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## Uptake of National AfterSchool Association physical activity standards among US after-school sites

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### ABSTRACT

**Objective.** In 2011, the National AfterSchool Association (NAA) adopted standards to guide delivery of physical activity (PA). We assessed after school sites' uptake of the five PA standards.

**Method.** We conducted a descriptive study in fall 2013. NAA emailed 14,000 members requesting that afterschool site directors complete an online questionnaire regarding site characteristics, awareness and use of the standards, and implementation. We calculated implementation scores for each standard by summing points for their component best practices, and examined associations among site characteristics, implementation scores, and awareness and use of the standards.

**Results.** Among 595 respondents, 60% were aware of the PA standards and 43% used them for program planning. Awareness and use were significantly higher among NAA members and among sites that were accredited, licensed, or operated by a parent organization. PA content and quality scores were higher among those aware of and using the standards ( $p < 0.01$ ) and correlated with scores for staff training and for program, social, and environmental support ( $p < 0.0001$ ).

**Conclusion.** We observed high recognition and use of the NAA PA standards in a national convenience sample of afterschool programs. Their uptake and use are promising lever for increasing the quality of PA in the afterschool setting.

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### Introduction

The Physical Activity Guidelines for Americans Midcourse Report (2012) found limited evidence that community and out-of-school time program (OST) settings increased youth physical activity (PA). A small number of peer reviewed journal articles show modest program- and individual-level improvements in PA (Barbeau et al., 2007; Gambone et al., 2009; Gutin et al., 2008; Melnyk et al., 2007; Robinson et al., 2003; Weintraub et al., 2008; Yin et al., 2005). Outside of the research realm, a growing number of organizational policy, service and program initiatives are underway in OST. One initiative designed to influence program improvements involves the recent national voluntary quality standards for healthy eating and physical activity (HEPA) in OST (Wiecha et al., 2012). In 2011 the National

AfterSchool Association (NAA) adopted 5 PA and 6 HE standards developed by field leaders participating in the Healthy OST Coalition (HOST) (National AfterSchool Association Healthy Eating and Physical Activity Standards). The 5 PA standards include 26 best practices and were developed to foster uniform messaging about content, quality, and infrastructure to support a robust and effective PA effort within an OST program. NAA participates in HOST and is the largest OST professional membership organization in the US. Since 2011, NAA and HOST have disseminated the HEPA standards through member websites, peer reviewed publications, conference presentations, trade journals, newsletters, and at the NAA annual convention.

The current study sought to assess the impact of the HEPA standards dissemination efforts. Our specific objective was estimating awareness, use, and implementation of the NAA PA standards among afterschool sites accessible through NAA and located throughout the US.

### Methods

#### Design

Our descriptive, cross sectional study used a convenience sampling approach.

*Abbreviations:* HEPA, healthy eating and physical activity; NAA, National AfterSchool Association; OST, out-of-school time: before, after school and vacation programs, including summer camps; PA, physical activity.

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### Participants

Our sampling goal was to survey NAA members that were afterschool site directors. We recruited respondents through the NAA membership email list. The NAA distribution list is not sorted by member characteristics, so the number of afterschool site directors in it was unknown. We focused on sites, that is, individual addresses, rather than “programs”, a term that can indicate multiple sites operated by a single entity.

### Procedures

NAA embedded the survey invitation in its regular newsletter which was emailed to 14,920 addresses in October 2013. The invitation stated in part “Please participate in an online survey about physical activity in your afterschool program site” and, in order to minimize self-selection, it did not mention that the purpose of the survey was to assess familiarity with the standards. One reminder was emailed and the survey closed after six weeks. We asked recipients to forward the link to appropriate respondents. We invited one response per site for an opportunity to win one of four prizes valued at \$100. The IRBs at RTI International and Wellesley College approved the protocol.

### Measures

The survey contained 55 questions. We assessed site characteristics and respondents' awareness and use of the five NAA PA standards at their sites. Respondents reporting that they had prior familiarity with the standards segued to a contingent question asking if they were using one or more of them for program planning. All respondents, regardless of prior familiarity, saw questions regarding implementation of best practices for each standard. Standard 1 addresses content and quality of PA and has 9 best practices. Standards 2 through 5 address program capacity for developing and sustaining high quality PA. Standard 2, staff training has 3 best practices; Standard 3, social support and Standard 4, program support each have 4; and Standard 5, environmental support for PA, has 6. We asked respondents to use a 4 point Likert-type scale to describe their sites' implementation of the best practices. Respondents were asked to indicate how “true” each best practice statement was for their afterschool site: Never, Sometimes, Usually, or Always.

### Data analysis

For standard-specific “implementation scores,” we assigned points to the Likert-type responses, and summed these within each standard. The positive response terminus was four points. Maximum scores for each standard were thus four times the number of best practices; e.g., Standard 1's maximum was 36. We conducted all statistical analyses with SAS version 9.3 (SAS Institute Inc., Cary, NC). Because the underlying scoring was ordinal, we used non-parametric tests to examine the relationships between site characteristics and summary implementation scores. We conducted Mann–Whitney tests using the *proc npar1way* procedure with the Wilcoxon option. For a small number of comparisons that did not meet the assumption of equal variance, we also conducted the median test using the *proc npar1way* procedure with the median option. For clarity of presentation, and because the results of the median tests were essentially equivalent to those of the Mann–Whitney tests, we present only the Mann–Whitney results in Table 2. We used chi square tests to identify characteristics associated with awareness of and use of the standards. We used nonparametric Spearman tests to examine the correlation between scores for content and quality (Standard 1) and scores for the other PA standards, testing the hypothesis that higher implementation would be associated with higher site capacity.

### Results

We received 689 responses and eliminated 94, almost all of which appeared to be “false starts” by individuals who abandoned their survey and forwarded the link to another person. We analyzed 595 responses from 44 states. Respondents were primarily the program director/coordinator/manager (40%) or site director/coordinator/manager (52.3%) (Table 1). Although we recruited through the NAA distribution list, only about half (49%) of respondents indicated NAA membership at their site, although we did not ask them to specify if they or someone else at the site was a member. This reflects how

**Table 1**

Characteristics of respondents and their afterschool sites (N = 595), 2013.

	N	%
Respondent job title		
Program director, coordinator or manager	239	40.2
Site director, coordinator or manager	311	52.3
Physical activity specialist or coordinator	9	1.5
Other title	36	6.1
National AfterSchool Association (NAA) membership	294	49.4
Respondent was familiar with NAA PA Standards prior to survey	355	59.7
Site uses one or more NAA PA standards to guide program delivery <sup>a</sup>	257	43.2
Facility type		
Community-based organization	86	14.5
School	401	67.4
Other	84	14.1
Site is operated/managed by a parent organization	173 <sup>b</sup>	29.1
Grades served by afterschool sites		
Elementary or primary (K-5)	547	91.9
Middle school or junior high (6–8)	241	40.5
High school (9–12)	89	15.0
21st Century Community Learning Center	159	26.7
Licensed OST provider	191	32.1
Accredited by the Council on Accreditation and/or NAA	89	15.0

Abbreviations: NAA = National AfterSchool Association; PA = physical activity.

<sup>a</sup> “Uses standards for program guidance” question was contingent on respondent answering “yes” to prior familiarity.

<sup>b</sup> Parent organization categories were: not specified (62 sites); YMCA (51); Boys and Girls Clubs (29); school district (15); Parks and Recreation Department (12); 4-H (3) and military (1).

recipients received the link; while 311 (54%) received it from NAA, the remainder received it from a colleague (177, 30%), another organization (66, 11%), or from some other source. This concurs with our request that recipients forward the link to an appropriate respondent.

### Site characteristics

The typical respondent's site was located in a school (67%), was not affiliated with a parent organization such as a YMCA (71%), served elementary aged children (92%), and was unlicensed (68%) and unaccredited (85%) (Table 1). About a quarter (27%) of sites were funded by the 21st Century Community Learning Centers program. This program provides federal funding for enrichment and other services in the OST hours to students attending low income, low performing schools (U.S. Department of Education, 21st Century Community Learning Centers).

### Implementation scores

Implementation scores varied with site characteristics (Table 2). Mean and median scores for each standard were about 75% of the maximum possible. Many differences in means and scores were modest (under 10%) but statistically significant. For example, PA content and quality scores had a mean of 28.7 and median of 29 out of 36, with 21st Century Learning Center sites having significantly lower PA quality scores than other sites ( $p < 0.001$ ). Being part of a parent organization was associated with higher scores on four of the standards. Accreditation was associated with higher scores on two of the standards, NAA membership with two, and location in a school with one. Licensure did not improve scores on any of the standards.

### Awareness and use of NAA PA standards

Sixty percent of respondents reported they had seen the NAA PA standards prior to viewing them in the questionnaire (Table 1). Almost three quarters (72%) of respondents familiar with the standards reported using one or more of them to guide PA delivery (43% of the

**Table 2**  
Mean and median implementation scores for NAA physical activity standards stratified by afterschool site characteristics among 595 sites in a national sample (2013)<sup>a</sup>.

Site characteristics		Mean (median) scores for standards				
		1. Content and quality	2. Staff training	3. Social support	4. Program support	5. Environmental support
Site operated/managed by a parent organization	Yes	29.30 (29.00)	9.43 (10.00) <sup>***</sup>	12.55 (13.00) <sup>**</sup>	12.33 (12.00) <sup>*</sup>	20.40 (21.00) <sup>*</sup>
	No	28.00 (28.00)	8.58 (9.00)	11.91 (12.00)	11.75 (12.00)	19.86 (20.00)
21st Century Community Learning Center	Yes	27.30 (27.00) <sup>***</sup>	8.60 (9.00)	11.90 (12.00)	12.17 (12.00)	19.77 (20.00)
	No	29.20 (29.50)	8.91 (9.00)	12.17 (12.00)	11.83 (12.00)	20.12 (21.00)
Licensed afterschool site	Yes	29.20 (29.00)	9.04 (9.00)	12.31 (12.00)	12.17 (12.00)	20.12 (21.00)
	No	28.40 (28.50)	8.73 (9.00)	12.01 (12.00)	11.79 (12.00)	19.94 (20.00)
Accredited site	Yes	29.00 (29.00)	9.52 (9.00) <sup>***</sup>	12.53 (13.00)	12.46 (12.00)	20.70 (21.00) <sup>*</sup>
	No	28.70 (29.00)	8.74 (9.00)	12.06 (12.00)	11.86 (12.00)	19.92 (20.00)
NAA membership	Yes	28.90 (29.00)	9.05 (9.00) <sup>**</sup>	12.27 (12.00)	12.25 (12.00) <sup>**</sup>	20.25 (21.00)
	No	28.40 (28.50)	8.62 (9.00)	11.95 (12.00)	11.60 (12.00)	19.77 (20.00)
Location type = school	Yes	28.80 (29.00)	8.81 (9.00)	12.10 (12.00)	11.96 (12.00)	20.27 (21.00) <sup>*</sup>
	No	28.60 (29.00)	8.93 (9.00)	12.19 (12.00)	11.99 (12.00)	19.50 (20.00)
Prior awareness of standards	Yes	29.20 (30.00) <sup>**</sup>	9.09 (9.00) <sup>***</sup>	12.29 (12.00) <sup>*</sup>	12.28 (12.00) <sup>***</sup>	20.21 (21.00) <sup>*</sup>
	No	28.00 (28.00)	8.45 (8.00)	11.82 (12.00)	11.40 (12.00)	19.73 (20.00)
Uses NAA standards	Yes	29.60 (30.00) <sup>***</sup>	9.29 (9.00) <sup>***</sup>	12.50 (13.00) <sup>***</sup>	12.46 (12.00) <sup>***</sup>	20.49 (21.00) <sup>***</sup>
	No	28.00 (28.00)	8.47 (8.00)	11.79 (12.00)	11.52 (12.00)	19.66 (20.00)
Total		28.70 (29.00)	8.80 (9.00)	12.10 (12.00)	11.92 (12.00)	20.02 (20.00)
Maximum possible score		36	12	16	16	24

Abbreviations: NAA = National AfterSchool Association.

<sup>a</sup> Statistical significance is based on results from Mann–Whitney tests for differences between groups.

\* p < 0.05.

\*\* p < 0.01.

\*\*\* p < 0.001.

entire sample; Table 1). Familiarity and use were each associated with significantly higher scores for all five standards (Table 2).

Awareness and use of NAA PA standards were significantly related to several site and respondent characteristics (Table 3). Specifically, sites operated/managed by a parent organization, licensed to provide OST services, or accredited by the NAA and/or the Council on Accreditation were significantly more likely to report awareness of and use of NAA PA standards. Furthermore, if the survey respondent indicated NAA membership at their site, he or she was significantly more likely to be aware of the NAA PA standards and the site was more likely to use them for guidance. Site accreditation was associated with the greatest boosts for both outcomes, with almost 15% higher awareness and almost 20% higher use.

Scores on PA Standard 1, content and quality, were moderately correlated with scores on the remaining standards, which describe capacity and infrastructure components that support quality programming (all p < 0.0001) (Table 4). These findings support our hypothesis that PA quality increases with higher scores for staff training and for program, social and environmental support.

*Best practices with low implementation*

Within each standard, a quarter of respondents reported ‘sometimes true’ or ‘never true’ for one or more best practices (Table 5). For

example, almost 40% reported low implementation of a critical component of PA quality: including aerobic, muscle, and bone strengthening activities in daily PA. Staff training, staff wellness, and parent engagement showed substantial room for improvement. About a quarter of respondents reported budgetary constraints at their sites. Similarly, about a quarter reported that their sites lacked program monitoring and staff accountability practices. Almost half of respondents reported low scores on providing positive messages about PA.

**Discussion**

A majority of respondents to an online questionnaire were familiar with the NAA PA standards, providing preliminary evidence, albeit in a non-random sample, that dissemination efforts have had some effect. Awareness and intentional use of the standards were associated with modest increments in scores for PA content and quality and program capacity standards. Awareness and use were most prevalent among sites that were credentialed (either licensed or accredited), or affiliated with a parent organization. We also note that PA content and quality scores were strongly correlated with scores on the program capacity standards. This is consistent with literature indicating that organizational implementation of new interventions is enhanced in the presence of supportive general and intervention-specific policies and practices (Flaspohler et al., 2008; Wandersman et al., 2008).

**Table 3**  
Awareness and use of NAA physical activity standards among 595 sites in a national sample (2013): associations with site characteristics.

Characteristic (N)	Aware of NAA PA standards <sup>a</sup>		Uses NAA PA standards <sup>b</sup>	
	N, % yes	Chi <sup>2</sup>	N, % yes	Chi <sup>2</sup>
All sites (595)	355, 59.7%	NA	257, 43.2%	NA
Site operated or managed by a parent organization (173)	120, 69.4%	9.0 <sup>**</sup>	91, 52.6%	8.2 <sup>**</sup>
Licensed OST site (191)	134, 70.2%	11.6 <sup>***</sup>	105, 55.0%	15.3 <sup>***</sup>
Accredited site (89)	66, 74.2%	8.0 <sup>**</sup>	56, 62.9%	15.3 <sup>***</sup>
NAA membership (294)	194, 66.2%	7.8 <sup>**</sup>	144, 49.2%	6.7 <sup>**</sup>

Abbreviations: NAA: National AfterSchool Association; PA: physical activity; OST: out-of-school time.

<sup>a</sup> How familiar were you with NAA's physical activity quality standards before seeing them here today?

<sup>b</sup> Now think about the NAA physical activity quality standards. Does this site currently utilize them to guide delivery of physical activities?

\*\* p < 0.01.

\*\*\* p < 0.001.

**Table 4**

Spearman rank correlation between scores for NAA physical activity Standard 1 (content and quality) and scores for NAA physical activity Standards 2 through 5 among 595 sites in a national sample (2013).

Standards	Spearman correlation coefficient
1. Content and quality	Referent
2. Staff training	0.44***
3. Social support	0.51***
4. Program support	0.47***
5. Environmental support	0.55***

Abbreviation: NAA: National AfterSchool Association.

\*\*\*  $p < 0.0001$ .

Some characteristics indicative of overall program quality did not have positive associations with PA content and quality. Being a 21st Century Learning Center site was associated with lower PA quality, perhaps because this funding specifically supports out-of-school time academic enrichment in under resourced schools and does not focus on PA (U.S. Department of Education, 21st Century Community Learning Centers). Although licensure was associated with awareness and use of the standards, it was not associated with higher implementation scores, perhaps because licensing regulations vary from jurisdiction to jurisdiction and we are not aware of any that currently integrate language from the NAA standards.

Among respondents, several best practices had a high prevalence of low scores for implementation. Low-scoring best practices represent potential priorities for technical assistance and training within this sample. For example, about 40% of respondents reported their sites never or sometimes offered activities that included aerobic, muscle strengthening and bone strengthening components. This suggests a potentially broad need for training and technical assistance to help sites improve physical activity quality. In addition, capacity building and development efforts could increase sites' ability to plan, monitor, and promote quality PA. Alternatively, low-scores may indicate best practices that were unrealistic or not applicable for a given site.

This study had several limitations. First, we note that our data did not assess actual implementation quality or impact on children's health. In addition, our results are not generalizable beyond our sample. We recruited sample through the NAA for several reasons. NAA has a strong investment in understanding how its PA standards are performing in the field; moreover, it maintains a large national database and has regular access to members through electronic media. Further, NAA is a trustworthy and well-known entity and we therefore assumed its invitation to participate in the survey would be well-received. A major limitation of the NAA database is that we could not accurately calculate our response rates because we could not create a denominator limited to afterschool programs or afterschool site directors/managers. Moreover, the NAA database does not lend itself to stratification by site characteristics we studied, so we could not compare the characteristics of sites in this survey to sites in the database. Unfortunately, a national sampling frame for OST sites does not exist.

Validation of survey items was not possible with our funding and time available. Self-selection and social desirability biases may have skewed responses, and psychometric properties were not assessed. Although the survey invitation was specifically worded to avoid being more attractive to respondents aware of the NAA PA standards, we cannot rule out the possibility of selection bias that would cause us to over-estimate the prevalence of awareness and utilization.

## Conclusion

The NAA PA standards show promise as a useful lever for changing PA practices in after school, before school, and vacation programs. Conducting regular, periodic surveys to monitor trends in uptake and implementation of the NAA HEPA standards will be informative to stakeholders. To do this, we recommend five actions: first, develop a

**Table 5**

Best practices with low implementation according to respondent report<sup>a</sup> among 595 sites in a national sample (2013).

Standards and best practices	Low implementation <sup>a</sup>
1. Content and quality: the program's physical activity offerings support the USDHHS 2008 guidelines recommending that all children and youth obtain at least 60 min of physical activity per day that includes a mixture of moderate and vigorous intensity activity as well as bone and muscle strengthening activities	
Program offers PA that involves all program attendees regardless of ability/disability.	9%
Screen time and digital device time are limited to less than 1 h per day.	12%
The program dedicates at least 20% of program time to PA (30 min/half day and 60 min for full day program).	12%
PA takes place outdoors whenever possible.	13%
There are a variety of PA options.	16%
Youth are moderately to vigorously active for at least 50% of the offered physical activity time.	19%
PA is integrated with enrichment, academic, or recreation content.	25%
Program provides short PA breaks between and/or within learning activities.	36%
Daily PA time includes aerobic, muscle and bone strengthening activities.	39%
2. Staff training: staff participate in learning about physical activity using effective training models and using content that is evidence-based.	
Relevant staff are first aid/CPR certified.	7%
Relevant staff are trained in adapting PA opportunities to include all children regardless of ability/disability status.	38%
Relevant staff receive at least 8 contact hours/year of professional development on PA delivery.	61%
3. Social support: the program creates a social environment, including positive relationships, that encourages children to enjoy and participate in physical activity. Research shows that children's physical activity choices are influenced not only by preference and familiarity, but also by social factors including peers, role models, group dynamics, and having multiple options.	
Staff do not withhold or use PA as a punishment or reward.	13%
Staff lead and participate in active play.	14%
Youth participate in activity selection, organization, and leadership.	22%
Parents/guardians are engaged with the program's emphasis on healthy PA.	62%
4. Program support: infrastructure supports physical activity through management and budgeting practices.	
Program participates in ongoing self-evaluation and program improvement strategies.	24%
Program provides adequate budget to support quality PA opportunities.	26%
Program managers support PA improvements through coaching, mentoring, and monitoring progress.	29%
The program promotes and encourages a physically active lifestyle among staff.	31%
5. Environmental support: the program's physical environment supports the physical activity standards.	
Equipment and facilities for PA meet all required safety standards.	4%
Equipment for games, sports, and activities is age and developmentally appropriate.	4%
Program has access to adequate outdoor facilities for PA.	9%
Equipment facilitates both cardiorespiratory and musculoskeletal fitness.	20%
Program has access to adequate indoor facilities for PA.	20%
Program environment provides positive messages about PA through posters, pictures and books.	41%

Abbreviations: PA = physical activity.

<sup>a</sup> Indicates percent of responses that were "never" or "sometimes." In the questionnaire, respondents were asked to indicate how "true" each best practice statement was for their afterschool site: Never, Sometimes, Usually, or Always.

more robust national sampling frame of OST sites for research purposes; second, improve the questionnaire to address concerns about validity and response biases; third, develop a similar questionnaire to assess uptake and implementation of the NAA healthy eating standards; fourth, conduct studies to enhance our understanding of factors that affect adoption and implementation of the standards, and fifth, conduct outcomes research to assess whether uptake of the standards increases the quantity and quality of PA among program participants.

#### Conflict of interest statement

The authors declare that there are no conflicts of interest.

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