Physical Activity in California Out-Of-School Time Sites Certified by the Distinguished After School Health Program (DASH): Findings and Implications for Future Policy Efforts

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1. THE ISSUE

Childhood physical activity is an important health-related behavior that helps children stay physically fit, manage weight, reduce anxiety and reduce risk of early metabolic disease (US Department of Health and Human Services, 2012). Current US guidelines call for children to get at least 60 minutes of physical activity daily including a mix of moderate-to-vigorous, bone strengthening and muscle strengthening activities (www.health.gov/paguidelines). Nonetheless, US children are far from meeting these goals. Recently, the National Physical Activity Plan Alliance gave a grade of D- to overall youth physical activity in the US, noting that only 24% of 6 to 17 year-olds participate in 60 minutes of physical activity every day (National Physical Activity Plan Alliance, 2018). Out-of-school time (OST) programs offer a promising setting for increasing US children's physical activity, with over 10 million children attending afterschools in the US each year (Afterschool Alliance, 2014) and about 1.6 million in California alone (Afterschool Alliance, 2016). In the United States, OST programs disproportionately serve low-income and minority ethnicity children (Afterschool Alliance, 2014). California's Distinguished After School Health Program (DASH), which operated in 2016 and 2017, included standards for physical activity in school-based afterschool programs. This policy evaluation examined quality and technical assistance issues related to delivering physical activity in afterschool programs certified by DASH, and examined physical activity among children attending a sample of DASH-certified programs. Our findings help inform the implementation of policies aimed at improving physical activity among children attending afterschool programs.

2. INTRODUCTION

California out-of-school-time (OST) programs located at elementary and middle schools that serve high proportions of low income children can receive subsidy funding through the California Department of Education (CDE) After School Education and Safety (ASES) program and the 21st Century Community Learning Centers Program (21CCLC). In 2014, California's legislature authorized the voluntary Distinguished After School Health (DASH) Program, whose goal was to promote healthy eating and physical activity (PA) in OST (California Legislature, 2014). DASH created an opportunity for ASES and 21CCLC grantees to receive a certificate affirming that they met 10 program standards in health education, healthy eating, nutrition education, PA and screen time. Eligible applicants' programs had to submit evidential documents which were vetted by a team of reviewers. DASH operated in 2016 and 2017 and ended in January 2018. Over its 2 review cycles, it received 355 applications and approved 293. Although the program ended, it still offers lessons on policy implementation and quality improvement. This research summary describes implementation of the DASH standards for children's moderate to vigorous PA (MVPA) in a sample of OST sites. The main dictum of the standard states:

"The program ensures that each program attendee participates, on a daily basis, in an average of 30 to 60 minutes of moderate to vigorous physical activity..." (California Department of Education, 2017, p. 5)

We examined PA implementation in DASH-certified programs to estimate the actual amount of MVPA that children participated in and to assess how program staff interpreted and operationalized the standard. Information about methods appears in the Appendix.

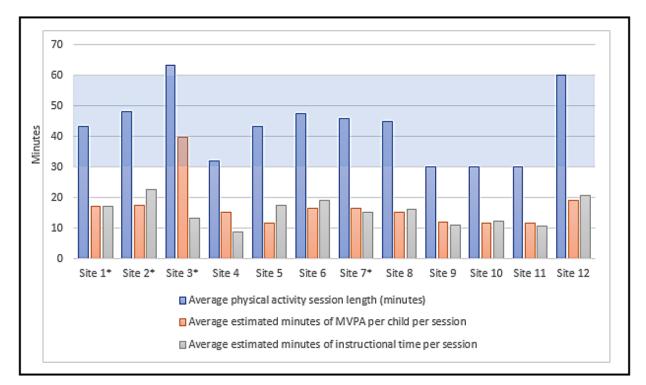
3. KEY FINDINGS

Our key findings are detailed below and shown in Figure 1 and Table 1. We present our child-level results as % of observations recorded, and use that proportion to estimate % of time. For example, if 50% of observations in a 30-minute session were at MVPA, we estimated that children obtained about 15 minutes of MVPA in that session.

1. Although all of our observations took place at DASH certified sites, we saw little evidence that children met the DASH goal of 30 minutes of MVPA per day during those observations. Thus, children are unlikely to achieve the recommended amount of daily PA in one session.

Across all 12 sites and all 28 observations sessions, 39% of observations were coded as a 4 (walking) or 5 (vigorous). These two codes constitute MVPA. As shown in Figure 1, there was a great deal of variation across sites, with the % observations coded as MVPA ranging from 27% to 63% per site. Some sites did better than others. Among the 12 sites, 4 were significantly different from the average. Two of these (sites 3 and 4) had significantly higher proportions of MVPA observations, and two (sites 7 and 11) had significantly lower proportions.

Figure 1. Physical activity in a sample of California out-of-school time sites: Average minutes of instruction time, physical activity, and total session time.



*Data from sites 1, 2, 3, and 7 were averaged across 3 visits; data from all other sites were averaged across 2 visits.

The shaded area between 30-60 minutes represents DASH's target amount of MVPA per child per day.

2. All the PA sessions we observed lasted from 30 to 70 minutes. The most common session length was 30-35 minutes (13 of 28), but 36% of lesson time was devoted to instruction and management and not to activity.

The DASH standard calls for children participating in at least 30 minutes of MVPA per day. If this is interpreted as a session length standard, then the sites met the standard. Looking in more detail, however, sessions included substantial time during which children were not active by design. In addition to coding each observation interval for the child's physical activity level, observers also coded the lesson context, distinguishing time spent in classroom management (transitions, management and breaks) and instruction from time spent in activity (fitness, skill practice, game play and free play). We found that about 36% of observations (range across sites: 13%–52%) occurred during management and instruction time, about 22 minutes of every hour observed. Activity management and instruction provide children with needed guidance and discipline, but detract from time available for PA.

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Lesson Length (Minutes)	Site Number (Visit Number)	# Total Observations	% of observations in MVPA	Estimated Minutes in MVPA
35	5 (1)	105	32.29	11.30
40	1 (1)	120	37.50	15.00
40	1 (3)	120	36.46	14.58
40	7 (2)	120	20.83	8.33
45	2 (3)	135	34.38	15.47
49	2 (1)	147	39.58	19.40
50	1 (2)	150	44.79	22.40
50	2 (2)	150	35.42	17.71
60	3 (1)	180	64.58	38.75
60	3 (2)	180	63.54	38.13
60	7 (1)	180	23.96	14.38
60	5 (2)	180	37.50	22.50
60	8 (2)	180	29.17	17.50
60	9 (2)	180	35.42	21.25
60	11 (1)	180	29.17	17.50
60	11 (2)	180	34.38	20.63
70	3 (3)	210	59.38	41.56

Table 1.Percentage of observations and minutes in MVPA for lessons 35
minutes or longer [in order of ascending lesson length]

Shaded rows represent site visits that met or exceeded the DASH recommended amount of PA (an average of 30 minutes or more of MVPA per child in a given session).

For simplicity, visits with lesson length under 35 total minutes were excluded.

3. With few exceptions (3 visits at one site) children did not obtain 30 minutes of MVPA in the sessions we observed. The longer the session, the closer children came to achieving 30 minutes of MVPA. Although longer sessions translated to more minutes in MVPA, on average about 40% of session time was at MVPA, or 24 minutes of MVPA per 60 minute session. Children obtained less MVPA during instruction and management time and more during active time. Boys were more active than girls.

In general, with an average of 39% of observations at MVPA, longer PA sessions translated to children obtaining more minutes of MVPA, thus getting closer to the DASH minimum (as shown in Table 1). Nonetheless, looking at actual time spent in MVPA more closely, we saw that children met DASH's standard of \geq 30 min MVPA only at site 3, where we observed 3 sessions, each of them at least 60 minutes long.

We also found that observations made during session time coded as activity time were more likely to be coded as MVPA than observations made during management and instruction. During activity time, the proportion of MVPA observations was 59%, compared to just 3% of observations during knowledge and management time, and 39% of observations overall.

We also found that boys were on average more active than girls. Observers were instructed to select students at random to the extent possible, and also to try to alternate between male and female students. Our sample was perfectly split (50/50) between male and female students. Among males, 44% of observed time was coded as MVPA, compared to 35% of female students' time. This translates to a difference of 5 minutes per hour of class activity.

4. These observations combined with interviews with staff suggest that even among DASH certified sites, the amount of PA varies as did understanding of DASH expectations. Understanding the context for this variability and clarifying day-to-day expectations for programs is an important quality improvement focus as OST policy on physical activity evolves.

Data from our applicant interviews helps to provide context and a more nuanced understanding of the results of our physical activity analysis. The interview sample was imperfectly matched to the SOFIT sites so we refrain from tying interview comments to specific observation sessions.

Participants offered multiple interpretations of the DASH MVPA standard, particularly whether the 30-60 minute range for MVPA referred to what should be offered, or what children should actually achieve. Most interview respondents seemed to define it as the amount of physical activity *offered* to children. For instance, one interviewee said, "Yes, we stick to the PA guideline of offering 30 to 60 minutes per day for the kids," while another said that his site holds themselves to a higher standard and tries to offer 2 hours daily. However, one interviewee acknowledged that "offering PA doesn't always mean [the children] are participating in MVPA" and that this is something the site is continuing to work on with staff. Two interviewees described the percentage of children at their sites that met the DASH target every day as "65% to 85%" and "most children."

When asked about PA implementation, two themes emerged: (1) most sites have structured activities with a coach or instructor; and (2) most sites offer a variety of activities to keep the children engaged. Most interviewees said they try to offer a range of activities that will appeal to the children they serve such as structured games (e.g., basketball, soccer), unstructured play time (e.g., tag), dance, circuits, mixed martial arts, and physical activity breaks during academic assistance time. As one commented, "We offer a lot of different kinds of activities, and we rotate between them so that the kids don't get bored."

Interview comments also help to explain the variation in lesson length and accumulated MVPA seen in the SOFIT observations, even between sessions at the same site. Comments suggested that exercise intensity, duration and instruction level varied according to the type of PA on any given day. For example, one interview participant described offering coached circuit training once per week, varying session length from 30 minutes to an hour. Sometimes activities (e.g., playing soccer or tag outside) also depended on the weather. Some interviewees also shared that in aiming to provide adequate MVPA for students, it is important to take context and different children's needs into account. One interviewee

commented, "Some kids are new to fitness, so we keep [activity levels] to moderate before we enhance it to be more vigorous." Another interviewee noted that MVPA has to be child specific: "MVPA for one child may not be MVPA for another child. Our coaches come into play here...[activities] are adjusted according to the student."

4. CONCLUSIONS AND IMPLICATIONS

4.1 Conclusions

Physical activity is a health-related behavior that may promote lifelong fitness, reduces chronic disease risk, and helps prevent and manage obesity and overweight. In this study, we looked at evidence that programs certified by California's DASH program understood and implemented the DASH standards for children's PA consistently and with fidelity.

In our limited sample, DASH-certified OST sites showed considerable variability in interpretation and implementation and most children in the sites we visited did not meet the DASH PA standard. Our main finding was that PA session length, was nominally compliant with the DASH standard, but this was a misinterpretation of the policy's intent. The session lengths were largely insufficient to ensure that children obtained at least 30 minutes of MVPA. Children got more PA in longer sessions, because a significant part of each session was spent in classroom management and instruction. We also found that boys were more active than girls. Our findings echo earlier studies of physical education, which have also shown that children typically attain MVPA for less than half of each class, and that boys are more active than girls (e.g., Lonsdale et al., 2013; McKenzie t al., 2004; Nader, 2003).

Interview participants identified sound reasons why PA implementation varied. Some staff interpreted the DASH standard as a guideline for session length rather than for children's activity time per se, and others noted that variation in children's motivation and ability, session content, weather and other factors were influential.

Our SOFIT data collection was limited to a small, non-random sample of sites and we did not have a comparison group of OST programs that did not apply to, or were rejected by, DASH. The SOFIT method is primarily used for assessing classroom level activity, so we have not analyzed our data by individual children. It is possible that some of our interview findings were not representative of the SOFIT sites. Some interview comments were from programs where we did not observe PA, and some PA observations were at programs where we did not conduct interviews. We also note that we observed one PA session per visit, and it is possible that at other times during the same day, children participated in additional PA at their OST program.

4.2 Policy Implications

DASH was the first state-legislated voluntary recognition program in OST focused on healthy eating and physical activity. During our evaluation, the program was allowed to

sunset for a range of reasons, including concerns that relatively few programs applied to it and that quality was difficult to validate. Among 4,225 ASES and 21st CCLC OST sites, 355 (8.4%) submitted or were included in applications, about a third of the expected number according to program administrators and stakeholders (Wiecha, Rineer, and Giombi, 2018) Lack of support for continuing DASH was also due to its isolation from other related quality improvement legislation and its lack of funding for capacity building, two policy flaws we warned against in an earlier policy analysis (Wiecha, 2016).

Although DASH ended, efforts to improve PA in OST are ongoing in California and other states. Findings from this study point to components of physical activity policy that could help ensure that children receive adequate MVPA at OST programs:

- Physical activity standards should include field-tested, unambiguous language that clearly articulates whether time requirements refer to activity time offered or activity time achieved.
- Policies should facilitate access to training and technical assistance on how to maximize activity time, reduce management and instruction time, and ensure girls and boys are equally active.
- Further, policies should encourage physical activity periods that are long enough to accommodate instruction while allowing children to accrue adequate MVPA.
- Policies should include a mechanism for ongoing quality assurance.
- Finally, policy guidelines should allow for modest levels of day to day variability at the classroom and child level, without allowing that variability to weaken activity goals.

Policies that aim to improve the quality and quantity of PA in OST will have greater impact on children's MVPA when they incorporate these characteristics.

SUGGESTED CITATION

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STUDY OVERVIEW

This was a single time point descriptive study without a comparison group. Data were primarily collected in CDE Region 11 because of the concentration of OST programs and DASH certified sites there and to limit observer travel. Additional interviews were conducted in Regions 3 and 9, where there were other clusters of DASH sites. SOFIT data were collected on hard copy forms that were submitted to RTI analysts. One analyst entered the data into Excel and another performed quality checks. Interviews were conducted with program director-level staff and an RTI scientist experienced with qualitative data analysis identified emergent themes from the transcripts.

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APPENDIX A: BRIEF METHODOLOGY

Design. We conducted a descriptive study of OST sites that received DASH certification in 2017. We used the System for Observing Fitness Instruction Time (SOFIT; McKenzie, Sallis, & Nader, 1992) and key informant interviews. The RTI IRB did not require informed consent. Participants received an incentive.

Setting. We collected data in DASH-certified OST sites in CDE Regions 3, 8, 9, and 11 (Sacramento; communities north of Los Angeles; communities south of Los Angeles; and Los Angeles) between December 2017 and March 2018.

SOFIT. RTI recruited 7 data collectors in Region 11 and provided them with 5 hours of inperson training and standardization. SOFIT studies took place in Regions 8 (1 site), 9 (3 sites) and 11 (8 sites). Observers attended a complete physical activity session at each OST site visit. At the beginning of the session, observers randomly selected four anonymous children plus an alternate. Using a standardized SOFIT data collection form (McKenzie 2012; Appendix B), observers scored children's PA levels using a five-point scale (1 = lying down; 2 = sitting; 3 = standing; 4 = walking; 5 = vigorous). Observers took 12 observations per child (3 observations per minute for 4 minutes) before rotating to the next child. They scored each child sequentially and in rotation. Scoring involved observing PA for 10 seconds followed by recording for 10 seconds. An RTI analyst double entered SOFIT data into Excel spreadsheets and a second analyst conducted quality checks. We used Excel and STATA for analysis. We calculated the proportion of observations at the MVPA level (scored=4 or 5) and calculated associations between activity level and class context (active time or classroom management time), session length, student gender, and site.

Interviews. We conducted interviews with 12 managers and directors of 11 afterschool programs that received DASH certification in 2017. Eight interviewees were in Region 11; 3 were in Region 3; and 1 was in Region 9. We designed the interview guide to gather information on attitudes and experiences regarding the DASH program. We analyzed the responses to identify themes.

Approach. Our objectives were to recruit 12 DASH-certified afterschool sites operated by the 7 regional programs where we had conducted interviews, and to conduct at least 2 observation visits per site. We succeeded in recruiting 8 sites that were operated by 4 of the interviewed programs; these accounted for 20 observation visits. Due to recruitment challenges, we also recruited 4 sites operated by 2 programs we did not interview, and these accounted for 8 of the visits. In total we conducted 28 observation visits, distributed as 3 visits at 4 sites and 2 visits at 8 sites.

At each visit, observers collected data at one PA session, which ranged from 30 to 70 minutes in length. At 3 observations per minute, each visit yielded 90 to 210 observations and we obtained a total of 3,705 observations (Table A-1).

Program	Afterschool Site	Visit #	Observation Duration (minutes)	# of Observations
A*	1	1	40	120
		2	50	150
		3	40	120
	2	1	49	147
		2	50	150
		3	45	135
B*	3	1	60	180
		2	60	180
		3	70	210
C*	4	1	32	96
		2	32	96
	5	1	35	105
		2	60	180
	6	1	30	90
		2	30	90
D*	7	1	60	180
		2	40	120
		3	30	90
	8	1	32	96
		2	60	180
E	9	1	30	90
		2	60	180
	10	1	30	90
		2	30	90
	11	1	60	180
		2	60	180
F	12	1	30	90
		2	30	90
Total	Total	Average # of Visits	Mean (Range)	Mean (Range)
6	12	2.33	44.11 (30-70)	132.32 (90-210)

 Table A-1.
 Characteristics of Afterschool Physical Activity Observations

* Denotes programs for which we have corresponding DASH Applicant Interview data

APPENDIX B: SOFIT RECORDING FORM

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			SOF			
Date		School	Grade	e /Period Teacher	Teacher Gen:	M F SERIES
Time s	start		Observer	_ Rel obs No girls	boys Location	n: <u>O I</u>
Time e	end	Les	son Length	No of obs. Page 1	234 of	
			Student	Lesson		NOTES
	Inter	<u>vai</u>	Activity 1 2 3 4 5	Context MKFSGO	Interactions	
		2	12345	MKFSGO	ION	
		3	12345	MKFSGO	ION	
	o n	4 5	12345 12345	M K F S G O M K F S G O		
	e	6	12345	MKFSGO	ION	
		7	1 2 3 4 5	MKFSGO	ION	
	m/f	8 9	12345 12345	M K F S G O M K F S G O		
		10	12345	MKFSGO	ION	
		11	12345	MKFSGO	ION	
		12	<u>12345</u> 12345	M K F S G O M K F S G O		
		14	12345	MKFSGO	ION	
		15	1 2 3 4 5	MKFSGO	I O N	
	t w	16 17	12345 12345	M K F S G O M K F S G O		
	ő	18	12345	MKFSGO	ION	
		19	12345	MKFSGO	ION	
	m/f	20 21	12345 12345	M K F S G O M K F S G O		
	mvi	22	12345	MKFSGO	ION	
		23	1 2 3 4 5	MKFSGO	ION	
		24 25	<u>12345</u> 12345	M K F S G O M K F S G O		
		26	12345	MKFSGO	ION	
		27	12345	MKFSGO	ION	
	t h	28 29	12345 12345	M K F S G O M K F S G O		
	r i	30	12345	MKFSGO	ION	
	e	31	1 2 3 4 5	MKFSGO	I O N	
	e	32 33	12345 12345	M K F S G O M K F S G O		
	m/f	34	12345	MKFSGO	ION	
		35	12345	MKFSGO	ION	
		36	<u>12345</u> 12345	M K F S G O M K F S G O		
		38	12345	MKFSGO	ION	
		39	12345	MKFSGO	I O N	
	f o	40 41	12345 12345	M K F S G O M K F S G O		
	u	41	12345	MKFSGO	ION	
	r	43	12345	MKFSGO	ION	
		44 45	12345 12345	M K F S G O M K F S G O		
	m/f	46	12345	MKFSGO	ION	
		47	12345	MKFSGO		
	SUM	48	12345	MKFSGO	ION	
	3011					
1 = Lying details de	1 = Lying down M = Management I = In-class promotion of physical activity					
2 = Sitting		K = K	nowledge Cont		promotion of ph	ysical activity
3 = Standin				F = Fitness		
4 = Walking				S = Skill Practice	9	
5 = Vigorous				G = Game Play		

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