

**Evaluating the effectiveness of
providing coaching/
technical assistance during
implementation of a new school
physical education (PE) law in RI**

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Background

- Physical activity (PA) has many health benefits for children
- Many children do not get adequate amounts of PA
- School physical education (PE) can play an important role in increasing PA and reducing overweight
- Many states are enacting laws to improve the quality of PE to support and encourage increased student PA
- But if laws/policies are not well implemented, desired outcomes will not be achieved

Background (cont.)

- RI's PE law, Chapter 254A, 2008-H7280 SUBSTITUTE A requires every RI public school to implement a high quality PE curriculum
- 2012 "compliance" date
- As of 2011, most schools not compliant.
- Training and professional development with an on-site coach helped RI schools successfully implement the RI's 2007 Healthier Snack and Beverage Law in accordance with the RI Nutrition Requirements
- But process not rigorously evaluated

Purpose of current study

- To evaluate whether schools that receive coaching, training and technical assistance have better compliance with the law and better PA outcomes than matched control schools that receive no coaching, training or technical assistance

RI's new PE law, Chapter 254A, 2008-H7280 SUBSTITUTE

WHEREAS, Physical inactivity and poor nutrition are major contributors to the childhood obesity epidemic causing the current generation of youth to have a lower life expectancy than their parents' generation; and

WHEREAS, Childhood obesity has increased 300% over the last three decades leading to a dramatic increase in the incidence of heart disease, type II diabetes, and other obesity related diseases among today's children and adolescents; and

WHEREAS, The economic impact of obesity on our health care system is estimated at 117 billion dollars per year and physical activity offers young people many overall health benefits including cardiovascular endurance and maintenance of a healthy weight; and

WHEREAS, Children who become competent in a wide variety of motor skills are more apt to participate in a physically active lifestyle.

Section 16-22-4 of the General Laws in Chapter 16-22 entitled "Curriculum" is hereby amended to read as follows:

RI's new PE law, Chapter 254A, 2008-H7280 SUBSTITUTE

16-22-4. Instruction in health and physical education. -- All children in grades one through twelve attending public schools, or any other schools managed and controlled by the state, **shall receive in those schools instruction in health and physical education under rules and regulations the department of elementary and secondary education may prescribe or approve during periods which shall average at least twenty (20) minutes in each school day (100 minutes per week).**

RI's new PE law, Chapter 254A, 2008-H7280 SUBSTITUTE

Commencing September 1, 2012, the required health education curriculum shall be based on the health education standards of the Rhode Island Health Education Framework: Health Literacy for All Students as promulgated by the Rhode Island department of education and consistent with the mandated health instructional outcomes therein.

Commencing September 1, 2012, **the required physical education curriculum shall be based on the physical education standards of the Rhode Island Physical Education Framework: Supporting Physically Active Lifestyles through Quality Physical Education** as promulgated by the Rhode Island department of education and consistent with the instructional outcomes therein.

RI Physical Education Framework: Supporting Physically Active Lifestyles through Quality Physical Education

Matches NAPSE's national standards and specifies that each student:

1. Demonstrates competency in many movement forms and proficiency in a few movement forms
2. Applies movement concepts and principles to the learning and development of motor skills
3. Understands the implications of and the benefits derived from involvement in PA
4. Applies PA-related skills and concepts to maintain a physically active lifestyle and a health-enhancing level of physical fitness
5. Demonstrates responsible personal and social behavior in PA settings
6. Understands that internal and external environments influence PA

Adapted PE curriculum is also designed to ensure achievement of 'best practices'

- Do not allow exemptions from required PE for participation in other activities
- Provide skills-focused instruction, as part of a comprehensive, sequential, culturally-appropriate K-12 PE curriculum, that is aligned with RI standards
- Provide physical educators with: goals, objectives, and expected outcomes for PE; a written PE curriculum aligned to the Framework
- Require PE to be taught only by certified physical education specialists
- Require that PE teachers participate in regular professional development and allocate funds and release time to support that
- Have one or more than one person who oversees PE
- ***Employ instructional strategies to keep students active at least 50% of class time during PE classes***
- Require a teacher/student ratio in PE that is comparable to that of other classes

Methods

- Four elementary schools were recruited and matched according to percent eligible for free or reduced price meals, number of students and proportion of ethnic minorities
- Conducted baseline assessments at all schools
- Randomized the schools to intervention (2 schools) or control (2 schools)
- PE Coach conducted intervention at two schools
- After intervention, cross-sectional follow-up assessments

Participating Schools

	City A School 1	City A School 2	City B School 1	City B School 2
Total # of Students	289	265	260	280
Student race and ethnicity	White: 38% Hispanic: 37% Asian: 13% Black: 11%	White: 53% Hispanic: 28% Asian: 9% Black: 10%	White: 66% Hispanic: 7% Asian: 4% Black: 21%	White: 71% Hispanic: 7% Asian: 1% Black: 19%
Students eligible for free/reduced price meals	76.1%	79.2%	64.2%	68.9%

Intervention

- Intervention schools' PE teachers received a technical assistance and coaching intervention by a PE Expert Coach
- Conducted March through June 15, 2012 and resumed September through October 31, 2012
- Introduced to a NASPE-approved curriculum (SPARK-PE*) as well as other activities following best practice guidelines

Intervention Goals

- Changes in the type of PE including more time spent being physically active
- Fewer games with winners and losers
- Less class time when the children are standing around
- Less class time spent giving instruction
- Use of “active” discipline rather than having children sit out or miss PE
- Increased integration of topics covered in other classes in PE classes

Pre-post Measures

- Students' PA levels during school
- Teachers and principals knowledge, enthusiasm, for & perceived barriers re. the new PE law
- Students' attitudes about PE
- Accelerometer and SOFIT
- Key informant interviews
- Student focus groups and student surveys

Demographics of Children Participating in Surveys

Variable	Category	Intervention % (n =81)	Control % (n = 99)	p-value
Gender	Girl	51.1	61.8	0.282
Hispanic?	Yes	35.3	36.1	0.943
Race	White	66.7	60.5	0.348
	Black or African American	16.7	11.6	
	Asian	0	9.3	
	American Indian/Alaska native	0	4.7	
	Other	11.1	9.3	
	Multi-racial	5.6	4.7	

Issues that Occurred During Study

- PE space doubles as the cafeteria which limits types of PA
- At the beginning of the second school year, the Principal of one of the intervention schools told us that he wanted the school to withdraw from the study
- Reasons?
- We were able to convince them to finish the study
- However, study Coach had much less freedom and time to interact with the teacher and the teacher was much less receptive to suggestions
- This school was exposed to an intervention dose that was less (36 hours) than the other intervention school (55 hours)

Feedback from Children during intervention phase

- The PE teacher was asked by students in other grades if they would be doing the same lessons because word had spread in the school that those activities were “fun”
- One girl expressed that she was so happy to see the coach in the hallway because she knew that it meant she was “going to have fun in the gym that day”
- Dance activities and the aerobic dances done to popular music as the warm up activity were very well received by the students K-6
- One girl often clapped when she saw the coach coming saying she couldn’t wait for her PE class later that day

Key Informant Interviews with Principals

- **Baseline:** Aware of current RI requirements; but did not fully understand changes in the quality of PE expected
- When details explained, all reacted positively; but expressed concerns re. feasibility of implementation due to time, space and financial constraints
- All believed that PE is connected to students' ability to learn
- **Follow-up:** All felt a bit more frustrated by their inability to comply with the law due to time, space and financial constraints and the fact that the law has 'no teeth'.
- Intervention Group principals appeared to have a better understanding of what high-quality PE entailed than Control Group principals because they had the opportunity to observe some of the classes run by the PE Coach

Key Informant Interviews with PE teachers

- **Baseline:** All four PE teachers reported very limited opportunities for professional development, resources or PE equipment and space
- PE teachers were less concerned than Principals with regard to implementing the new law
- Time, cost and feasibility constraints were major barriers in implementing the requirements of the new law
- **Follow-up:** Both of the PE teachers that were in the Intervention Group saw the value of the intervention and reported an increase in their knowledge and skills; but one teacher was more enthusiastic and motivated to implement the recommended changes

Results: Post-intervention Focus Groups

Pre focus groups n = 55

Post focus groups n = 52

- Students from the intervention groups were more likely to discuss how much fun PE was including enjoyment of the music, dancing and links of PE with other classes like health
- Control group children mentioned doing a sports unit for a month like volleyball

Results: Pre-Post Student Surveys

- Differences between intervention and control group students with more intervention students reporting that they:
 - Liked PE class
 - Spent time in PE doing things that made their heart beat faster or made them breathe harder
 - Got enough playing time during PE class
 - Did NOT play games in PE where there are winners or losers.
 - That they were good at the activities done in PE/Gym class
 - Their PE class connected with other subjects

Results: Minutes of PE per Week

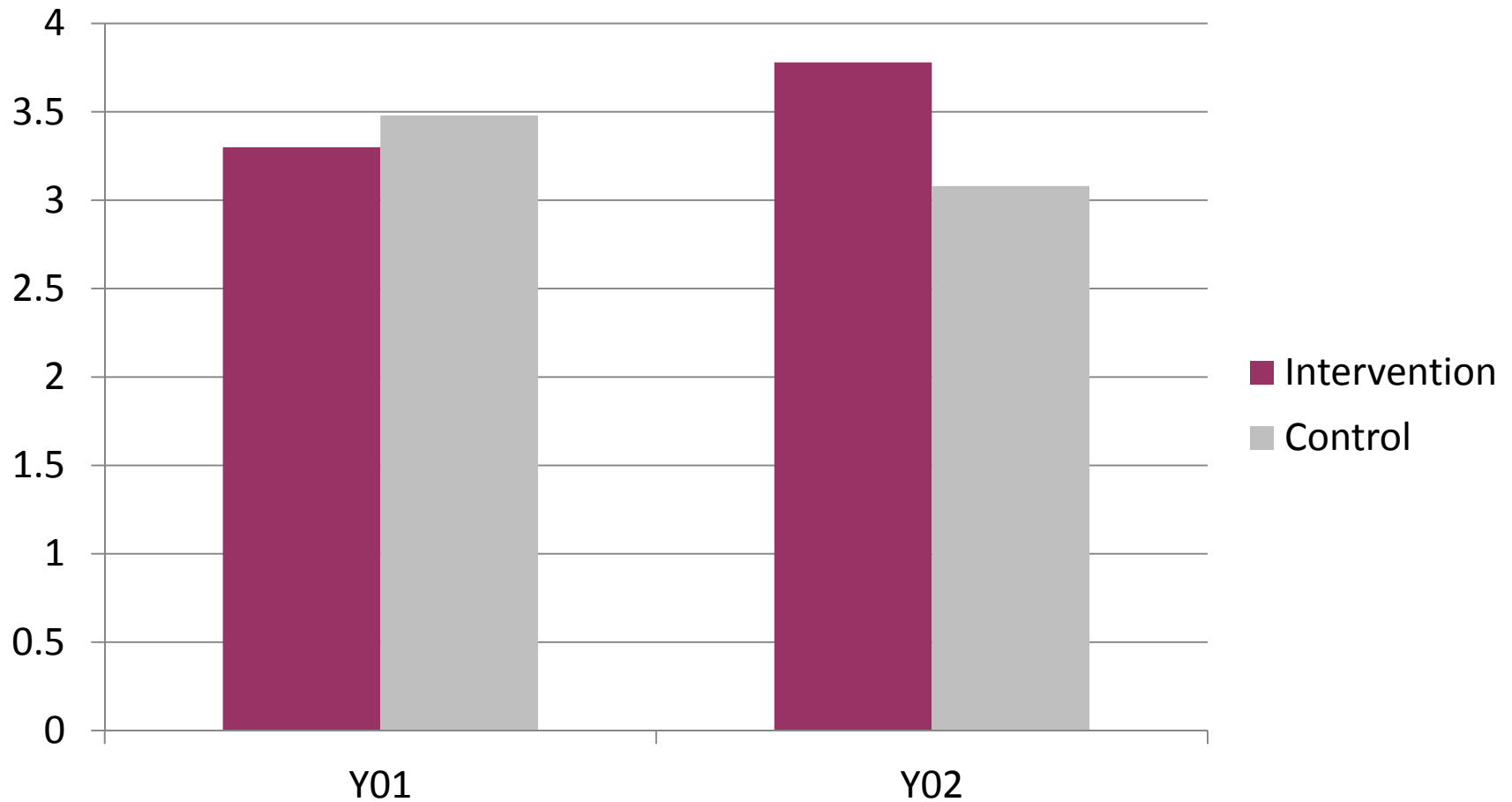
- As expected, the number of minutes of PE did not change after the intervention
- No intervention or control school meets the 100 minutes per week requirement
- Two schools have 60 minutes of PE per week and two schools have 80 minutes per week
- Some of this time is used for health, decreasing PE time even further
- The requirement for 100 minutes is being ignored at these two school districts (and in many school districts in RI)

SOFIT Observations

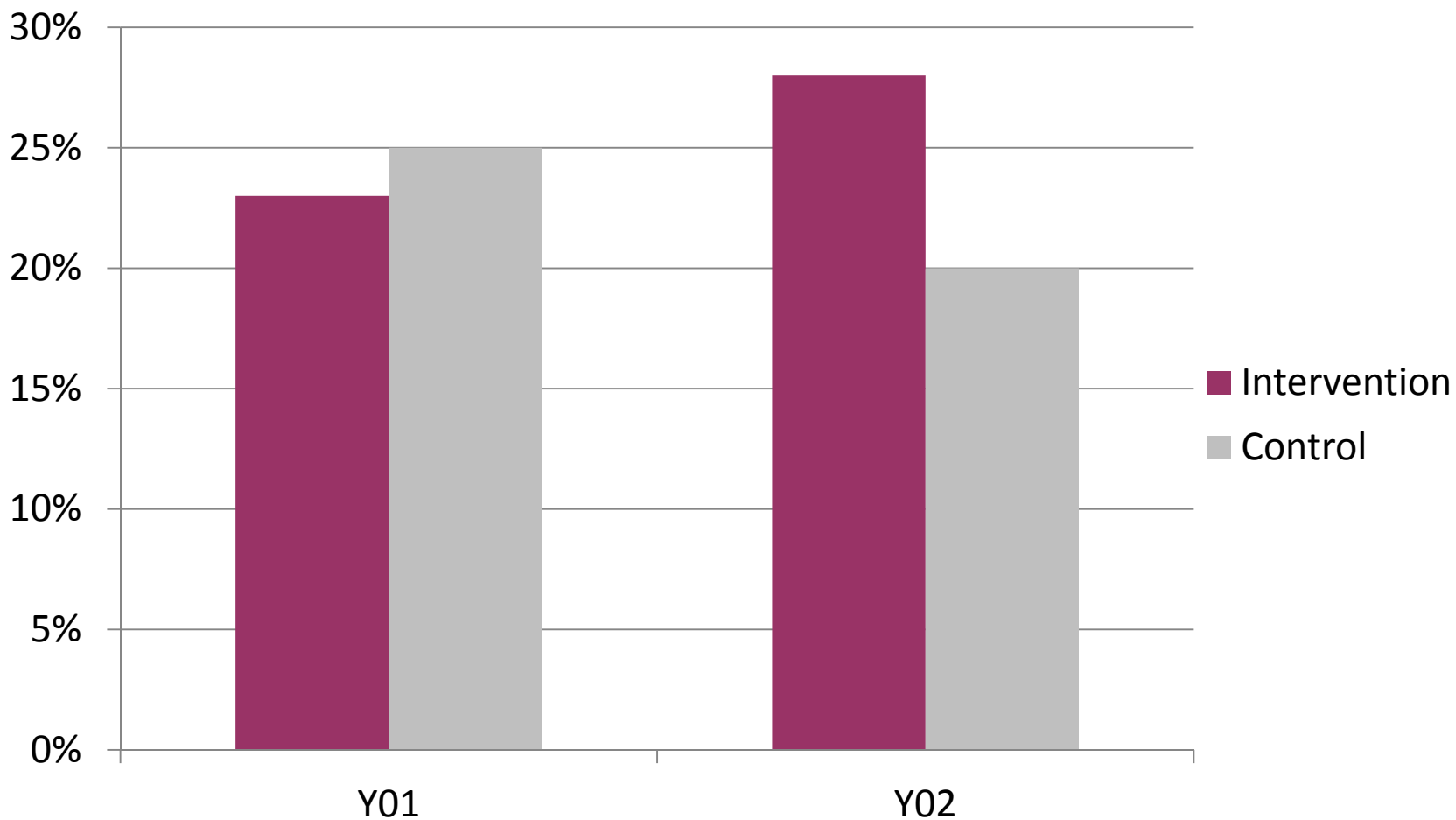
(mean percentage of observations by PA category)

	Mean Percentage of Observations in Each Activity				
	VIGOR.	WALK	STAND	LIE	SIT
YEAR 1					
Intervention All	18%	22%	46%	4%	10%
Control All	24%	25%	32%	1%	18%
P-value: I v. C at Y1	0.01*	0.17	0.00*	0.01*	0.00*
YEAR 2					
Intervention All	18%	34%	40%	0%	8%
Control All	15%	29%	35%	2%	18%
P-value: I v. C at Y2	0.12	0.04*	0.08	0.00*	0.00*
P-value: Y2 C and Y1 C	0.00*	0.09	0.30	0.01*	0.99
P-value: Y2 I and Y1 I	0.78	0.00*	0.01*	0.01*	0.21

Change in children's METS (metabolic equivalents) during PE as measured by accelerometer



Change in Children's Moderate and Vigorous Physical Activity via accelerometer



Summary

- Principals: Supportive of law but frustrated by constraints that make it unable to fully comply with the law
- Intervention Group principals better understand what “law-compliant PE” looks like
- PE teachers: Mixed levels of support/enthusiasm to modify PE
- Intervention school students really liked the modified PE and reported more appropriate activities
- Intervention school students had greater increases in PA levels during PE than students in the control schools – although changes were very modest

Lessons learned

- Important to get buy in from the teachers in addition to the principals prior to choosing participating schools
- Teachers and administrators need ongoing reassurance that the data collected is confidential and will not hurt them in any way
- Need more observations to get a more accurate picture of student PA levels
- Observation affected PE delivery (accelerometry only?)
- Intervention needed to be longer

Policy Implications

- PE laws/regulatory changes without staff training and compliance monitoring are unlikely to result in changes in students' PA levels
- Staff training/coaching can help but needs to be done in a way that is not threatening to teachers

Questions?

