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Translating School Physical Education and Activity Policies into Practice: A Case Study

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Abstract

Background: Public health experts recommend school-based policies as a population based approach to increase youth physical activity. The purpose of this case study is to describe one, largely rural, state's efforts to translate this recommendation into practice. Details about the genesis, implementation and evolution of two state level policies (physical education and physical activity), as well as in-house efforts of a State Department of Education to monitor policy compliance and challenges encountered are described. Two specific years are highlighted, due to policy and monitoring enhancements made during those particular time periods.

Methods: Data for this paper come from the West Virginia Department of Education for two time periods: 2013–2014 and 2014–2015 (n=369 elementary schools). Descriptive statistics for quantitative data and content analysis for qualitative data were used to document school level compliance and provide context for implementation challenges.

Results: Greater than 70% of school principals reported achievement of physical education and physical activity policy expectations for each year. Limited staff was the predominant explanation for nonfulfillment of physical education expectations, followed by lack of time and facilities. Recess and classroom-based physical activity were the primary strategies used to comply with the physical activity expectations. PE and PA policy compliance varied significantly by certain school characteristics in each school year studied.

Conclusions: Further investigation is warranted on how states translate public health policy recommendations into practice, including how physical education and physical activity policies are developed and monitored at the state level and how to support states and schools with monitoring and implementation challenges.

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Conflict of Interest

The authors have no conflicts of interest to disclose. Further, the results of this study do not constitute endorsement from the ACSM.

Keywords

public health recommendations; physical education; physical activity; school policy; compliance monitoring

Introduction

Current National Physical Activity Guidelines recommend 60 or more minutes of daily physical activity (PA) for elementary youth, mostly moderate to vigorous in intensity (1). Health benefits of youth PA include improved physical and mental health as well as reduced risk factors associated with heart diseases and type 2 diabetes (1,2). Of concern, only 23.1% of US children age 6–17 years participate in PA at least 60 minutes daily (3).

Schools have long been identified as an optimal setting to promote youth PA and are encouraged to provide students with opportunities to participate in 60 minutes of moderate to vigorous physical activity per day (4). School-based policies in particular, are highly recommended strategies to increase youth PA (5–7). Policy approaches are recommended because of their population reach as well as potential for long term sustainability (8,9). School policies supportive of physical activity may be particularly important in rural areas, where children often have longer rides to school and other destinations, and experience fewer opportunities for active transport to and from school and safe outdoor play (10).

This paper describes the development and implementation of state level physical education (PE) and PA policies for elementary schools in a largely rural, limited resource state with substantial health disparities (11). Efforts to monitor policy compliance and challenges encountered by schools are also described. Two time periods (2013–2014 and 2014–2015) are of particular interest in this exploration because they provide a kind of natural experiment during which policy expectations changed between the two years. Evaluation of policy-related natural experiments are recommended to provide a more realistic understanding of policy implementation and impact in a real world setting (12). In this context, two distinct policy levers (13) were employed: 1) codified law (PE policy) enacted by the state legislature and 2) administrative law (PA policy) promulgated by state executive branch agencies, such as the Department of Education.

A case study approach was utilized because this approach is deemed appropriate for answering “how” and “why” questions when the issue of interest is embedded within a real life context (14). This single case study enables the detailed description of one state’s experience in translating the public health recommendation of creating school policies to promote youth physical activity into practice.

This study aligns with the Physical Activity Policy Research Framework, which recommends a variety of means to study physical activity policy, including at different scales and sectors (15). The specific foci of the Framework addressed in this particular study include: the school sector, state level scale and the development and implementation of policy. This study is also responsive to the recommendation to focus state-level efforts on

compliance with existing laws and regulations (16) and to disseminate findings about policy research in public health-related journals (17).

The primary questions to be answered in this study are as follows: 1) How was the public health recommendation for developing school PA policies translated into practice? 2) What was the extent of compliance among elementary school levels and did compliance vary by certain school characteristics and across the two year time period? 3) What limitations did schools have in implementing the policies?

Policy Development

Physical Education—In 2005, West Virginia (WV) joined the vanguard of states requiring specific time requirements for PE by enacting the Healthy Lifestyles Act (HLA) of 2005 (18). Prior to this, WV did not have PE time requirements. The HLA mandated elementary schools to provide “not less than thirty minutes of physical education, including physical exercise and age-appropriate physical activities, for not less than three days a week” (19). Schools with staff, facility, or time limitations were allowed to select (select all) from a list of four alternate PE plan strategies: 1) action/movement based classroom instructional strategies, 2) recess time added to physical education instructional time, 3) logged physical activity before and after school, and 4) student participation in exercise/physical activity labs to help meet the PE requirement. These four strategies were selected by a group of stakeholders convened by the WVDE, including members of a state-wide health coalition, principals, and PE teachers. A major guiding principle for this group was to select strategies that would not cost extra money to implement and have some evidence base. Action/movement based classroom instructional strategies were the first on the list because of emerging evidence linking classroom-based physical activity to increased physical activity (20) and behaviors important to learning, such as improved on task behavior (21). Further, multiple strategies were encouraged because of evidence that a multicomponent approach, with PE as the foundation, has the potential to increase PA among students in schools and recommendations to provide a variety of school-based opportunities (22, 23).

The caveat of alternate PE plans acknowledged the reality that many WV elementary schools have space, time and staff limitations. Although the PE requirement had no legislative fiscal support, the WV Department of Education (WVDE) provided professional development on standards-based physical education instruction through a Health and Physical Education Leadership Academy (24). In 2014, the WV Board of Education (WVBOE) Policy 2510 added the requirement that at least 50% of PE class time be spent in moderate to vigorous-intensity activity (25). Although the PE minute requirement (90 minutes/week) is less than the national recommendation of 150 minutes/week for elementary schools (4), it reflects a clear recognition of various and limited school contexts in WV.

Physical Activity—Physical activity in WV schools has been encouraged for over a decade through statewide channels. In 2006, the WVBOE Wellness Committee issued a position statement on wellness which included accumulation of 60 minutes of daily PA at school through PE, recess, and other opportunities (26). In 2011, Let's Move Resources were used to encourage PA breaks in addition to PE, recess, and other opportunities. In

2013, the WVDE recommended 60 minutes of daily PA (could include PE) and in 2014, mandated no less than 30 minutes of daily PA (could not include PE) in elementary schools through an amendment of WVBOE Policy 2510 (25). Funding from the WV Department of Health and Human Resources was used to support professional development for classroom teachers, as well as to support Physical Activity Leadership (PAL) introductory trainings. Figure 1 displays a timeline of significant events. For efficiency purposes, the term “expectations” will be used hereafter when referring to PE or PA, regardless of whether one was a requirement or a recommendation.

Monitoring

Per WVBOE Policy 2510 requirements, a mechanism for monitoring both the PE and PA policies was added to an existing annual on-line platform designed to capture school level information about a variety of topics (e.g., student demographics, school schedules, special education). This system has been in place since 1990 to ensure standardized data collection and reporting to the WVDE. Questions are completed by principals and then certified by the district superintendent. Specific questions about the PE and PA policies were developed by WVDE staff.

2013–2014—During this academic year, principals reported if their school met the PE expectation (yes/no) and if no, indicated the reason(s) (lack staff, sufficient facilities, sufficient time). They also indicated if an alternate PE plan was needed (yes/no), and if yes, selected from the list of four alternate PE plan options described previously. Principals also provided open response explanations for how their school met/did not meet the 60 minutes/day PA (could include PE) expectation.

2014–2015—During this academic year, the WVDE augmented their certified reporting process by requiring that alternate PE plans be reviewed and approved by WVDE staff in order for the PE expectation to be met, and also added a section on if and how the school met the 30 minutes/day (could not include PE) PA expectation. Recess was not allowed as alternate PE plan strategy in 2014–2015. Principals who included recess in their alternate PE plans were instructed to revise and resubmit their alternate plans. WVDE staff developed a template for schools to use which contained numerous PA opportunities; schools were encouraged to use multiple strategies.

On-site audits conducted by the Office of Educational Performance Audits (OEPA) were conducted on a cyclical basis each school year. OEPA, a separate agency from the WVDE, reported directly to the WV Board of Education. Their main role was to monitor education accountability in three main areas: finance, personnel and curriculum. Although the primary purpose of the audits was to determine if a school or school district met adequate yearly progress based on WV’s No Child Left Behind statutes, the audits did include monitoring of compliance with PE and PA policies. Teams comprised of a mix of current and retired school personnel (e.g., superintendents, principals, teachers) and WVDE staff visited schools to review their schedules and alternate PE plans (if applicable). Schools without documentation of PE and PA schedules and alternate PE plans were cited for these deficiencies.

Methods

Data Sources

Data for this study were obtained from the WVDE's annual online platform report for two academic years: 2013–2014 and 2014–2015 (n=369 - same elementary schools in each year). The West Virginia University Institutional Review Board approved this study and data were obtained from the WVDE via a data sharing agreement. Percent needy data (% of students eligible for free meals) for those two years were provided by the WVDE Office of Child Nutrition. These data, determined via the Community Eligibility Provision of the Healthy, Hunger-Free Kids Act of 2010, allow qualifying schools to provide free meals without collection of household applications for free/reduced meal programs eligibility (27). Additionally, select school level information from the National Center for Education Statistics (NCES) was also obtained (28). Variables from each of these sources were combined into separate databases for each year.

Analysis

Descriptive statistics (SAS Version 9.4) were computed for select variables in the databases for both years, including school characteristics and the percent of schools that met PE (with and without alternate PE plans) and/or PA expectations. The open-response explanations for meeting/not meeting PA expectations provided by principals were analyzed for common themes. One person coded the responses and these codes were reviewed by another investigator, with discrepancies resolved by consensus. Eight common themes were identified: four themes representing factors that contributed to meeting the expectations (recess, PE, classroom-based PA, other PA opportunities), and four themes representing factors contributing to not meeting the expectations (limited PE or recess, lack of time, lack of space, lack of staff). Themes were coded “yes” if mentioned in the open text fields or “no” if not mentioned.

The NCES school locale designations (29) were collapsed into four categories: city, suburban, town, and rural. Logistic regression models were utilized to determine the associations between PA and PE compliance and school characteristics. For categorical measures, such as school locale and needy category, exact odds ratios (confidence intervals and p-values) were used due to small cell sizes and model convergence. A confidence limit of infinity is due to one category containing only schools that comply with the corresponding outcome thus leading to the necessity for exact statistics.

Results

School Characteristics

The reports contained data for elementary schools (n=369) that were in the database for both years: 2013–2014 and 2014–2015. Based on NCES definitions of school locale types, just over 50% of schools were classified as rural in both years. Approximately 80% of schools had less than 450 students with a wide range of configurations (e.g. kindergarten – 2, pre-kindergarten – 8, grades 4–5, kindergarten – 4, pre-kindergarten – 6). In 2013–2014, 28% of schools had percent needy populations of greater than 75%, and 37% in 2014–2015.

PE and PA Compliance

Findings for PE and PA compliance are described below and displayed in Table 1.

PE: In 2013–2014, 98.4% of WV elementary schools reported meeting the PE expectation – 63.1% without an alternate PE plan, and 36.9% with one. Lack of staff (76.1%) was the predominant explanation for needing an alternate PE plan, followed by lack of time (48.6%) and facilities (42.7%). In 2014–2015, 74.5% of elementary schools reported meeting the PE expectation - 80% without an alternate PE plan, and 20% with one. As in the previous year, lack of staff (93.9%) was the predominant explanation for needing an alternate PE plan, followed by lack of time (36.2%) and facilities (29.8%).

PA: In 2013–2014, 72.4% (n=267) of WV elementary schools reported meeting the PA expectation. In 2014–2015, 98.4% (n=363) reported meeting this expectation.

Table 2 displays the number and percent of schools by type of alternate PE plan strategies selected for 2013–2014.

Comparable data for 2014–2015 are not available due to the change in reporting, however 165 schools submitted alternate PE plans in 2014–2015 and the breadth of strategies employed can be seen in one school's alternate PE plan (see Supplemental Content).

PA themes: Principals in 29.3% (n=108) of schools in 2013–2014 and 97% (n=357) in 2014–15, provided an open-response explanation the PA expectation. The two primary themes, outside of PE, across both years were recess (69% of schools in 2013–2014, 89% in 2014–2015) and classroom-based PA (35% and 56% of schools in those same years). During 2013–2014, principals frequently commented they could meet the 60 minutes expectation on PE days, but not on non-PE days. In 2014–2015, meeting a 30-minute daily PA expectation seemed to be more achievable. Representative quotes from the open-ended explanations are provided as Supplemental Content in Table 3.

PE and PA Compliance and School Characteristics

In 2013–2014, the odds of meeting PA expectations for smaller schools was 41% (0.4, 1.0, p=0.06) lower than larger schools, meaning that smaller schools had a more difficult time with compliance. While not significant, in 2014–2015 the converse of this relationship was true with smaller schools 30% (0.15, 11.31, p=0.8) more likely to meet PA expectations. Schools with the highest percent needy student populations had the best odds of meeting PA and PE expectations than other categories of needy schools. Schools in towns were significantly more likely to meet PA expectations than schools in rural settings in 2013–2014 (60.6% vs 78.4%; $X^2 = 7.59$, p=0.0059). Tables 4 and 5 (see Supplemental Content) detail the findings of the compliance and school characteristic analyses.

Discussion

This study describes the development of PE and PA expectations in WV, a largely rural state with high rates of chronic disease-related morbidity and mortality. School PE expectations, which emanated from the state legislature, and school PA expectations, promulgated by

the WV Board of Education, are key public health strategies to increase youth PA. PE and daily PA appear well supported in WV with greater than 70% of elementary school principals reporting achievement of the PE and PA expectations for each year. Allowance of an alternate PE plan to support PE reflects acknowledgement, at the state level, of staff, time, and/or facility limitations. In 2014–2015, it is likely that WVDE review/approval of the alternate PE plan, coupled with not allowing recess as alternate PE plan option, resulted in a decrease in the percent of schools meeting the PE expectation (98.4% in 2013–2014 to 74.5% in 2014–2015). However, the change in the PA expectation from 60 minutes daily (could include PE) in 2013–2014 to 30 minutes daily in 2014–2015 (could not include PE) resulted in an increase in the percent of schools reporting almost full PA implementation (72.4% in 2013–2014 to 98.4% in 2014–2015).

The finding that schools with higher percent needy student populations had the best odds of meeting PA and PE expectations is unexpected, as Carlson et al. reported lower socioeconomic status schools having fewer physical activity-supportive PE practices (30). In the experiences of WVDE staff, larger schools, which tend to have fewer needy students, have a more difficult time with PE compliance because of PE teacher to student ratios (e.g., one PE teacher for 600 students) and more program offerings which compete with PE for time (e.g., PE in rotation with music and art, etc.). Smaller schools in our study averaged 67.1% needy and the large schools 59.1% in 2014 and 69.9% and 62.2% in 2015 ($p<0.0001$ and $p=0.002$ respectively). More research is needed on these issues.

A limitation of this study is lack of ability to directly compare results for the two years, due to changes in expectations and reporting requirements. However, although this may be a research limitation, it is an asset for school and public health practice that expectations are continuously strengthening over time and are being held to a higher standard. The self-report nature of school practices is another limitation due to potential social desirability bias. Although compliance is self-reported, it is a statewide snapshot (over 80% of all elementary schools), thus providing more generalizability compared with other studies that only included samples of schools. Further, these reports were certified by school district superintendents, lending some degree of credibility. Also, many national surveillance systems are self-report, e.g. the School Health Policies and Practices Survey (31). The lack of aggregate data from the OEPA audits is another limitation.

Although other researchers are critical of self-report by school administrators and recommend strategies beyond school self-report to ascertain compliance (32, 33), funding and capacity to undertake such an undertaking are limited. Future efforts should explore various avenues of support, including funding for professional development for classroom and PE teachers and more specific monitoring and evaluation and feedback loops.

Policy monitoring is important not only to document implementation, but also to identify support(s) needed for full implementation (34–37). This paper describes the development and monitoring of school-based expectations for PE and PA, undertaken by a State Department of Education in a primarily rural state with limited resources. These efforts are evolving and improving over time and are poised to contribute to school-based PA opportunities for youth. More effort needs to be directed at sharing this information

with stakeholders in WV and other states with similar characteristics. The West Virginia Physical Activity Plan (ActiveWV 2015), which was developed after the PE and PA policies were enacted, is an example of a potential dissemination channel for these findings and how to support schools with implementation challenges (38). Mechanisms for objectively verifying school self-report data also need further exploration. Any expansion of the current monitoring system would require external support. Efforts at the national level to establish a network of independent research centers poised to evaluate policy-related natural experiments such as the one described in this paper could potentially advance stronger evaluations of population-based policies (39).

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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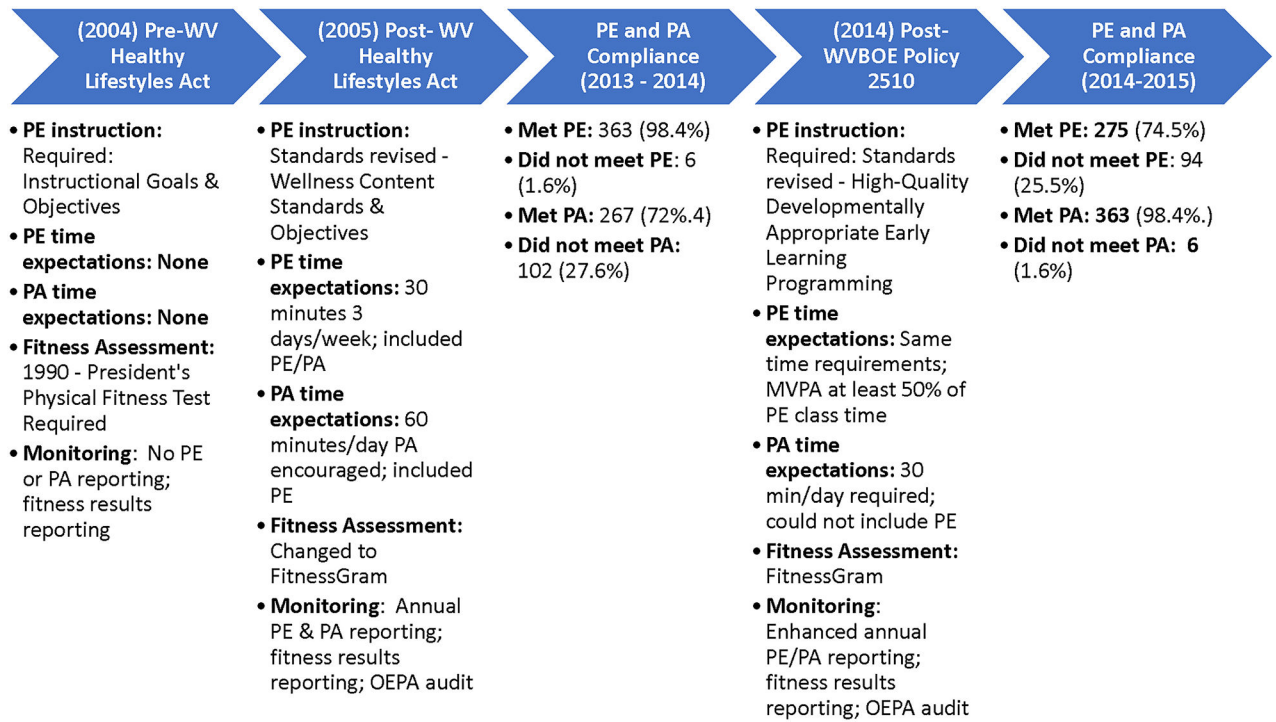


Figure 1.
Timeline of Significant PE and PA Policy Events

Table 1.

PE and PA Compliance

	2013 – 2014 (N = 369)		2014 – 2015 (N = 369)	
	Frequency	Percentage	Frequency	Percentage
Met PE	363	98.4	275	74.5
Without alternate plan	229	63.1	220	80
With alternate plan	134	36.9	55	20
Did not meet PE	6	1.6	94	25.5
Met PA	267	72.4	363	98.4
Did not meet PA	102	27.6	6	1.6

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Table 2.

Alternate PE Plan Selections (n=233 schools) 2013–2014

	Frequency	Percentage
Action-based Movement	85	23.0
Recess	125	33.9
Log PA Before/After School	11	3.0
Student PA Labs	12	3.3

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