

Using the Classification of Laws Associated with School Students (C.L.A.S.S.) Evaluation Tools and Database for Active Living Research and Tracking Laws for Physical education and Activity

<http://class.cancer.gov/index.aspx>

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The findings and conclusions in this presentation are those of the authors and do not necessarily represent the views on the National Cancer institute

C.L.A.S.S. Syllabus

- Lesson 1: What is C.L.A.S.S.?
- Lesson 2: What makes C.L.A.S.S. Unique?
- Lesson 3: Let's go to C.L.A.S.S. (demonstration)
- Lesson 4: C.L.A.S.S. Actions (examples of findings)
- Q & A

Lesson 1: What is C.L.A.S.S.?

Classification of Laws Associated with School Students

- Classification system of codified state laws
 - ⊗ Includes two coding systems:
 - Physical Education-Related State Policy Classification System (PERSPCS)
 - School Nutrition Environment State Policy Classification System (SNESPCS)
- All 50 states and Washington DC
- Grade levels: Elementary, Middle and High School
- Years 2003 – 2008, 2010, *2012 being coded now*

How was C.L.A.S.S. Developed?

- Conceptual framework guided by:

- ⊗ Expert panel including scientists and senior policy analysts (NCI, CDC, and scientific consultants)
- ⊗ Socio-ecologic model
- ⊗ Policies expected to have an impact on school environment and social norms that may affect children's behaviors (Masse, et al., 2007).

- Topics based on consensus recommendations from:

- ⊗ Expert panel
- ⊗ Review of published literature
- ⊗ Key documents and web reports
- ⊗ Government recommendations and guidelines (e.g., NASPE, IOM, CDC healthy School Guidelines)

C.L.A.S.S. Development (Cont.)

- Classification System Based On:
 - ⊗ National Standards & Recommendations
(NASPE, CDC, IOM, FDA, USDA, ACSM, IOM)
- Measure the extensiveness of school PE and Nutrition state codified laws
- State codified laws since, 2003:
 - ⊗ Compiled and independently coded
 - ⊗ Updated annually through 2008 and biannually thereafter... **2012 being coded now**
 - ⊗ Additional policy areas added for 2012



Lesson 2: What makes C.L.A.S.S. Unique?

- Assigns specific scores (allowing ranking and comparisons)
- Enacted state-level law only: state statutory law and adopted regulations
- Grade level distinction
- Systematic coding

CLASS Compares to Other Systems?

	C.I.A.S.S. ¹	CDC; Nutrition and Physical Activity Database ²	F as in Fat: How Obesity Threatens America's Future 2010 ³	National Conference of State Legislatures ⁴	Rudd Center for Food Policy and Obesity ⁵	Obesity Legislation Database ⁸
Nutrition	✓	✓	✓	✓	✓	✓
PE and PA	✓	✓		✓	✓	✓
Grade-level distinction	✓					✓
Uses Empirical Scores	✓					
Years covered	2003-2008; 2010, biennially	2001-2011	2010	2004-2009	2010-2011	2000-2007
Allows comparison across years	✓					
Enacted legislation and regulations	✓		✓			✓



Classification of Laws Associated with School Students

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Download C.L.A.S.S. Data



School Nutrition Environment State Policy Classification System (SNESPCS)

SNESPCS data are currently available from 2003–2008. After 2008, policies are coded every two years.

The SNESPCS 2003 single-year data set and codebook were based on nutrition standards published by the U.S. Dietary Guidelines for Americans and other federal recommendations. In 2008, the SNESPCS data was revised to include recommendations from the Institute of Medicine report, "Nutrition Standards for Foods in Schools: Leading the Way toward Healthier Youth." As a result, the SNESPCS criteria and coding for current combined dataset have changed since the initial publication. Future SNESPCS data sets will be updated according to the most recent nutrition standards that affect the school nutrition environment. The competitive foods, reimbursable school meal, and nutrition education policies are classified according to grade level requirements at the elementary, middle, and high school levels. Grade-level classifications were not made for the remaining topics. C.L.A.S.S. scores reflect the law into effect in the specified year, not law creation date. If you have any questions or would like to know more about C.L.A.S.S. data, please contact nciclass@mail.nih.gov.

Data files available for download:

- [SNESPCS 2003-2010 Data File](#) (xls)
- [SNESPCS 2003-2010 Data File](#) (sav)

- [Data File Code Book](#) (pdf)
- [SNESPCS Scoring Key and Variable Information](#) (pdf)

Physical Education-Related State Policy Classification System (PERSPCS)

PERSPCS data are currently available from 2003–2008. After 2008, policies are coded every two years. With the exception of recess time, policies for each topic are classified according to grade-level requirements at the elementary, middle, and high school levels. A series of dichotomous tracking variables that might potentially enhance or inhibit implementation or impact the individual policy provisions are also coded for the time requirement, staffing, and assessment-related variables. C.L.A.S.S. scores reflect the law into effect in the specified year, not law creation date. If you have any questions or would like to know more about C.L.A.S.S. data, please contact nciclass@mail.nih.gov.

Data files available for download:

- [PERSPCS 2003-2010 Data File](#) (xls)
- [PERSPCS 2003-2010 Data File](#) (sav)

- [Data File Code Book](#) (pdf)
- [PERSPCS Scoring Key and Variable Information](#) (pdf)

**2003-2010
Data,
Codebook,
& Scoring Key**

**2012 Data
Coming...**

CLASS Tool: State Policy Map



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C.L.A.S.S. Actions

View Data Map

Develop tailored national policy maps by selecting either physical education or nutrition and then selecting the grade level, policy area, and year of interest. Click the View Data Map button to generate your map. Maps can be downloaded and printed.

Physical Education Nutrition

Year

To learn more about a policy area, please scroll over the adjacent red "i" button

Grade Level

- All School Levels **i**
- Elementary School
- Middle School
- High School

Policy Area

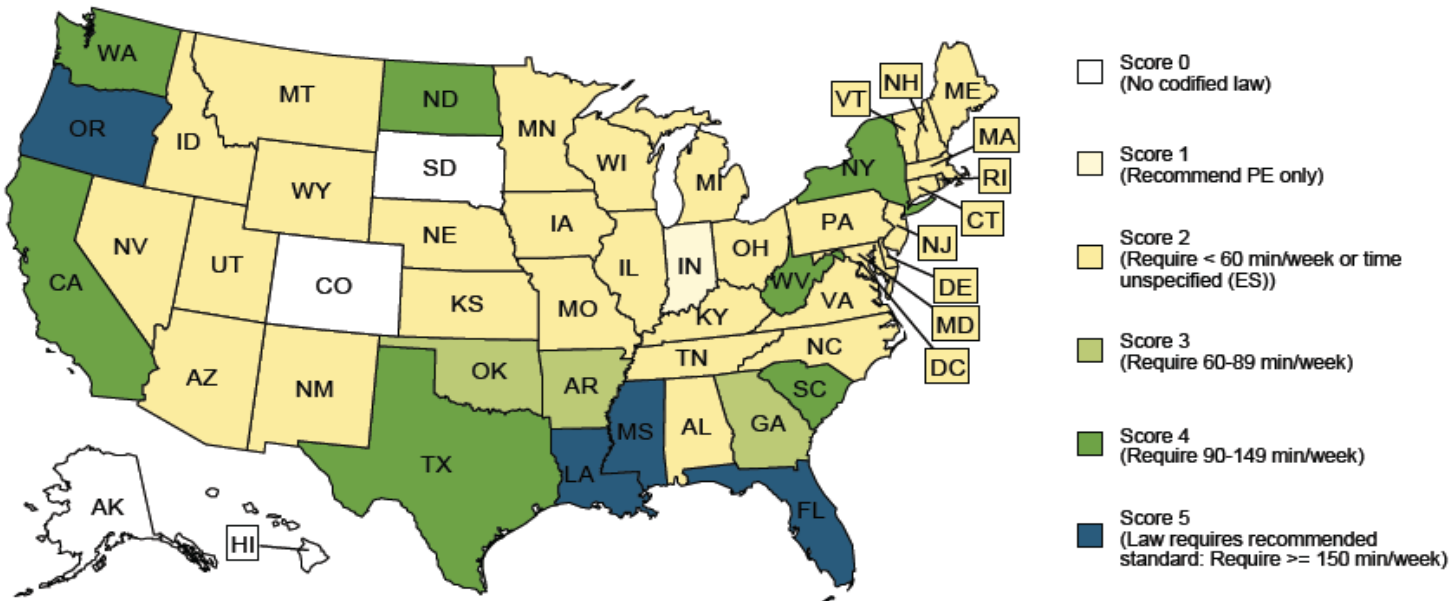
- Time Requirements **i**
- Physical Activity (PA) Time Requirements **i**
- Staffing Requirements **i**
- Curriculum Standards **i**
- Fitness Assessment **i**
- Recess Time **i**
- Weighted Summary Score **i**

Select
PE or Nutrition,
Year,
Grade Level,
Policy Area

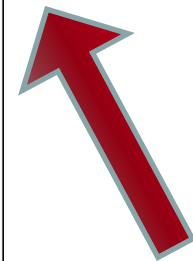
Generate
National maps

Physical Education / Elementary School / Time Requirements / 2010

The Physical Education (PE) Time Requirements score reflects the degree to which state law addresses the amount of PE instruction with respect to the National Association for Sport and Physical Education (NASPE) recommended standard at the ES grade level.



For full CLASS Scoring Key and Variable information visit: <http://class.cancer.gov/download.aspx>



Use Maps
For:

PowerPoint

Policy
reports

Newsletters



Classification of Laws Associated with School Students (C.L.A.S.S.)
<http://class.cancer.gov>

CLASS Tool: State Profiles



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State Profiles

Create your own state profile of C.L.A.S.S. scores by selecting physical education or nutrition, year, and state of interest. After making your selections, click "View Profile." A report with charts depicting C.L.A.S.S. codified law scores across grade levels for each policy area will be generated for the state of interest with comparison of state scores against national medians.

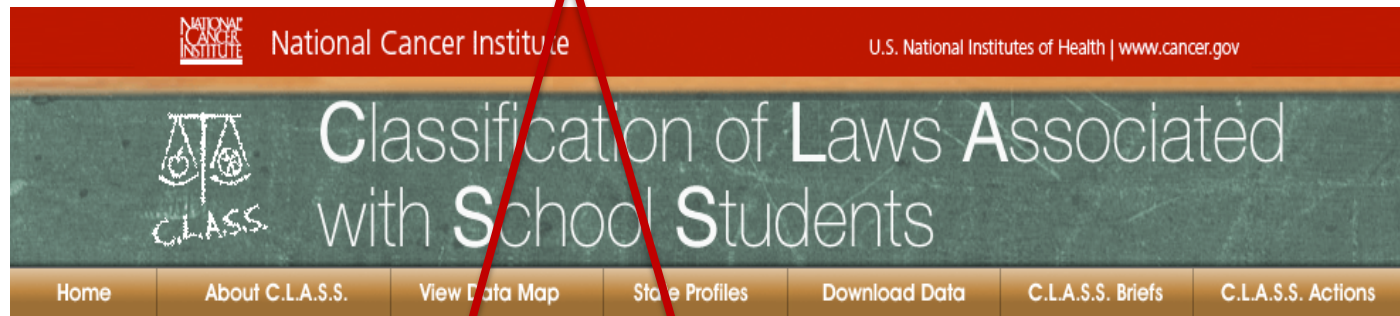
Physical Education Nutrition

2010

Virginia

[View Profile](#)

Toggle between PE and Nutrition



C.L.A.S.S. - Classification of Laws Associated with School Students Profiles



Jump to a policy

A summary of how Ohio scored in physical education and nutrition in 2010.

Physical Education (PE) Laws

Nutrition Laws

The National Cancer Institute's Physical Education-Related State Policy Classification System scores codified state laws in the following areas. Scores are based on national standards for physical education developed by the National Association for Sport and Physical Education (NASPE).

Policies that apply by grade level

[Physical Education \(PE\) Time Requirements](#)

[Staffing Requirements](#)

[Curriculum Standards](#)

[Fitness Assessment](#)

[Recess Time](#)

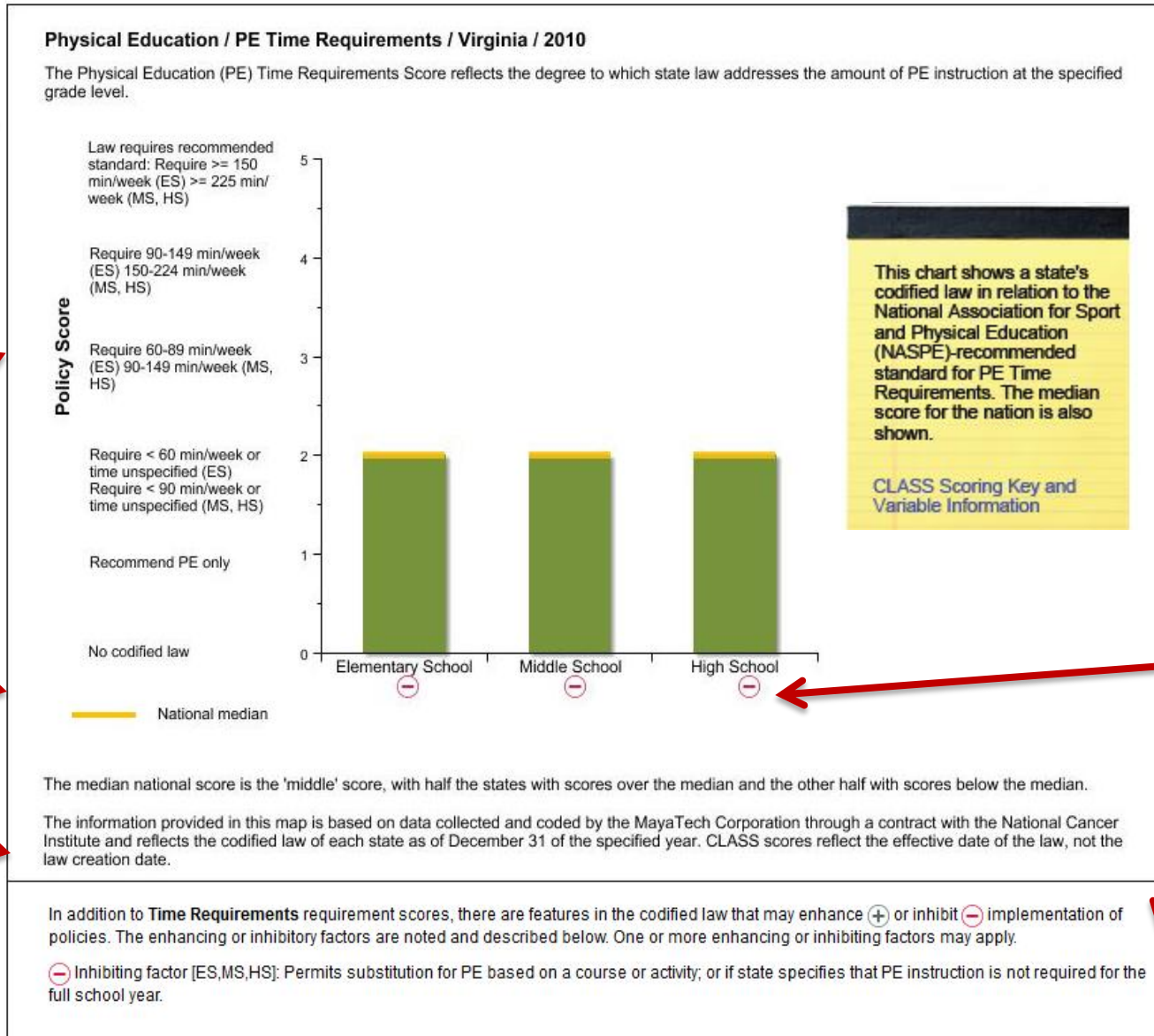
[Physical Activity \(PA\) Time Requirements](#)

Policies that apply across grade levels

[Weighted Summary Score](#)

For more information on this data or for state-to-state comparisons, visit the Classification of Laws Associated with School Students (C.L.A.S.S.) Web site at <http://class.cancer.gov>. C.L.A.S.S. is an empirical scoring system to evaluate state codified law related to school nutrition and physical education. C.L.A.S.S. was developed through consultation with an expert advisory panel of extramural scientists and staff scientists from the Centers for Disease Control and Prevention and the National Institutes of Health. C.L.A.S.S. data are coded and maintained through a contract with the MayaTech Corporation.

Layout of a C.L.A.S.S. Profile



Definition

Policy Score

National Median

Specification

Summary

Enhancing or Inhibiting factors

C.L.A.S.S. Actions

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C.L.A.S.S. Actions

Want to see C.L.A.S.S. in action? These are examples of how C.L.A.S.S. data can be used to analyze school physical education (PE) and nutrition policies.

C.L.A.S.S. Publications

Publications of C.L.A.S.S. data. Please click on the title to link to that paper or abstract.

Taber DR, Chriqui JF, Perna FM, Powell LM, Chaloupka FJ. [Weight status Among Adolescents in States That Govern Competitive Food Nutrition Content](#). *Pediatrics*, published online August 13, 2012 (doi: 10.1542/peds.2011.3353)

Perna, F. M., Oh, A., Chriqui, J. F., Mâsse, L. C., Atienza, A. A., Nebeling, L., Agurs-Collins, T., Moser, R. P., Dodd, K. W. (2012). [The Association of State Law to Physical Education Time Allocation in United States' Public Schools](#). *American Journal of Public Health*, 102(8), 1594 – 1599.

Louise C. Mâsse, PhD, Jamie F. Chriqui, PhD, James F. Igoe, MA, Audie A. Atienza, PhD, Judy Kruger, PhD, Harold W. Kohl III, PhD, Marcy M. Frosh, JD, Amy L. Yaroch, PhD. [Development of a Physical Education–Related State Policy Classification System \(PERSPCS\)](#) *Am J Prev Med* 2007;33(4S).

Louise C. Mâsse, PhD, Marcy M. Frosh, JD, Jamie F. Chriqui, PhD, Amy L. Yaroch, PhD, Tanya Agurs-Collins, PhD, RD, Heidi M. Blanck, PhD, Audie A. Atienza, PhD, Mary L. McKenna, PhD, RD, James F. Igoe, MA. [Development of a School Nutrition–Environment State Policy Classification System \(SNESPCS\)](#) *Am J Prev Med* 2007; 33(4S).

C.L.A.S.S. Presentation Posters

Please click on the presentation title to view the poster in PDF format.

Agurs-Collins T, Perna F, Mâsse L. [Changes in State Competitive Foods Laws in US Elementary Schools](#). Poster presentation at 2010 International Society for Behavioral Nutrition and Physical Activity. June 9–12, 2010, Minneapolis, MN.

Perna F, Oh A, Agurs-Collins T. [Concordance in Physical Education and Nutrition Laws for Elementary Schools: 2003-2007](#). Poster presentation at 2010 International Society for Behavioral Nutrition and Physical Activity. June 9–12, 2010, Minneapolis, MN.

Oh A, Perna F, Agurs-Collins T. [The Association of State Law and Physical Education Staffing and Curriculum Standards in Public Schools](#). Poster presentation at 2010 International Society for Behavioral Nutrition and Physical Activity. June 9–12, 2010, Minneapolis, MN.

C.L.A.S.S. Presentations

C.L.A.S.S. Users

This section is for you. We want to hear about how you're using C.L.A.S.S. data to enhance efforts to address childhood obesity and improve school PE and nutrition programs.

In particular, we want to hear how researchers are using C.L.A.S.S. to evaluate school health policy's impact on behavior and health outcomes; how state officials are monitoring their state's efforts to improve PE and nutrition and compare their progress against that of other states; and how school systems are using the data to examine current trends in PE and nutrition policies and to stay up-to-date on current standards, requirements, and policies in their state.

Please contact C.L.A.S.S. to submit your examples: nciclass@mail.nih.gov

Highlights

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[C.L.A.S.S. Presentation Posters](#)

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[C.L.A.S.S. Users](#)

Lesson 4: Examples of C.L.A.S.S. Analyses

Individual level

Contextual influences on weight status among impoverished adolescents: neighborhood amenities for physical activity and state laws for physical education time requirements (Oh, et al, APHA, 2012)

Weight Status among adolescents in states that govern competitive food nutrition content. (Taber, et al., Pediatrics. 2012;130(3):437-444)

School level

The Association of State Law to Physical Education Time Allocation in United States' Public Schools. (Perna, et al., Am J Public Health. 2012;102(8):1594-1599)

State level

Change in school nutrition policies at the state level from 2003 – 2008. (Masse, et al., Am J Public Health. In Press)

Linking C.L.A.S.S. Data

– Key

- ⊗ State variable

– Consider

- ⊗ Research question
- ⊗ Population sampled
- ⊗ Sampling methodology
- ⊗ Policy lag

– Data Sets

- ⊗ School Policies and Practices Survey (SHPPS)
- ⊗ Early Child Longitudinal Study (ECLS)
- ⊗ Panel Study of Income Dynamics Child Development Supplement
- ⊗ Youth Risk Behavior Surveillance System/Youth Risk Behavior Survey (YRBSS/YRBS)
- ⊗ Others...

Example 1: Linking PE Law with Practices in Public Schools

Purpose

To determine if schools within states with relatively more stringent PE-related laws report implementing more PE-time.

To derive nationally representative estimates of PE Time in schools as a function of a state's codified law (i.e., C.L.A.S.S. PE-Time Score)

Methods

- Secondary data analysis of PERSPECS and SHPPS (School Health Policy and Programs Survey) data sets
 - PERSPECS Score (2005)
 - State Law regarding public School PE policy
 - SHPPS School level data (*public schools*) 2006
 - School practices (minutes of physical activity)
 - School demographic characteristics

Classification

PERSPEC Score	RECODE	PE Required	Minimum PE minutes	School Level
5	Strong Law	yes	225	HS/MS
			150	ES
4	Strong Law	Yes	150	HS/MS
			90	ES
3	Strong Law	Yes	90	HS/MS
			60	ES
2	Weak Law	Yes	nonspecific<90	HS/MS
			nonspecific<60	ES
1	Not Required	No	Variable	HS/MS
			Variable	ES
0	Not Required	No	No	HS/MS
				ES

SHPPS Measures

- Dependent Variable – Reported Time in PE
 - SHPPS Questions:
 - How many weeks during the school year are _____ graders scheduled to take physical education?
 - On average, how many days per week are the _____ graders scheduled to take physical education?
 - On average, how many minutes is each session of physical education scheduled to last?
 - **Time = Weeks x Days x Minutes/ 36 weeks**

PE Time (Elementary)

	<u>Beta Coeff.</u>	<u>SE</u> <u>Beta</u>	<u>F</u>
Model Parameters			
Intercept	86.5	12.9	
Urbanicity (Non-Urban)	25.3*	11.4	2.21*
Poverty (High)	2.7	9.3	
Size (Large)	8.5	8.5	
PERSPCS Code			8.19**
No Requirement	-40.2	14.0	
Nonspecific Requirement	-26.7	12.9	
Specific Requirement (reference)			

* p<0.01, ** p<0.05

Time (Middle School)

	<u>Beta Coeff.</u>	<u>SE</u>	<u>F</u>
	<u>Beta</u>		
Model Parameters			
Intercept	191.2	17.7	
Urbanicity (Non-Urban)	11.9	19.8	
Poverty (High)	35.5	12.7	7.78**
Size (Large)	-12.3	17.2	
PERSPCS Code			20.67**
No Requirement	-59.2	29.2	
“Weak” Requirement	-60.6	13.9	
“Strong” Requirement (reference)			

* p<0.01, ** p<0.05

Example 2: Linking CLASS with Individual-level datasets

Purpose

Study 1 (PE/PA)

- To evaluate the relationship of state laws for PE and neighborhood amenities for PA on adolescent weight status in low socioeconomic status adolescents

Study 2 (Nutrition)

- To evaluate the relationship of state laws for competitive foods on adolescent weight status.

Methods

- CLASS 2005 Data
 - Study 1: PERSPCS
 - Study 2: SNESPCS
- National Survey of Children's Health 2007 (www.cdc.nchs/slait/nsch.htm)
 - National and state representative
 - Examined the physical and emotional health of children aged 0-17 years

Methods – Scoring Procedures

- Recall scoring for CLASS variables:
 - No, recommended, required+
- Study 1: PE Time
 - No law = score 0-1 (No, Recommended)
 - Required law = scores ≥ 2
- Study 2: Competitive Foods
 - A la carte, vending, and other venues for food and beverage (6 categories)
 - Comprehensive measure: average of 6 ratings
 - No law = score 0
 - Weak laws = score $>0-2$
 - Strong laws = score >2

Results – Study 1

Table 2. Multinomial Regression Models examining weight status, physical education laws and neighborhood amenities, reporting odds ratios and 95% confidence intervals for low SES adolescents (n=1,865).

	Model 1 ^a		Model 2 ^b	
	Obese vs Healthy weight	Overweight vs Healthy weight	Obese vs Healthy weight	Overweight vs Healthy weight
Gender (ref: male)	0.84 (0.55, 1.29)	0.95 (0.58, 1.54)	0.77 (0.50, 1.19)	0.94 (0.58, 1.53)
Age	0.62 (0.51, 0.77)	0.88 (0.73, 1.06)	0.62 (0.50, 0.77)	0.88 (0.73, 1.07)
Race/ethnicity (ref: NH White)				
NH Black	2.07 (1.29, 3.32)	1.51 (0.90, 2.53)	1.98 (1.24, 3.18)	1.32 (0.78, 2.24)
Hispanic	3.17 (1.79, 5.61)	1.76 (0.85, 3.63)	3.18 (1.77, 5.69)	1.75 (0.85, 3.62)
NH Mixed Race/Other	1.30 (0.61, 2.77)	1.29 (0.62, 2.68)	1.22 (0.58, 2.57)	1.11 (0.52, 2.35)
Physical Education Law (ref: no requirement)	0.63 (0.41, 0.97)	0.93 (0.59, 1.48)	0.69 (0.45, 1.06)	0.95 (0.59, 1.54)
Neighborhood Amenities			0.87 (0.67, 1.12)	1.33 (0.97, 1.81)

Results – Study 2

Table 1. Descriptive demographic, behavioral, and household characteristics of public United States school-children aged 11–14 years by weight status (n = 16271)			
Characteristic	Healthy weight (n = 10750)	Overweight/Obese (n = 5521)	P
<i>State-level</i>			
Competitive Food/Beverage Composite Score, %			
No Law	49.3	48.3	0.31
Weak Law	22.3	23.4	
Strong Law	28.4	28.2	
<i>Individual-level</i>			
<i>Demographic characteristics</i>			
Age (years), mean (SE)	12.7 (0.03)	12.5 (0.04)	< 0.001
Female sex, %	53.2	46.1	< 0.001
Race/ethnicity, %			
White, non-Hispanic	63.6	46.7	< 0.001
Black, non-Hispanic	13.6	21.1	
Hispanic	14.9	25.1	
Other, non-Hispanic	8.0	7.2	
<i>Behavioral characteristics</i>			
TV in bedroom, % Yes	50.0	63.5	< 0.001
Adequate sleep (nights/week), mean (SE)	6.0 (0.04)	6.0 (0.05)	0.65
Physical activity (days/week), mean (SE)	4.5 (0.06)	4.0 (0.08)	< 0.001
<i>Family and Household characteristics</i>			
Family meals (days/week) ^e , mean (SE)	4.9 (0.05)	5.0 (0.08)	0.17
Parent's age (years), mean (SE)	41.5 (0.16)	40.3 (0.22)	< 0.001
Marital status (married), %	72.3	63.0	< 0.001
Family structure (two parent), %	74.3	65.3	< 0.001
Poverty level, % Federal Poverty Level			
0-99	12.7	22.3	< 0.001
100-199	19.0	24.9	
200-399	33.9	34.8	
≥ 400	34.4	17.9	

Results

Table 2. Multivariate logistical regression analyses predicting U.S. child (11-14 years) overweight/obesity status according to state-level school competitive food and beverage laws and select demographic, behavioral, and household characteristics.

Covariate	Adjusted OR (95% CI), BMI ≥ 85th Percentile	
	Age, Sex, Race/ethnicity Adjusted (n = 16034)	All-Covariate Adjusted (n=14298)
<i>State-level</i>		
Competitive Food Composite Score		
No law	1.00 [Reference]	1.00 [Reference]
Weak law	1.21 (1.04, 1.40)**	1.23 (1.05, 1.44)**
Strong law	0.94 (0.74, 1.19)	1.01 (0.798, 1.30)
<i>Individual-level</i>		
<i>Demographic characteristics</i>		
Age, y	0.81 (0.75, 0.87)***	0.80 (0.73, 0.86)***
Sex		
Male	1.00 [Reference]	1.00 [Reference]
Female	0.74 (0.62, 0.87)***	0.70 (0.59, 0.84)***
Race/ethnicity		
White, non-Hispanic	1.00 [Reference]	1.00 [Reference]
Black, non-Hispanic	2.15 (1.77, 2.62)***	1.58 (1.25, 2.01)***
Hispanic	2.53 (1.92, 3.33)***	1.97 (1.45, 2.70)***
Other	1.23 (0.92, 1.65)	1.11 (0.82, 1.51)
<i>Behavioral characteristics</i>		
TV in bedroom		
Yes		1.45 (1.21, 1.74)***
No		1.00 [Reference]
Sleep, nights/wk		0.96 (0.91, 1.02)
Physical activity, d/wk		0.91 (0.88, 0.95)***
<i>Family and Household characteristics</i>		
Family meals, d/wk		1.04 (0.99, 1.09)
Parent's age, y		0.99 (0.98, 1.01)
Family structure		
Two parent		0.84 (0.66, 1.06)
Single mother/Other		1.00 [Reference]
Poverty status, %FPL		
<100		2.11 (1.55, 2.86)***
100-199		1.74 (1.33, 2.26)***
200-399		1.73 (1.41, 2.13)***
>400		1.00 [Reference]

THANK YOU!

For more information

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