult Care Food Program's at-risk meals component, state agencies can reach out to eligible school districts who are not utilizing these programs. School food service departments are strong candidates to sponsor this program, given their experience following food safety and nutrition guidelines.<sup>66</sup>
- State agencies that oversee OST programs for school-aged children: State agencies can communicate how providing children with physical activity and nutrition in OST programs supports academic objectives. Additionally, agencies can incorporate physical activity and nutrition standards into grant requirements or into quality improvement frameworks. More than half of states include some

language about healthy eating and physical activity in licensing and other OST regulations.<sup>38</sup>

### Communicate the Changes Being Made to Support Healthier OST Environments

A majority of parents have expressed that their children should have physical activity opportunities, and healthy foods and beverages in OST programs,<sup>41,67</sup> yet fewer believe that programs regularly offer physical activity and healthful foods.<sup>76</sup> As OST programs work to increase their adoption of HEPA standards, communicating about this progress may appeal to parents.

### Seek Out Existing Resources and Partnership Opportunities

Several organizations, including Harvard University, Tufts University and National Recreation and Parks Association, make no-cost materials publicly available to support implementation of physical activity and nutrition policies and practices,<sup>68,69,70</sup> whereas other organizations make materials available to staff via online portals, local chapter websites, and other outlets. Organizations that offer shorter-duration, primarily volunteer run programs, including Boy Scouts and Girl Scouts, also have access to some no-cost resources and trainings that support the adoption of healthy behaviors.<sup>70</sup> Additionally, the Alliance for a Healthier Generation offers resources, trainings, and technical assistance to schools and OST programs on adopting healthy eating and physical activity policies.<sup>71</sup>

For schools with a large proportion of low-income students, federal nutrition programs like the Child and Adult Care Food Program, National School Lunch Program At-Risk Snack and Meals, and the Summer Food Service Program offer financial support for providing children and youth with nutritious snacks and/or meals. Further, nonprofits, including the Food Research & Action Center and No Kid Hungry, offer a center for best practices, informational calls and webinars, and other resources to help sites put these federal programs in place.<sup>72,73</sup>

Ultimately, policy implementation happens locally. Community relationships can make a difference. For example, partnerships with local grocery chains can support healthy snack procurement,<sup>74</sup> and engaging the school food service department can help afterschool staff serve drinking water during snacktime.<sup>75</sup>

### Human Subjects Approval Statement

The Institutional Review Board at the University of Illinois approved this study (#2006-0848). A waiver of written documentation of informed consent was approved, as consent was implied by the return of the mail-back survey.

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