



The Impact of Competitive Food and Beverage Standards

March 25th, 2009

Sarah Samuels, DrPH, President
Samuels & Associates

BACKGROUND

During the last three decades the prevalence of obesity among U.S. children has risen dramatically [1]. Easy access to unhealthy foods at school may contribute to current rates of childhood obesity [2, 3]. Although foods and beverages available through the U.S. Department of Agriculture (USDA) federally reimbursable school breakfast and lunch programs must meet nutrition standards in order for schools to receive federal subsidies, the same is not true for competitive foods that are available in vending machines, student stores and à la carte in cafeterias.¹ Competitive foods represent a considerable portion of the foods students purchase while on campus [4] and often are high in calories, fat and sugar and low in nutrient density [4-9].

Health and education leaders have agreed that a crucial step to improving children's eating habits is to establish policies and programs that increase access to healthy foods and beverages at school [10, 11], while at the same time limiting access to unhealthy foods and beverages. School interventions that change the school food environment by increasing the availability of healthy foods can have a significant impact on student food choices [4-7, 12-14]. One school intervention to improve foods and beverages in 10 schools in the Mid-Atlantic region of the United States reported a 50 percent reduction in the incidence of overweight compared to control schools [8].

Realizing the potential impact that improving school food environments can have on children's health, states and school districts across the country are developing and implementing school nutrition standards that set standards for competitive foods sold on school campuses [15]. As of November 2007, 30 states (including the District of Columbia) had adopted school competitive food standards [16] and 12 of these states had set comprehensive nutrition standards covering all grades for the entire school day and all areas of the school campus [16].

Concerns exist, however, regarding the extent to which schools will be able to adhere to the new regulations, the financial impact on school programs, and the student and adult stakeholder responses to these mandated changes [17]. Questions relate to the capacity of school personnel to manage enforcement of standards based upon detailed knowledge of the nutrient content of a myriad and constantly evolving array of food products. Competing demands upon personnel time may also limit schools' ability to implement complex new standards.

¹ The USDA regulations state that Foods of Minimal Nutritional Value (FMNV) cannot be sold where USDA school meals are served or eaten (i.e. cafeterias) during meal periods. FMNV include carbonated beverages, water ices (without any amount of fruit/fruit juice), certain candies and chewing gum. These products generally contain less than 5% of the Reference Daily Intake (RDI) for protein, vitamin A, vitamin C, niacin, riboflavin, thiamin calcium and iron and food manufacturers may petition the USDA for removal of their product from the list of FMNV if their product contains the aforementioned nutrients (Foods of Minimal Nutritional Value. fns.usda.gov. Accessed 4/18/008).



RECENT FINDINGS

Samuels & Associates has conducted numerous studies of the school competitive food and beverage environment across California. With funding from the Robert Wood Johnson Foundation, Healthy Eating Research program, Samuels & Associates in partnership with colleagues at UC Berkeley, has studied the impact of state legislation on improving school food and beverage offerings outside of the school meal program. Also, Samuels & Associates serve as the lead evaluators for The California Endowment's Healthy Eating Active Communities program, aimed at reducing childhood obesity by increasing access to healthy food choices and opportunities for physical activity in schools, after school and neighborhood settings in six low-income California communities. With funding from NIH SBIR, Samuels & Associates has developed FoodBEAMS, an electronic data collection system and database, that has been used to monitor the implementation of school nutrition policies. The findings presented below are taken from these studies and provide the most current data on competitive foods and beverages in schools in California.

California's SB 12 and SB 965 Implementation Study (The Robert Wood Johnson Foundation)

In 2005, California passed Senate Bills 12 and 965 calling for the implementation of nutrition standards to regulate competitive foods and beverages in all K-12 schools. California's legislation is among the most stringent, comprehensive and specific plan in the nation aimed at changing the school food and beverage environment. The laws regulate the amount of fat, sugar and calories contained in competitive foods (SB 12) and phase out the sale of sodas and other sweetened beverages (SB 965). Food standards at high schools were to be fully implemented by summer 2007, while the implementation target for beverage standards was 50% adherence by summer 2007. Beverages are slated for full adherence by July 2009.

To date, no study has been published regarding the evaluation of the impact of the new comprehensive nutrition standards at the high school level [18]. This study evaluated the effect of new food and beverage standards in 57 randomly selected California high schools during the first year of implementation, and correlates program adherence with demographic characteristics of school populations including percent non-white enrollment, population density of the community, percent free/reduced-price meal eligibility, and school size. The findings from this study have been accepted for publication in the Journal of Adolescent Health and will be published in June 2009.

Figures 1 and 2 below show that after implementation of SB 12 and SB 965, the availability of select non-adherent foods and beverages like soda, sweetened juice drinks (not 100% juice), chips and candy decreased. Alternatively, there was an increase in the availability of products such as 100% juice, snack bars, and baked chips.

Figure 1: Most Common Competitive Beverages Sold, Baseline (2006) to Endpoint (2008)

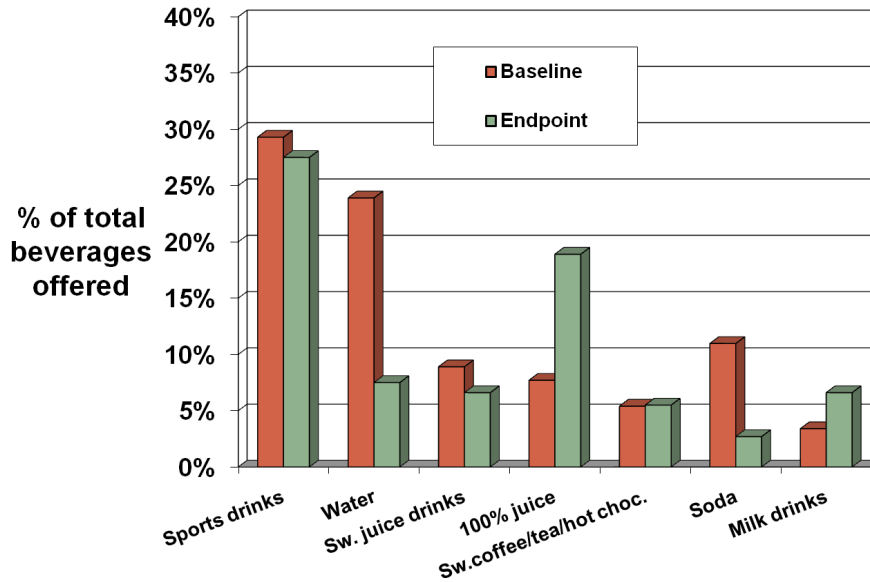
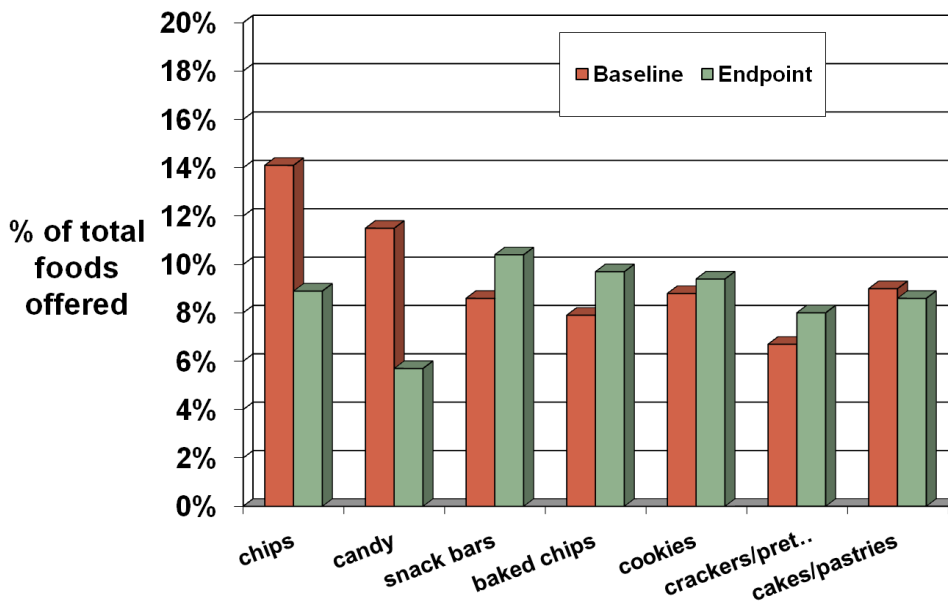


Figure 2: Most Common Competitive Foods Sold, Baseline (2006) to Endpoint (2008)



Figures 3 and 4 illustrate that adherence to SB 12 and SB 965 increased across all venues after implementation of the standards. Additionally, the percent of items adhering to the beverage standards (SB 965) is higher than the percent of items adhering to the food standards (SB 12).

Figure 3: Adherence of Beverages by Venue Type, Baseline (2006) to Endpoint (2008)

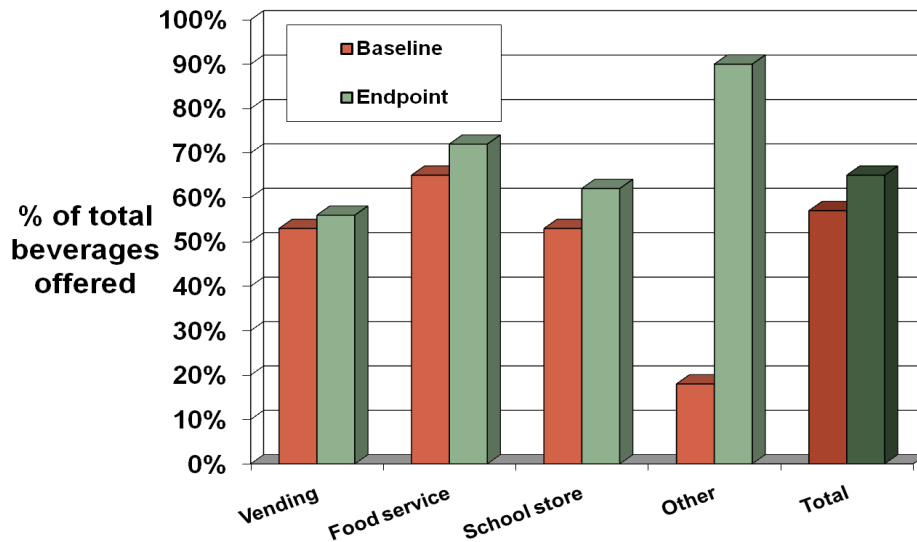


Figure 4: Adherence of Foods by Venue Type, Baseline (2006) to Endpoint (2008)

Healthy Eating Active Communities (The California Endowment)

The Healthy Eating Active Communities (HEAC) program, established in 2005 by The California Endowment, was the first program of its kind to utilize policy and environmental change strategies as the primary approach to reversing the childhood obesity epidemic. Over the last four years, the six HEAC sites funded by The California Endowment have made significant improvements in the healthfulness of the school environment. Sites have adopted school wellness policies and have implemented a range of state and local school district policies that have improved the healthfulness of competitive foods and beverages sold on campus. Evaluation findings from the HEAC school sector demonstrate that changing school nutrition environments is feasible and has become a higher priority for school districts over the program period. A comprehensive midpoint evaluation report is available on The California Endowment’s website. The following midpoint evaluation findings suggest that by implementing competitive food policy, the healthfulness of the school environments has improved and students are engaging in more healthy behaviors.

Nutrition Environment

Figures 5 and 6 illustrate that adherence to SB 12 and SB 965 has increased across all school levels combined and in particular, elementary and high schools.

Figure 5: Adherence of Beverages by School Level, Baseline (2005) to Midpoint (2008)

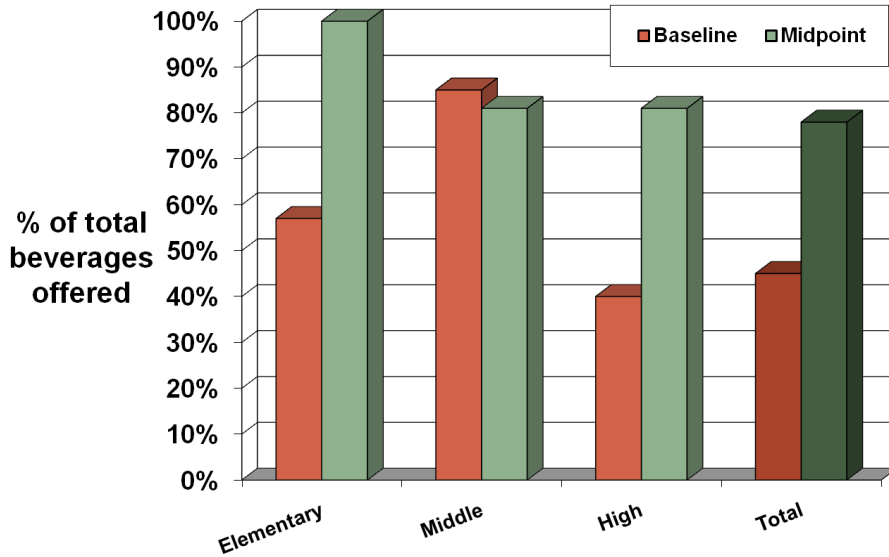
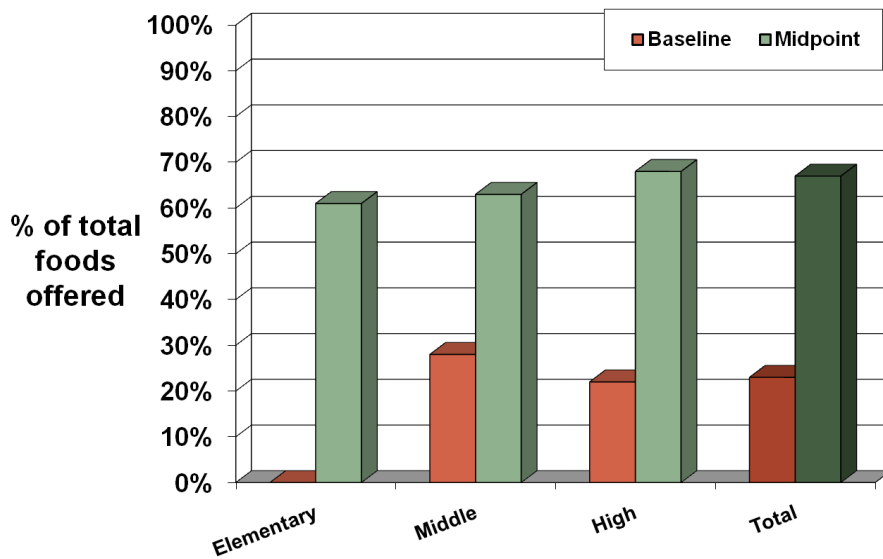


Figure 6: Adherence of Foods by School Level, Baseline (2005) to Midpoint (2008)





Figures 7 and 8 list the most frequently occurring foods and beverages sold on the school campuses, all school levels combined. At midpoint, the top ten foods and beverages found on school campuses all adhered to the state standards. However, despite adhering to the state standards, these competitive foods provide students with calories but very few nutrients. For example, regular chips have been replaced with baked and reduced fat chips and sports drinks have replaced carbonated sodas.

Figure 7: Top 10 Beverages Sold, Baseline (2005) to Midpoint (2008)

Baseline	Midpoint
Gatorade – fruit punch	Gatorade – fruit punch
Dasani water	Aquafina water
Gatorade – lemon lime	Gatorade – cool blue
Gatorade – orange	Gatorade – lemon lime
Pepsi	Gatorade ice – strawberry
Aquafina water	Powerade – fruit punch
Coke	Dasani water
Sprite	Gatorade ice – lime
Gatorade – cool blue	Powerade – mountain blast
Mountain Dew	Gatorade frost – riptide rush
Red = Non-Adherent Beverages	

Figure 8: Top 10 Foods Sold, Baseline (2005) to Midpoint (2008)

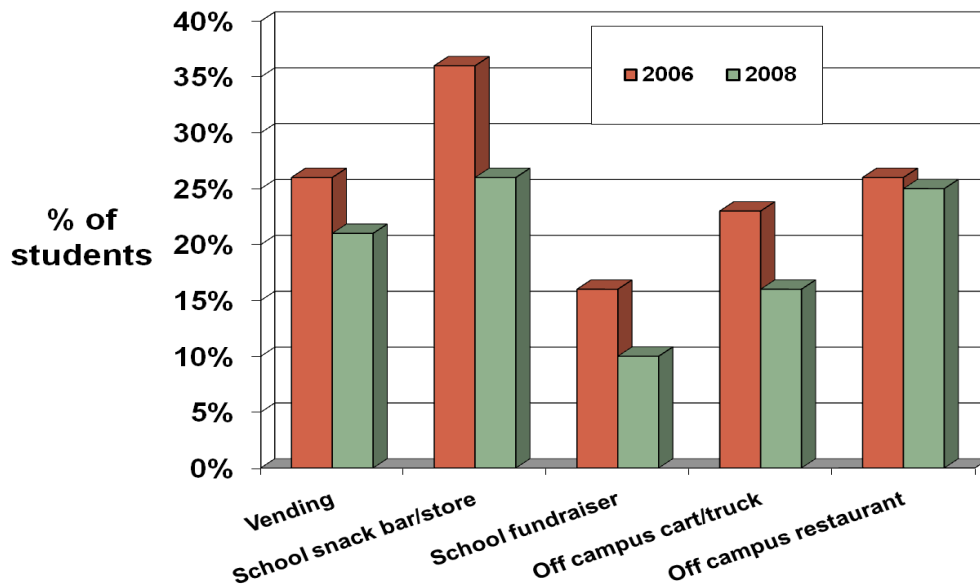
Baseline	Midpoint
Cheetos - Flamin' Hot, Crunchy	Baked! Cheetos – Flamin' Hot, Crunchy
Doritos - Nacho Cheesier	Kellogg's Rice Krispies Treats – Original
Funyuns	Nature Valley Oats n Honey Granola Bar
Cheetos – Cheese, Crunchy	Baked! Lay's – Cheddar & Sour Cream
Nature Valley Oats n Honey Granola Bar	Baked! Lay's – Barbeque
Kellogg's Pop Tarts – Frosted Strawberry	Reduced Fat Doritos – Cool Ranch
Doritos – Salsa Verde	Baked! Lay's – Sour Cream & Onion
Ruffles – Cheddar & Sour Cream	Corn Nuts – Ranch
Doritos – Cooler Ranch	Reduced Fat Sunshine Cheez-its
Snickers	Corn Nuts - Barbeque
Red = Non-Adherent Foods	

Student Behaviors

In order to evaluate the impact of environmental and policy changes on students' health outcomes, individual measures of students' health were also collected as part of the HEAC evaluation. The HEAC Student Nutrition and Physical Activity survey was administered to 7th and 9th grade students in HEAC schools and 6 control schools during the spring of 2006 and spring of 2008. Student survey data show a general trend toward improved health behaviors among students.

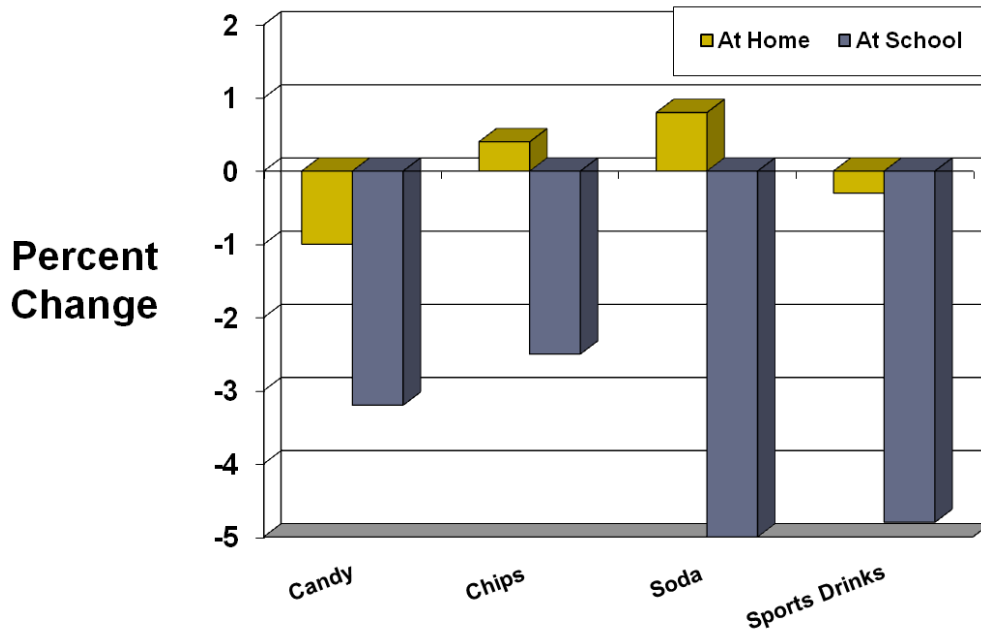
In 2008, fewer students report food or beverage purchases from both on campus competitive venues (vending, snack bar, school store, fundraisers) and off campus venues (cart/truck, restaurant/store) before, during or after school (Figure 9).

Figure 9: Percent of Students Reporting Purchases from Food and Beverage Venues during the School Day, 2006 to 2008



The percent of students who reported consuming candy, chips, soda, and sports drinks at school decreased in 2008, resulting in an overall decrease in the percent of students reporting they consumed these items at all the day prior to completing the survey (Figure 10).

Figure 10: Percent Change in Students' Reported Consumption of Unhealthy Foods and Beverages at School and at Home, 2006 to 2008



These findings suggest that reducing the availability of the selected items in the school environment may in fact translate into a decreased overall daily consumption of the items by students. Thus, if schools sell less “junk” food, students will consume less junk food. These data refute the argument that schools should sell these products because students will just bring them from elsewhere or compensate by consuming them later if they aren’t available at school.

CONCLUSIONS/ RECOMMENDATIONS

The study findings highlighted above demonstrate that adoption of school competitive food and beverage policies is an important step in improving the quality of the school food environment across all school levels. Additionally, adherence to beverage standards was achieved more quickly than adherence to the food standards. While these findings demonstrate positive change, studies have shown that the actual implementation of state and district nutrition policies varies greatly from school to school [15, 19-21].

The following measures could be taken to increase adherence to competitive food and beverage standards and increase the healthfulness of the school nutrition environment:

- Establishing simpler food standards based on food categories (e.g. fruit without added sugar, whole grain cereal bars) instead of specific nutrients provides more user-friendly guidance in



identifying healthy foods and would make it possible to include criteria that favor naturally healthy options (i.e. fruit) rather than modified versions of less healthy foods (i.e. baked chips).

- Limiting the amount of competitive food sold on school campuses could encourage more students to participate in the school meal program and reduce consumption of snack foods during the school day.
- Additional support is needed from federal, state and local jurisdictions to provide schools with the resources needed to implement and monitor food and beverage policies in order to sustain improvements in the school environment.

REFERENCES

1. Ogden, C.L., M.D. Carroll, and K.M. Flegal, *High body mass index for age among US children and adolescents, 2003-2006*. *Jama*, 2008. **299**(20): p. 2401-5.
2. Fox, M., et al., *Dietary Assessment Study-II Summary of Findings*. 2001, U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation: Alexandria, VA.
3. Dwyer, J., *The School Nutrition Dietary Assessment Study*. *Am J Clin Nutr*, 1995. **61**(1 Suppl): p. 173S-177S.
4. Perry, C.L., et al., *A randomized school trial of environmental strategies to encourage fruit and vegetable consumption among children*. *Health Educ Behav*, 2004. **31**(1): p. 65-76.
5. Gortmaker, S.L., et al., *Reducing obesity via a school-based interdisciplinary intervention among youth: Planet Health*. *Arch Pediatr Adolesc Med*, 1999. **153**(4): p. 409-18.
6. Caballero, B., et al., *Pathways: a school-based, randomized controlled trial for the prevention of obesity in American Indian schoolchildren*. *Am J Clin Nutr*, 2003. **78**(5): p. 1030-8.
7. Neumark-Sztainer, D., et al., *Lessons learned about adolescent nutrition from the Minnesota Adolescent Health Survey*. *J Am Diet Assoc*, 1998. **98**(12): p. 1449-56.
8. Foster, G.D., et al., *A policy-based school intervention to prevent overweight and obesity*. *Pediatrics*, 2008. **121**(4): p. e794-802.
9. French, S.A., et al., *Food environment in secondary schools: a la carte, vending machines, and food policies and practices*. *Am J Public Health*, 2003. **93**(7): p. 1161-7.
10. *California Senate Bill No. 12, in Education Code*. 2005.
11. Samuels, S.E., et al., *Improving School Food Environments Through District Level Policies: Findings from Six California Schools*. 2006, The California Endowment and Robert Wood Johnson Foundation: Oakland, California.
12. French, S.A., M. Story, and R.W. Jeffery, *Environmental influences on eating and physical activity*. *Annu Rev Public Health*, 2001. **22**: p. 309-35.
13. French, S.A., et al., *An environmental intervention to promote lower-fat food choices in secondary schools: outcomes of the TACOS Study*. *Am J Public Health*, 2004. **94**(9): p. 1507-12.
14. Luepker, R.V., et al., *Outcomes of a field trial to improve children's dietary patterns and physical activity. The Child and Adolescent Trial for Cardiovascular Health. CATCH collaborative group*. *Jama*, 1996. **275**(10): p. 768-76.



15. Committee on Nutrition Standards for Foods in Schools, *Nutrition Standards for Foods in Schools: Leading the Way Toward Healthier Youth*, V.A. Stallings and A.L. Yaktine, Editors. 2007, Institute of Medicine of the National Academies: Washington, D.C.
16. Wootan, M.G., et al., *State School Foods Report Card 2007*. 2007, Center for Science in the Public Interest: Washington, DC.
17. Crawford, P., et al., *An environmental approach to the prevention of pediatric obesity*, in *Handbook of Childhood and Adolescent Obesity*, R. Steele and E. Gialalian, Editors. 2006, Springer Publishing Co. : New York.
18. Crawford, P.B., et al., *Position of the American Dietetic Association: an evidence-based analysis of pediatric overweight intervention programs*. J Am Diet Assoc 2006.
19. Greves, H.M. and F.P. Rivara, *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 Act, 2006. **3**: p. 1.
20. McDonnell, E., C. Probart, and J.E. Weirich, *School Foodservice Directors' Perceptions and Concerns About Local Wellness Policy Development, Implementation, and Enforcement*. Journal of Child Nutrition & Management, 2006. **30**(1).
21. Finkelstein, D.M., E.L. Hill, and R.C. Whitaker, *School food environments and Policies in US public schools*. Pediatrics, 2008. **122**(1): p. e251-9.