Effects of State and Federal Legislation on a Sample of Local Public School District Wellness Policy Scores over Time

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Abstract

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Background: School district wellness policies (SDWP) may provide guidance to schools seeking to improve and maintain healthy learning environments throughout the United States. State and federal legislation and regulations influence the creation, maintenance, and revision of local SDWP.

Objectives: To examine the strength and comprehensiveness of local SDWP content categories, the changes in those characteristics over time, and the associations between changes in SDWP over time and concurrent changes to state and federal legislation and regulation.

Methods: An observational sample of 19 SDWPs that were in effect over three periods between 2006 - 2014 within a single county of Washington State were scored using the Wellness School Assessment Tool (WellSAT). Content areas of strength and comprehensiveness were compared across time periods. Policy events were divided into three time periods: 2004-2006, 2006- 2010, and 2011-2014.

Results: All districts released a SDWP within the 2004-2006 time period when state and federal legislation required the adoption of the policies; in general, more districts updated policies between 2011 and 2014 when changes were required and policies were monitored by state education agencies than in the previous period when policy updates were suggested but not required. SDWP often did not meet recommendations for optimal school health.

Conclusions: Because they influence the development and implementation of local school district wellness policies, changes to federal and state policies and practices offer opportunities to improve the daily environments of school children. This study demonstrates that clear and definitive legislative language is required to encourage positive change in SDWP.

Introduction

Improvements to school nutrition and physical activity environments are recommended to address childhood obesity.[1-3] Policies at the federal, state and local levels impact nutrition and physical activity environments in schools.[4] Under the National School Lunch Act, Congress established the National School Lunch Program (NSLP) in 1946,[5] which granted national regulatory authority of school meals to the United States Department of Agriculture (USDA).[6] As such, the USDA is the primary developer of school nutrition policy. The National School Lunch Act gives administrative authority of the NSLP and School Breakfast Program (SBP) to state education departments. In Washington State the responsibility to oversee the federal NSLP and SBP falls to the Office of Superintendent for Public Instruction (OSPI). [5, 7] Local education agencies (LEA) or school districts apply to OSPI to establish and operate the NSLP and SBP.[7] Local education agencies have considerable authority over facilities, curriculum, day-to-day implementation and resources for policies and procedures affecting the school nutrition environment and evaluation of these policies and procedures. At each stages of policy adoption, implementation, and evaluation, decisions are driven by a complex set of determinants.

School district wellness policies (SDWP) are defined as a school board policy that provides guidance and accountability for education administrators on the topics of nutrition, physical fitness, USDA meals, and other foods sold in schools. Local SDWP can be an effective way to guide school-level efforts to create supportive school nutrition and physical activity environments.[3, 8, 9] However, evidence demonstrates that some SDWP are of variable quality and impact.[10-13] School district wellness policies gained momentum as a tool to improve child health with the realization that changes to policies, systems and environments were needed to fully address childhood obesity.[14] The Washington (WA) State Legislature passed WA State Senate

Bill 5436 in March 2004 as RCW.28A.210.360[15] and required all school districts within the state of Washington, not just those participating in NSLP, to adopt a wellness policy by August 1, 2005. Initial SDWP were collected by OSPI, and reviewed by a nutrition consultant, but there were no penalties or incentives for developing meaningful, rigorous or comprehensive policies within RCW.28A.210.360.[15] There was no mandated timeline for policy updates; after 2005 some policies were updated according to the needs of the individual school district. Additional legislation was passed in 2007 as Washington Senate Bill 5093.[16] This legislation was enacted as RCW.28A.210.365 and set goals to "ensure… all K-12 districts have school health advisory committees," set forth nutrition requirements for "available foods and beverages," outside of USDA meals, and recommended that all K-8 students receive additional physical education.[16] The legislation provided neither incentives nor penalties for school districts to revise or readopt their wellness policies. The language of RCW 28A.210.365 was left open to interpretation by WA State school officials regarding whether this amendment required enactment or stood as a recommendation for SDWP changes.

Congress passed the Child Nutrition and WIC Reauthorization Act of 2004 (CNRA) in June 2004. Section 204 of the CNRA required that all schools participating in the NSLP or SBP implement a district wide wellness policy by the start of the school year in 2006.[17] The CNRA stated that SDWP should include nutrition education and physical activity goals. In addition, the CNRA required that schools follow nutrition guidelines selected by their governing educational agencies, again passing regulatory authority to state agencies. Furthermore, it required that SDWP establish a plan for evaluating the policies and that wellness committees include key stakeholders from schools and the community.[17] The CNRA required that these changes be

implemented by no later than the first day of the school year after June 2006.[17] Regulations soon followed to provide more specific language for SDWP.

Congress passed the Healthy Hunger-Free Kids Act (HHFKA) on December 13, 2010.[18] Section 204 of the HHFKA refers to Local Wellness Policies and the School Nutrition Environment, and repeals section 204 of the CNRA. The HHFKA required schools to allow the public to participate in SDWP development and to release policy information at the public's request. The greatest changes provided by the HHFKA increased the nutritional guidelines for school meals by requiring school meals to meet the Dietary Guidelines for Americans 2010 (DGA) and increased nutrition standards for competitive foods.[19] Competitive foods are those sold in competition with USDA funded school meals and include individual items sold in à la carte lines in school cafeterias, and foods and beverages sold in vending machines, school stores, and in school fundraisers. The interim final rule for competitive foods was published June 28, 2013.[20] The proposed rule for HHFKA Sec 204 pertaining to SDWP was released on February 26, 2014.[21] The HHFKA shortened the USDA review cycle of state agencies administering the NSLP from five to three years. Other oversight measures for the USDA were related to financial reporting for each state's operation of the NSLP.[22] The HHFKA added specific requirements for SDWP and provided a timeline for reporting to the Centers for Disease Control and Prevention (CDC), who were charged with studying SDWP and submitting a report to Congress by January 1, 2014.[18]

As of October 2014 the system of monitoring and regulating SDWP in Washington State has not been well described. The OSPI released a 'Reference Sheet' for school districts in Washington that detailed monitoring and evaluation requirements for their SDWP. At the time of this writing, this 'Reference Sheet' did not detail a specific mode to make SDWP assessment

information available to the public or provide deadlines for reporting of SDWP compliance or attainment of goals.[23] The USDA provided information online for LEA regarding the development, implementation and evaluation of their SDWP, but failed to provide specific deadlines or consequences if LEA are non-compliant with the monitoring, evaluation, and reporting of their SDWP.[24] It is clear that all LEA are required to keep the most up-to-date version of the SDWP on file and available to the public and that the three year review of the NSLP is within the jurisdiction of the OSPI.[23, 24] Furthermore, the proposed rule for SDWP requires districts to provide "basic information" about their SDWP "each year," the timing of which was at the discretion of the district or LEA.[25]

Early surveillance of SDWP measured content against the specific language provided by the CNRA[26-30] without a standardized tool. This measurement often included goals for nutrition education and physical activity, nutrition guidelines for all foods sold on campus, assurance for adherence to USDA NSLP standards, a plan for measuring the implementation of the district policy, and a method for community involvement in the development of school wellness policies.[17] In 2009, Schwartz et al. published a coding instrument, the Wellness School Assessment Tool (WellSAT), to generate scores for comprehensiveness and strength of SDWP measured against model policies,[31] which has been used in several previous studies.[11, 32-34] Previous studies of SDWP have been limited to cross-sectional samples that could not measure changes over time or the determinants of those changes.[28, 35-37] The policy development process for SDWP can best be described through studies over time to associate changes in SDWP with changes in state and federal legislation and regulation. This can generate useful information on 'what works' for policy makers and public health nutrition professionals. Temporal investigation of the effects of state and federal legislation on SDWP will add to extant research

that measured school policy before the HHFKA and RCW 28A.210.365 were passed,[29, 38] and provide needed information about federal, state, and district level factors that positively influence school wellness policy change in King County, WA.[37] The goal of this study is to identify some of the legislative and regulatory impacts on changes to school district wellness policies over time.

Methods

Wellness policies from the 19 public King County school districts were collected from 2005 through July 2014 through public school district websites and direct communication with school districts. Demographic characteristics of the 19 school districts are provided in Table 1.

School district wellness policies (SDWP) were available as webpage content or as Adobe Portable Document Format (PDF) or Microsoft Word documents. Each district website was searched using the following terms: nutrition, policy, physical education, health and fitness. When the website search was not fruitful, a search of the school board policies was completed for policies listed under the following terms: management and operations, food service, competitive foods, physical education and fitness, and health education. Missing policies were acquired by contacting the school district by telephone. If a policy referred to procedures, these procedures were located and saved as a component of the SDWP. In addition, any other school board policies that were cross-referenced were located and saved as part of the SDWP. Sometimes the district policies refer to state law requirements as the source of their policy; all Washington state ordinances that were cross-referenced in any of the 19 school district wellness policies and procedures were printed, filed, and coded for abstraction.

Policy Abstraction

The WellSAT developed by Schwartz et al. (2009) was used to assess each policy.[31] The current WellSAT contains 50 scoring items within five categories that include: nutrition

education and wellness promotion (NEWP), meal standards for USDA school meals (US), nutrition standards for competitive foods and beverages (NS), physical education and activity standards (PEPA), and an evaluation plan (E) for the wellness policy itself. The comprehensiveness score refers to the extent that the policy mentions evidenced-based, best practices for improving the school health environment. The strength score refers to the required provisions of the policy; a higher strength score represents a higher likelihood of implementation by self-report of school administrators.[33] A score of zero was given to a missing statement, a score of one to a vague or suggested statement, and a score of two to a defined required statement. The comprehensive scores for each category were calculated by totaling all of the items ranked as a one or a two and then dividing that value by the number of policy items within a category and multiplying by 100. Similarly, strength scores were calculated by the how many items within a category received a score of two for defined, required statements. Because the primary policy abstractor (AK) coded all policies, inter-rater reliability was assessed as a way to determine the reliability of the abstraction. A random number generator was used to choose four policies that a second coder would also evaluate, and Cronbach's alpha was calculated for each policy-scoring category to determine inter-rater reliability between the two policy abstractors.[31] All Cronbach's alpha values were above .70. If a school district published two policies between 2004 and 2006 the policy with the most recent publication date was chosen for inclusion in baseline analysis. Two school districts published two policies between 2011-2014 and the most recent published policy was chosen for inclusion in 2011-2014 analyses.

Coding Assumptions

Coding assumptions required by the WellSAT coding protocol are listed in Table 4 in the Appendix. Coding assumptions were required in this study to ensure policies were coded in a similar way when they referred to external standards but failed to state the details of these

standards. Washington laws RCW 28A.230.040 [39] and RCW 28A.230.050 [40] mandates that students within grades one through eight receive a minimum of an average 100 minutes of physical education per week per academic year and that high school students complete two credits of physical education for graduation. All districts physical education and physical activity (PEPA) scores were PEPA1 = 2, PEPA2 = 1, PEPA3 = 1, PEPA4 = 1, unless the policy language was stronger and required a higher score. The USDA was scheduled to release the interim final rule on nutritional guidelines for all foods sold in schools in January of 2014 with a requirement that school policy reflect these nutritional standards no later than July 1, 2014. The USDA released the preliminary rule and a document that summarized the nutritional guidelines as "Smart Snacks in Schools" USDA's 'All Foods Sold in Schools' Standards."[41] If SDWP references the "Smart Snacks in Schools" guidelines the policies were scored according to the language in the "Smart Snacks in Schools" standards, unless the language in the policy that references "Smart Snacks in Schools" guidelines was stronger than the guidelines. Section 203 of the HHFKA stipulates that schools participating in the NSLP and SBP "shall make available to children free of charge, potable water for consumption."[18] The WellSAT references water access under NS15. If the school policy referenced the HHFKA but does not mention water and was revised/ published/ adopted *after* Dec 13, 2010, the HHFKA passage date, it was scored as a "2" or "strong" statement for NS15 because of the language in the public law. However, if the policy does not reference the HFFKA or was published/ revised/ adopted *before* Dec 13, 2010 it was scored using the language presented in the policy.

Analytical Methods

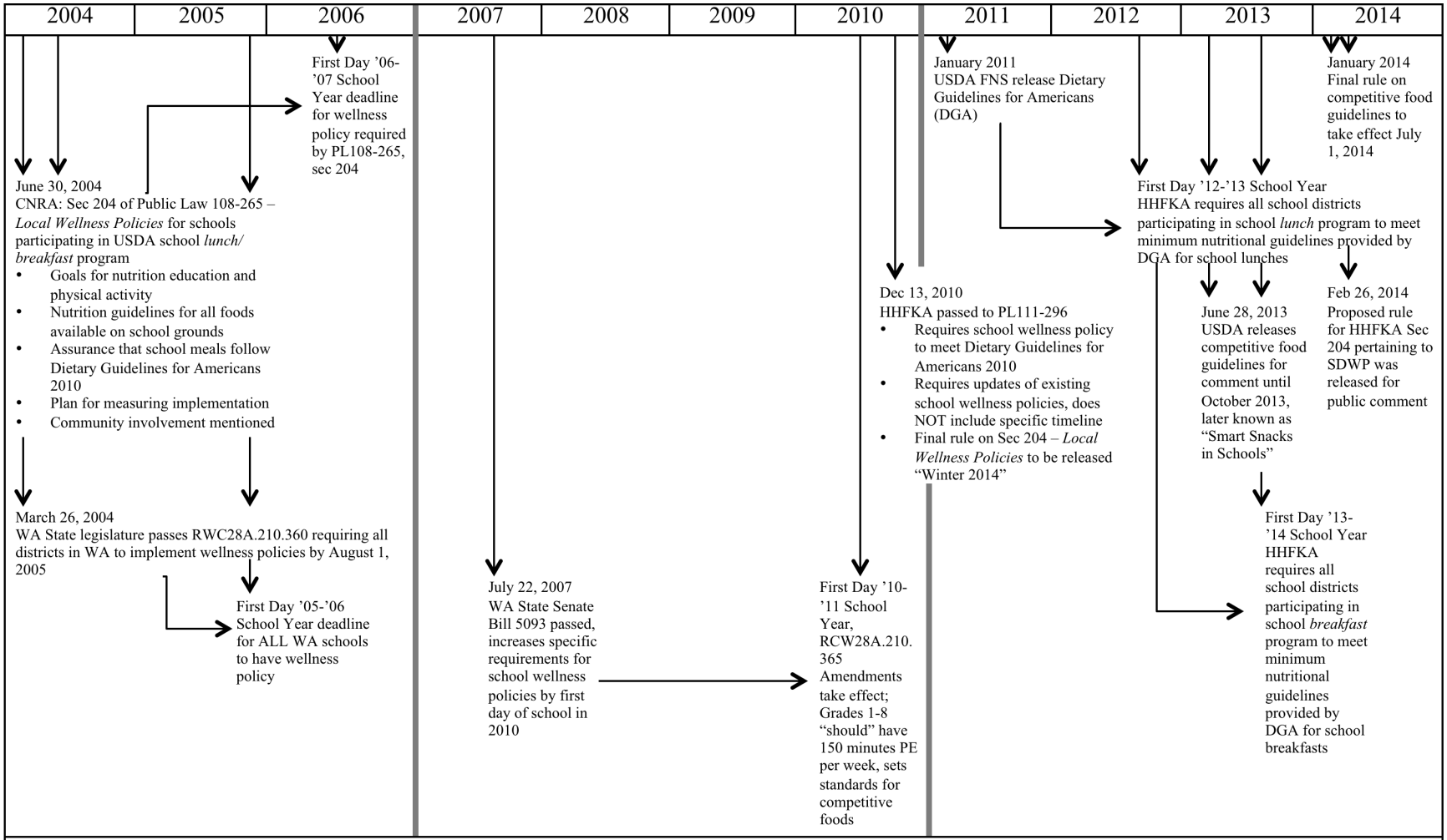
All data were exported from wellsat.org to Microsoft Excel (Redmond, WA). The policies listed in Table 2 were coded for each district. If a district had a policy at baseline, 2004-

2006, but did not release another policy during the nine years of follow-up, that district's WellSAT scores did not change from baseline.

Change in WellSAT policy scores over time was calculated based on each school district's baseline policy score. Positive and negative values were used to measure both the nature and magnitude of the policy change. If the policy was not updated after the district's baseline year no change was found and a value of zero change was assigned to each subsequent year following baseline. If a school district released a new policy with different language, it was coded using the WellSAT. The difference between the baseline policy score and the updated policy score was calculated by subtracting the baseline score from the updated score. If policy language was revised to be weaker and more vague, then a negative change would be found; if the revised policy was stronger and more detailed, a positive change would be found. If a school district re-adopted the same wellness policy language, a change score of zero was assigned. Change scores were assigned to time periods based on the corresponding policy's date of publication.

Policy Events

Please see Figure One for a timeline including all state and federal school wellness legislation relevant to this study. Policy events were organized into three periods: 2004-2006, 2007-2010, and 2011-2014.



WA = Washington, CNRA = Child Nutrition and WIC Reauthorization Act of 2004, PL = Public law, PE = physical education, HHFKA = Healthy-Hunger Free Kids Act of 2010, USDA = United States Department of Agriculture, FNS = Food and Nutrition Services, DGA = Dietary Guidelines for Americans

Figure 1: Policy Events of School District Wellness Policy Legislation - Federal and Washington State

Results

Demographic Characteristics of the Districts

The demographic characteristics of the 19 public school districts in King County in 2013-2014 are provided in Table 1. These data are available from the OSPI.[42] The sample includes large and small, low income and high income, and ethnically diverse districts. The racial and ethnic make-up may be unique to the geographic location of these districts. School districts were de-identified and assigned "letter" designations.

Table 1: Demographic Characteristics of the 19 Public School District Sample for School Year 2013-14 (n=19)

District Characteristics	*Mean*	*SD*	*Range*
Enrollment	14,222	16,4019	42 - 51,738
% American Indian, Alaskan Native	1.12	2.10	0 - 8.8%
% Asian	12.82	10.14	0 - 32.5%
% Pacific Islander	0.89	1.26	0 - 4.4%
% Asian Pacific Islander	13.37	10.54	0 - 32.7%
% Black	6.60	7.95	0 - 21.2%
% Hispanic	13.39	8.64	3.9 - 37%
% White	57.50	25.75	13.8 - 85.7%
% Two or More Races	5.95	3.29	0 - 12.2%
% FRPM	33.06	26.80	3.7 - 81.1%

Publication of Wellness Policies Over Time

Of this sample, 36 SDWPs were published between 2005 and August 2014. Overall, six districts did not release an updated policy from baseline. Three school districts republished a SDWP using the exact language from their baseline policy. Ten school districts released revised SDWP with altered language between 2007-August 2014, and thus demonstrated a change in 'Overall' comprehensive scores. Only three school districts out of the 19 revised their SDWP three times with different language each time. In two of these school districts, WellSAT scores

decreased from baseline in the second revision and increased in the third revision. Table 2 lists the number of SDWP published in each of the time periods.

Changes in Wellness Policies Over time

Table 3 provides WellSAT comprehensive and strength scores for each of the policy categories and the 'Overall' scores. The magnitude and type of change, positive or negative, in 'Overall' comprehensive SDWP WellSAT scores is depicted in Figure 2. Meal standards for USDA meals (US), Nutrition Standards for competitive foods (NS) and Physical Education and Physical Activity (PEPA) were the categories that were mostly likely to be changed over time. Changes in 'Overall' comprehensive and strength scores are compared in Figure 3. Table 5 in the Appendix lists the specific adoption dates for all of the policies coded for this analysis. If a policy and its procedures were adopted separately, the most recent date of adoption was chosen for the collective coding of the SDWP and its accompanying procedures.

Table 2: School District Wellness Policies according to Year and Time Period			
Public School Districts in King County, n = 19			
Time Period	Year	Number of New Policies Published	Total
2004-2006	2005	9	
	2006	10	19
2007-2010	2007	2	
	2008	0	
	2009	1	
	2010	1	4
2011-2014	2011	1	
	2012	3	
	2013	4	
	2014	5	13
Total		36	

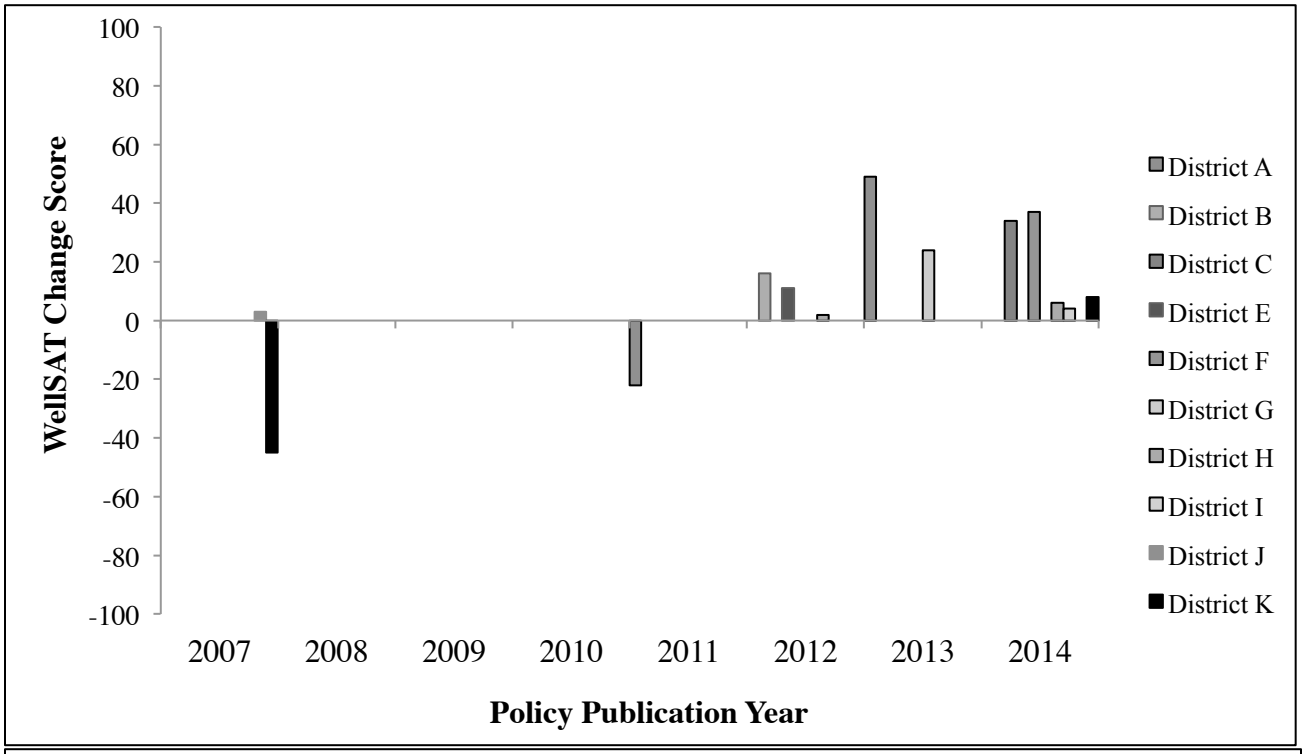


Figure 2: Overall Comprehensive WellSAT Change Scores from Baseline

Table 3: WellSAT Scores in Mean Comprehensiveness and Strength of Wellness Policies and the Sub-Categories of Wellness Policies Overtime (n=19 districts)

	Comprehensiveness						Strength					
	2004-2006		*2007-2010*		*2011-2014*		*2004-2006*		*2007-2010*		*2011-2014*	
	Mean	(SD)	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
NEWP	45.68	(22.98)	43.89	(23.16)	50.37	(21.28)	19.79	(18.79)	18.63	(18.61)	20.95	(17.02)
US	49.58	(30.93)	45.84	(28.71)	54.16	(23.98)	14.21	(15.13)	13.47	(15.48)	22.47	(16.80)
NS	53.11	(29.17)	55.05	(29.76)	74.16	(20.96)	28.63	(25.41)	28.63	(25.58)	37.84	(20.71)
PEPA	53.79	(16.83)	51.63	(16.03)	54.11	(14.81)	20.32	(14.75)	18.47	(13.76)	20.11	(13.69)
E	60.53	(42.75)	55.26	(43.76)	63.16	(42.79)	36.84	(33.71)	34.21	(34.57)	38.16	(39.41)
Overall	52.58	(21.59)	50.37	(21.52)	59.26	(17.30)	24.05	(14.03)	22.79	(14.63)	27.89	(14.65)

0 =minimum possible score, 100 = maximum possible score for both comprehensiveness and strength
NEWP = nutrition education and wellness policy, US = meal standards for USDA school meals,
NS = nutrition standards for competitive foods, PEPA = physical education and physical activity, and E = evaluation

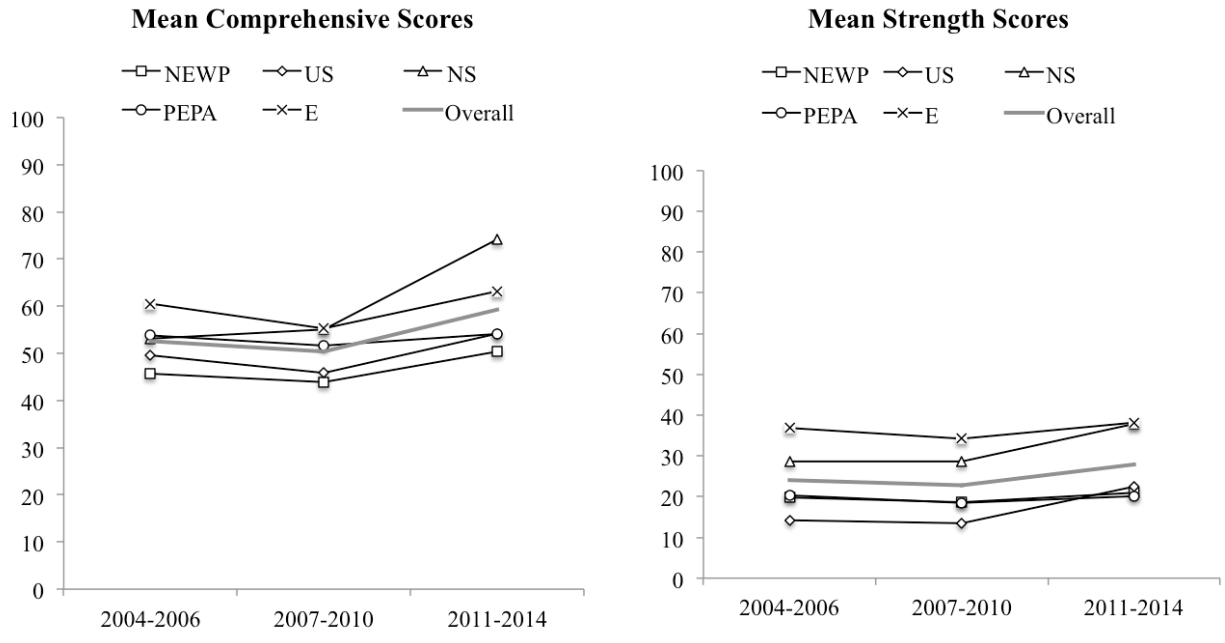


Figure 3: Mean WellSAT Comprehensive and Strength scores over Time
NEWP = nutrition education and wellness policy, US = meal standards for USDA school meals, NS = nutrition standards for competitive foods, PEPA = physical education and physical activity, and E = evaluation

Discussion

Overall, there was little change in the sample of 19 public school district wellness policies (SDWP) within the nine-year period. Change that did occur primarily took place after the passage of the HHFKA The policies within the King County sample were slightly stronger in 2004-2006 and 2011-2014, than in 2007-2010. . This study demonstrates that WellSAT scores for nutrition standards for competitive foods (NS) and standards for USDA meals (US) increased when federal guidelines mandated changes to these items. Positive change in SDWP language likely occurred as a result of legislation that provided deadlines and attached funding to policy implementation. School wellness policies are proposed as a cost effective tool to combat childhood obesity.[3,10,43] Areas for improvement persist, particularly in rural and under-served communities.[44] Coffield et al. (2011) measured SDWP language comparable to the WellSAT, and found that SDWP enacted after implementation of the CNRA was protective against adolescent obesity.[8]

This study demonstrated modest changes in both comprehensiveness and strength in the sample of policies over a nine-year study period. Figure 3 demonstrates greater increases in comprehensive scores than strength scores. School boards may increase their comprehensive score by including more policy items and refrain from establishing specific requirements for school administrators to follow causing an increase in comprehensive scores but not strength. This could represent a trade-off between creating a more comprehensive policy to meet new federal regulations and needing to use less restrictive language to satisfy key stakeholders.

There was little improvement to this sample's WellSAT score observed in 2007-2010, an effect observed in other studies. Turner and Chaloupka (2012) observed a lull in school food environment improvement between 2006-2007 and 2009-2010.[45] Brener et al. (2011) measured comprehensiveness from the national CDC School Health Policies and Practices Study (SHPPS) from 2006 and found that the comprehensiveness of SDWP varied widely across different policy elements outlined in the CNRA.[32] Longley and Sneed (2009) measured state level regulatory environments as evidenced by state policies that addressed fat, energy, and sugar content of a la carte foods; beverage portion and nutrition standards, time and place rules for food sales, and statewide training, and found that only three states in a national sample had positive regulatory environments for school nutrition in 2004 before the CNRA. This increased to 22 states in 2006 after the implementation of the CNRA.[29] The present study demonstrated an increase in 'Overall' comprehensive scores from 2004-2006 to 2011-2014. An increase in strength scores was demonstrated for policies published in 2011-2014 when HHFKA deadlines and regulations began to take effect, demonstrated by positive change scores in Figure 2. This suggests that policy language may be strengthened in response to federal legislation that lists specific requirements and deadlines.[19, 20] Stronger language and higher WellSAT strength scores have

been associated with higher policy implementation by self-report.[33] Stronger SDWP language will make it easier for school children to make healthy choices.

This study measured five SDWP categories allowing for deeper investigation into the types of policy change that occurred in this sample from 2005 to 2014. The changes in policies over time were most likely to improve in meal standards for USDA meals (US) and nutrition standards for competitive foods (NS) observed in Table 3, which is consistent with the literature. These scores were taken after the passage of RCW 28A.210.360; therefore, this sample's NS and US scores may be elevated in 2005 compared to a national sample where most states did not have a SDWP mandate. Support has continued to grow for regulation of competitive foods.[49] Seven school districts out of nine that released new policies (78%) between 2011-2014 published stronger language for the NS category and increased their strength score. This reflects that increased federal and state regulation regarding competitive foods will likely result in fewer offerings of low-nutrient, energy-dense foods. All schools are required to adhere to stricter competitive foods guidelines by the start of the school year in 2014, leading to a de facto increase in NS and US scores[18, 41] through the USDA's "Smart Snacks in Schools" guidelines.

Regulation of competitive foods will most likely result in positive changes to school nutrition environments. Competitive foods were widely available to students through schools before the passage of CNRA.[14, 43, 46, 47] Boles et al. found that few schools in Washington State had SDWP monitoring competitive foods in 2002.[38] Briefel et al. (2009) and others demonstrated that student access to low-nutrient, energy-dense food increased across grade level[13, 35, 47] and that before CNRA or HHKFA took effect, food available at school was a primary source of low-nutrient, energy-dense items in children's diets.[35] Finkelstein et al. (2008) found that the greatest sources of competitive foods in 2005 were vending machines and à la carte lines that were

operated by school foodservices.[48] The positive change scores in certain WellSAT categories some appear to be attributable to national requirements provided through federal legislation.

The areas of the least amount of positive change in strength were in the nutrition education and wellness policy (NEWP), physical education and activity (PEPA), and evaluation of policy (E) categories. The HHFKA includes only "goals for physical activity" without additional direction for SDWP language relating to PEPA, [18] leaving PEPA requirements to state agencies. Physical activity and education requirements did not change in Washington State since the passage of RCW28A.210.365 in 2007.[16] Therefore, a lack of change in PEPA scores was expected and others, such as Nanney at el. (2010), have observed slow movement on physical education at the state level.[37]

Despite the potential to positively impact the school health environment, [51] nutrition wellness committees have received little attention in SDWP language. These committees are time-intensive, and their success requires representation from various health advocates.[50] Before the HHFKA, many SDWP were found to be incomplete, contain vague language, and to be developed by non-representative committees.[52] The HHFKA built upon the CNRA to increase the requirements of school nutrition wellness committees by requiring periodic evaluation of SDWP.[18] Federal and state agencies have not provided clear guidance about the methods and timelines that will be used to hold school districts accountable for operation of their wellness committee and evaluation of their SDWP.[23-25] The lower magnitudes or lack of change in the NEWP and E categories in 2011-2014 could represent either a failure to provide adequate support for wellness committees and policy evaluation, a lack of consequences for non-compliance, or prior adoption of best practices in these areas. Schools were not provided with resources to operate wellness committees or nutrition advisory councils or to conduct wellness

policy evaluation at the time of this writing. NEWP and E categories may not improve without additional incentives. School health environments may improve greatly if policy makers and advocates focus energy and resources on establishing nutrition wellness committees and evaluating wellness policies.

Barriers to SDWP implementation, evaluation, and revision include lack of time, lack of funding, low communication, low accountability for the SDWP, and a lack of knowledge.[12, 32, 49] Other barriers include geo-political challenges counties face like competing district or governmental priorities and a political ideology that schools should not interfere in children's diets.[32, 53, 54] McCaughtry et al. (2012) found that urban school systems that faced financial and political challenges had very low implementation of their districts' wellness policies.[12] This was at least partially driven by public education funding shortages and schools' efforts to bridge this gap with corporate contracts and sponsorships. The USDA's "Smart Snacks in Schools" guidelines specially exempt fundraisers from its nutritional standards,[41] and class parities and school fundraisers continue to be a loophole within school wellness implementation.[30] Future studies should examine the SDWP evaluation, revision, and implementation at the district level to discover methods to overcome these barriers.

Limitations

The sample size of 19 policies is small and limited to one geographic area. The state legislation that required wellness policies in 2005 was unique to Washington State. This analysis was limited by a low variation of policy abstractors, as there was one primary policy abstractor and a second who coded 21% of the baseline policies to ensure the reliability of the primary coder. Policy evaluation by policy abstraction alone is unable to measure policy implementation, impact or sustainability.

Conclusion

Federal and state policies and practices influence the development and implementation of local SDWP. Many school districts appear to lack the capacity or incentive to revise their policies when change is perceived as a choice rather than a mandate. In this sample, school districts did increase the strength and comprehensiveness of their wellness policies when there was a federal mandate for change. These increases were greatest in nutrition standards for competitive foods and USDA meal standards – the categories that were addressed by the changes in federal regulations. Other policy categories, specifically those applied to nutrition education, wellness committees, physical education and activity, and policy evaluation were not greatly improved over time. Given that ongoing monitoring has been shown to improve the impact of SDWP, this reveals a need for future work to improve the impact of wellness committees and local evaluation. Public health practitioners and school nutrition advocates can use these findings to change federal and state policies and support local advocates who are working to change local policies, systems and environments.

References

1. Koplan, J.P., Liverman, C.T., and Kraak, V.I. (Eds.) Preventing Childhood Obesity: Health in the Balance. *Institute of Medicine. Committee on Prevention of Obesity in Children and Youth*. 2005. National Academies Press (US) National Academy of Sciences.: Washington (DC).
2. Executive Office of the President of the United States. Solving the problem of childhood obesity within a generation. *White House Task Force on Childhood Obesity Report to the President.* 2010. Retreived from: http://purl.access.gpo.gov/GPO/LPS122972. Accessed on: November 8, 2014.
3. Story, M., Nanney, M.S., and Schwartz, M.B. Schools and obesity prevention: creating school environments and policies to promote healthy eating and physical activity. *Milbank Q,* 2009. 87(1): 71-100.
4. Department of Health and Human Services. School-Based Obesity Prevention Strategies for State Policymakers. *Centers for Disease Control and Prevention.* 2010. Retreived from: http://www.cdc.gov/healthyyouth/policy/pdf/obesity_prevention_strategies.pdf. Accessed on: November 1, 2014.
5. National School Lunch Act of 1946, Pub. L. No. 76-396, § 2, 60 Stat 231. (1946).
6. USDA Nutrition Standards in the National School Lunch and School Breakfast Programs*,* 7 CFR § 210 & 220. (2012).
7. Child Nutrition. *Office of the Superintendent of Public Instruction.* 2014. Retreived from: http://www.k12.wa.us/childnutrition/. Accessed on: November 8, 2014.
8. Coffield, J.E., et al. A multivariate analysis of federally mandated school wellness policies on adolescent obesity. *J Adolesc Health.* 2011. 49(4): 363-70.
9. Frieden, T., and Collins, D.W. Reducing childhood obesity through policy change: acting now to prevent obesity. *Health affairs (Project Hope).* 2010. 29(3).
10. Budd, E.L., et al. Factors influencing the implementation of school wellness policies in the United States, 2009. *Prev Chronic Dis.* 2012. 9: E118.
11. Smith, E., Capogrossi, K., and Estabrooks, P. School wellness policies: effects of using standard templates. *American journal of preventive medicine.* 2012. 43(3): 304-8.
12. McCaughtry, N., Fahlman, M., and Shen, B. Urban health educators' perspectives and practices regarding school nutrition education policies. *Health education research.* 2012. 27(1): 69-80.
13. Greves, H.M. and Rivara, F.P. Report card on school snack food policies among the United States' largest school districts in 2004-2005: room for improvement. *Int J Behav Nutr Phys Activity.* 2006. **3**: 1.
14. French, S., Story, M., and Fulkerson, J.A. School food policies and practices: a state-wide survey of secondary school principals. *J of the Am Diet Assoc.* 2002. 102(12): 1785-9.
15. Model policy on access to nutritious foods and developmentall appropriate exercise-school district policies, Revised Code of Washington §28A.210.360. (2004).
16. Food choice, physical activity, childhood fitness - minimum standards - district waiver or exemption policy, Revised Code of Washington §28A.210.365. (2007).
17. The Child Nutrition and WIC Reauthorization Act of 2004, Pub. L. No. 108-279, § 204. (2004).
18. Healthy, Hunger-Free Kids Act of 2010, Pub. L. No. 111-296. (2010).
19. Food and Nutrition Services. Implementation Plan: Healthy-Hunger-Free Kids Act of 2010. *USDA.* 2013. Retreived from: http://www.fns.usda.gov/sites/default/files/implementation_actions.pdf. Accessed on: July 17, 2013.

20. United States Government Accountability Office. Cramer, R.J. Ed. Iterium final rule on Sec 203 of HHFKA. *USDA, Food and Nutrition Service*. 2013. Retreived from: http://www.gao.gov/assets/660/655967.pdf. Accessed on: October 9, 2014.

21. Food and Nutrition Services. Team Nutrition: local school wellness policy. *USDA*. 2014. Last Updated: July 21, 2014. Retreived from: http://www.fns.usda.gov/tn/local-school-wellness-policy. Accessed on: October 9, 2014.

22. United States Government Accountability Office. School Lunch: implementing nutrition changes was challenging and clarification of oversight requirements is needed. *USDA, Food and Nutrition Service*. 2014. Retreived from: http://www.gao.gov/assets/670/660427.pdf. Accessed on: November 9, 2014.

23. Child Nutrition. Local school wellness policy - reference sheet. *Office of superintendent of public instruction, Washington State.* 2014. Retreived from: http://www.k12.wa.us/ChildNutrition/Programs/NSLBP/pubdocs/NutritionProgramsReferenceSheets-WellnessPolicy.pdf. Accessed on: November 8, 2014.

24. Team Nutrition. Local Process: how to develop, implement, and evaluate a wellness policy. *USDA, Food and Nutrition Service.* 2014. Last updated: September 30, 2014. Retreived from: http://www.fns.usda.gov/tn/local-process-how-develop-implement-and-evaluate-wellness-policy. Accessed on: November 8, 2014.

25. Proposed rule: Local School Wellness Policy Implementation Under the Healthy, Hunger-Free Kids Act of 2010, vol. 79 no. 38, 7 CFR § 210 & 220. (2014).

26. Gaines, A., Lonis-Shumate, S.R., and Gropper, S.S. Evaluation of Alabama public school wellness policies and state school mandate implementation. *The Journal of school health.* 2011. 81(5): 281-7.

27. Metos, J. and Nanney, M.S. The strength of school wellness policies: one state's experience. *J Sch Health, 2007.* 77(7): 367-72.

28. Moag-Stahlberg, A. et al. A National Snapshot of Local School Wellness Policies. *The Journal of School Health*. 2008. 78(10): p. 562-568.

29. Longley , C/ and Sneed, J. Effects of federal legislation on wellness policy formation in school districts in the United States. *J of the Am Diet Assoc.* 2009. 109(1): 95-101.

30. Probart, C. Statewide assessment of local wellness policies in Pennsylvania public school districts. *J of the Am Diet Assoc.* 2008. 108(9):1497-502.

31. Schwartz, M.B, Lund, A.E., et al. A comprehensive coding system to measure the quality of school wellness policies. *J Am Diet Assoc.* 2009. 109(7): 1256-62.

32. Brener, N.D., et al. Establishing a baseline measure of school wellness-related policies implemented in a nationally representative sample of school districts. *J Am Diet Assoc.* 2011. 111(6): 894-901.

33. Schwartz, M.B., et al., Strength and comprehensiveness of district school wellness policies predict policy implementation at the school level. *J Sch Health*. 2012. 82(6): 262-7.

34. Brissette, I., Wales, K., and O'Connell, M. Evaluating the wellness school assessment tool for use in public health practice to improve school nutrition and physical education policies in New York. *Journal of School Health.* 2013. 83(11): 757-762.

35. Briefel, R. et al. School food environments and practices affect dietary behaviors of US public school children. *J Am Diet Assoc.* 2009. 109(2): 91-107.

36. Kubik, M., Lytle, L.A., and Farbakhsh, K. State but not district nutrition policies are associated with less junk food in vending machines and school stores in US public schools. *J Am Diet Assoc* 2010. 110(7): p. 1043-8.

37. Nanney, M. State school nutrition and physical activity policy environments and youth obesity. *Am j of prev med.* 2010. 38(1): 9-16.

38. Boles, M. et al. Changes in local school policies and practices in washington state after an unfunded physical activity and nutrition mandate. *Prev. Chronic Dis. Preventing Chronic Disease*. 2011. 8(6).

39. Physical education in grade one through eight, Revised Code of Washington §28A.230.040. (2006).

40. Physical education in high schools, Revised Code of Washington §.230.050. (2006).

41. Smart Snacks in School: USDA's "All Foods Sold in Schools" Standards. 2013. Retreived from: http://www.fns.usda.gov/sites/default/files/allfoods_flyer.pdf. Accessed on: September 12, 2014.

42. Washington State Report Card - 2014 Data Files: Demographic Information by District. *Office of Superintendent for Public Instruction Washington State.* 2014. Retreived from: http://reportcard.ospi.k12.wa.us/DataDownload.aspx. Accessed on: October 8, 2014.

43. Story, M., Kaphingst, K., Robinson-O'Brien, R., and Glanz, K. Creating Healthy Food and Eating Environments: Policy and Environmental Approaches. *Annual Review of Public Health.* 2008. 29(1).

44. Nanney, M.S., Davey, C.S., and Kubik, M.Y. Rural disparities in the distribution of policies that support healthy eating in US secondary schools. *J Acad Nutr Diet.* 2013. 113(8): 1062-8.

45. Turner, L. and Chaloupka, F.J. Slow progress in changing the school food environment: nationally representative results from public and private elementary schools. *J Acad Nutr Diet.* 2012. 112(9): 1380-9.

46. Story, M. and Hayes, M. Availability of foods in high schools: Is there cause for concern? *J Am Diet Assoc.* 1996. 96(2).

47. Fox, M.K., et al. Availability and Consumption of Competitive Foods in US Public Schools. *J Am Diet Assoc* 2009. 109(2, Supplement): S57-S66.

48. Finkelstein, D.M., Hill, E.L. and Whitaker, R.C. School food environments and policies in US public schools. *Pediatrics.* 2008. 122(1): e251-9.

49. Agron, P., Berends, V., Ellis, K., and Gonzalez, M. School wellness policies: perceptions, barriers, and needs among school leaders and wellness advocates. *The Journal of school health.* 2010. 80(11): 527-35.

50. Kubik, M., Lytle, L. A., and Story, M. A practical, theory-based approach to establishing school nutrition advisory councils. *J Am Diet Assoc* 2001. 101(2): 223-8.

51. Kubik, M., Lytle, L.A. and Farbakhsh, K. School and district wellness councils and availability of low-nutrient, energy-dense vending fare in Minnesota middle and high schools. *J Am Diet Assoc* 2011. 111(1): 150-5.

52. School Wellness Policies: A Policy Brief. *Rudd Center for Food Policy and Obesity.* 2009. New Haven, CT: Yale University. Retreived from: http://www.yaleruddcenter.org/resources/upload/docs/what/reports/RuddReportSchoolWellnessPolicies2009.pdf. Access on: July 7, 2013.

53. Roberts, S.M. et al. A Qualitative Study of Junior High School Principals' and School Food Service Directors' Experiences with the Texas School Nutrition Policy. *J of Nutr Ed and Behav.* 2009. 41(4): 293-299.

54. Mâsse, L.C., Naiman, D., and Naylor, P.J. From policy to practice: implementation of physical activity and food policies in schools. *Int J Behav Nutr Phys Activity.* 2013. 10: 71.

Appendix

Table 4: Coding Assumptions regarding State and Federal legal statutes for WellSAT policy abstraction	
WellSAT Category	Minimal Code Required
PEPA1	2
PEPA2	1
PEPA3	1
PEPA4	1
US2	2
NS5	3*
NS6	3*
NS7	2
NS8	3*
NS9	1
NS12	1
NS13	1
NS14	Elementary = 2† Middle = 1† High = 1†
*according to the WellSAT this will default to a 2 in the calculation of strength †the WellSAT allows for different scoring of competitive food guidelines at elementary, middle and high school grade level	

Table 5: Policy Adoption Dates Collected and Coded School District Wellness Policies			
School Districts, N = 19	Baseline Policy	Re-adoption A	Re-adoption B
District A	July 7, 2005	July 11, 2011	November 12, 2013
District B	April 4, 2006	September 4, 2012	
District C	February 2006	April 2014	
District D	June 28, 2005	April 10, 2012	
District E	July 13, 2005	April 4, 2014	
District F	June 15, 2005		
District G	August 23, 2006		
District H	August 1, 2005	January 2, 2013	
District I	June 22, 2006		
District J	June 28, 2005	May 28, 2013	
District K	April 1, 2005		
District L	June 27, 2006	August 11, 2009	November 7, 2013
District M	August 16, 2006	August 15, 2012	June 18, 2014
District N	June 5, 2005	June 2, 2014	
District O	October 26, 2006	May 30, 2007	
District P	November 9, 2006	January 7, 2010	
District Q	March 28, 2006	December 18, 2007	May 27, 2014
District R	September 27, 2005		
District S	June 23, 2005		