

LEAF

Linking Education, Activity, and Food

**Pilot Implementation of SB 19
in California Middle and High Schools**

Cross-Site Evaluation Reports

CENTER FOR WEIGHT & HEALTH
College of Natural Resources and School of Public Health
3 Giannini Hall

University of California, Berkeley
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Acknowledgements

Center for Weight and Health LEAF Evaluation Team

Gail Woodward-Lopez, MPH, RD, *Lead Evaluator and Associate Director*
Annie Vargas, MPH, *Senior Evaluator and Associate Specialist*
Sarah Kim, MPH, *Assistant Evaluator and Associate Specialist*
Cheryl Proctor, MBA, RD, *Evaluation Consultant and Associate Specialist*
Carol Hiort-Lorenzen, RD, *Food Service Consultant*
Lisa Diemoz, MPH, *Graduate Student Researcher*
Patricia Crawford, DrPH, RD, *Principal Investigator and Co-Director*

School-Level Evaluators

Berkeley Unified School District
Gail Feenstra, EdD, RD
Jeri Ohmart, MA

Carpinteria Unified School District
Sheri Eiker-Wiles, MS, PPS

Hawthorne Elementary School District
Susan Russell, EdD, MSPH, CHES

Kernville Union School District
Deborah Bechtold
Dixie King, PhD

Los Angeles Unified School District
Barbara Dietsch, PhD, RD

Orcutt Union School District
Ellen Longo, PhD

Sacramento City Unified School District
Kathleen Grace, MBA, CCP
Rebecka Hagerty, PhD

San Diego City School District
Joann Hoffman, MPH

San Francisco Unified School District
Joie Carvalho

California Department of Education, Nutrition Services Division, LEAF Team

Phyllis Bramson-Paul, MPPA, *Division Director*
Mary Lussier, MPH, RD, *State LEAF Evaluator and Nutrition Education Consultant*
Deborah Beall, MS, RD, *Nutrition Education Consultant*
Mike Danzik, MPH, RD, *Nutrition Education Specialist*
Margaret Aumann, MPH, RD, *Nutrition Education Consultant*
Ann Evans, BS, *Nutrition Education Consultant*
Deborah Tamannaie, MS, RD, *Nutrition Education Consultant*
Elizabeth Moreno, MS, RD, CDE, *Nutrition Education Consultant*

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Evaluation of the Linking Education, Activity and Food (LEAF) Program Comprehensive Executive Summary

Background

In response to California's child obesity epidemic and its link to poor eating and physical activity habits in school-aged children, the California legislature passed Senate Bills 19 and 56, titled the *Pupil Nutrition, Health and Achievement Act of 2001*. The cornerstone of SB 19/56 is the establishment of nutrition standards for competitive foods and beverages sold on school campuses during the school day (Table 1, pg. 1-11). Competitive foods and beverages are those items that are not sold as part of the school meal program, but rather are sold as individual items at various campus venues such as student stores, vending machines and snack bars. They also include items sold à la carte by school food service departments. Various school entities such as student groups, athletics departments, other school-based programs, and food service departments have come to depend upon these revenues to support their programs. Since these competitive foods and beverages had only been subject to minimal nutrition standards previously, they often include sweetened beverages and high fat/high sugar snack foods in contrast to the school meals that are subject to regulation by United States Department of Agriculture (USDA) and the California Department of Education.

In order to pilot test the implementation of SB 19/56, the California Department of Education (CDE), Nutrition Services Division with funding from the California Department of Food and Agriculture (CDFA), established the Linking Education, Activity and Food (LEAF) program that awarded grants to 16 middle and high schools in 9 California school districts. In addition to implementing the nutrition standards as defined in SB 19/56, the pilot schools were instructed to promote the consumption of California grown fresh produce in accordance with the *Buy California* initiative of 2002. The schools also were expected to develop and implement an array of related policies to improve student nutrition and fitness.

Each pilot school was awarded approximately \$200,000 for a total ranging from about \$200,000 to \$740,000 per district to cover a 21 month implementation period from January 2003 through September 2004. In addition to the 16 "pilot" schools, 3 "policy" districts were competitively awarded grants of approximately \$25,000 each to adopt and plan the implementation of SB 19 compliant nutrition and physical activity policies over a 12 month time period

The SB 19/56 legislation required an evaluation of the pilot effort, with findings to be reported to the California Legislature. CDE contracted with the Center for Weight and Health (CWH) at the University of California, Berkeley, to conduct a multi-component, cross-site evaluation of the

LEAF program. Six reports were drafted that cover distinct aspects of the LEAF cross-site evaluation. The six reports and their respective executive summaries follow this summary or can be found at www.cnr.berkeley.edu. The following is a summary of the combined findings of the six evaluation reports.

What did the LEAF schools accomplish?

- **Fifteen of the 16 schools achieved complete, or near complete, campus-wide compliance with the SB 19 nutrition standards for competitive foods and beverages** (see Table 1, page 1-11). The venues that became compliant with the nutrition standards included vending machines, snack bars and carts, student stores, and à la carte items sold in the cafeteria. By the end of LEAF most of the beverages offered on campus during the school day were waters, fruit juices, and fruit juice-water mixes without any added sugar, various types of milk, and sports drinks. Traditionally high fat snacks and/or high sugar snacks such as chips, crackers, and cookies were replaced by lower sugar and lower fat versions. Most candies were eliminated. Most à la carte entrée items such as pizzas, burgers, hot dogs, tacos and egg rolls were also eliminated. Overall, the variety of competitive *foods* was reduced dramatically whereas the variety of beverages remained high.
- **The most significant barrier to implementation of the policies was the concern by district and campus entities about potential loss of revenues** resulting from the nutrition standards for competitive *foods*. LEAF team members also cited challenges with regard to monitoring and enforcement of the new regulations, pointing to the lack of consequences for non-compliance. They indicated that communication with various stakeholder groups (administrators, parents, students, teachers, community members) was important for gaining support and reducing resistance.
- **Schools made improvements to the meal service by increasing the variety and appeal of healthy options.** The addition of salad bars and the conversion of traditional meal lines to international food court style of meal service were the two most common approaches.
- **Improvements were also made to the cafeteria environment.** Many LEAF schools painted their cafeterias, bought more attractive seats and tables, and decorated the eating areas with colorful promotions of healthy foods and beverages. Those that converted to international food courts developed cafeterias that resembled food courts in shopping malls and in some cases provided for seating in small groups as opposed to the more traditional long benches. A few sites (25%) also increased the length of the lunch period.

- **Increases in the number of points of service (POS) made meal service more efficient and reduced the time students had to stand in line.** Other changes in meal payment procedures made students who receive free or subsidized meals indistinguishable from those who pay full price. This reduced stigma appeared to contribute to increased participation in the meal program.
- **The majority of districts assembled diverse and well-represented Child Nutrition and Physical Activity Advisory Councils (CNPAACS)** that included food service directors, district and school level administrators, teachers, parents, students, school board members and other community and school-based representatives. Having adequate stakeholder involvement was essential for gaining support, reducing resistance and ensuring the successful implementation of policies. Student participation although difficult to obtain was considered critical. Districts that lacked involvement of district level administrators such as superintendents, assistant superintendents and/or board members were more likely to struggle with policy adoption.
- **All of the 9 participating districts successfully adopted nutrition policies and all but one adopted physical activity policies.** Developing a clearly articulated policy at the onset of the project that included simultaneous development and adoption of administrative regulations proved critical for obtaining consensus, reducing resistance and guiding the LEAF project implementation. Although the LEAF district policies were quite comprehensive, the policy language was often not very specific nor directive enough to be enforceable, leaving implementation and compliance open to interpretation. The nutrient standards for competitive foods tended to be the strongest element in the policies. The nutrients standards were usually specific and enforceable and were included in all but one of the districts' policies. Many of the policies, however, did not include all the elements recommended in the SB 19 legislation nor did they refer to all applicable federal and state regulations. When these regulations were referred to, they were often inaccurately or incompletely paraphrased. When language was specific and enforceable, it usually referred to state and federal regulation suggesting that districts were reluctant to impose additional mandates upon themselves. However, there were several notable exceptions where districts imposed more stringent nutrition and/or physical activity related requirements than what was required by law.
- **Most of the LEAF schools added additional nutrition education classes or enhanced existing ones.** The most popular educational strategies were use of instructional gardens, field trips to farms and farmers' markets, and cooking classes. Students and adult stakeholders agreed that these types of "hands-on" strategies were the most effective at engaging students. Nutrition and related health themes were also frequently integrated into existing courses such as science, English, PE, home economics, and math. There was also an increased perception that teachers were acting as role models with regard to nutrition and physical activity.
- **Promotional activities were conducted at all the LEAF schools** and included health fairs, periodic promotions of California-grown fruits and vegetables, posters, murals and other displays and activities on campus.

- **Many LEAF schools constructed or renovated campus fitness centers, weight rooms or similar structures.** Others revised their PE activities and purchased small PE equipment such as balls and pedometers to complement these activities. There was an increased emphasis on fitness, individualized planning and feedback to students. Students were also more involved in selecting and planning PE activities.

How did LEAF impact the knowledge, attitudes and behaviors of students, teachers and parents?

Limited data was available regarding the impact of LEAF on students, parents and teachers. Therefore changes in addition to those listed below may have occurred but were undetected. The available findings suggest:

- **The primary behavioral change was an increase in participation in the meal program and a decrease in the purchase of competitive foods by students,** indicating a switch from snack foods and sweetened beverages in favor of more balanced meals.
- **Students' understanding of the importance of PE increased, but their physical activity levels did not appear to change.** This may have been due to limited intensity and/or duration of physical activity related LEAF interventions.
- **Conversely, student nutrition knowledge did not appear to change during LEAF but behavior did.** This was likely due to a high baseline level of student knowledge and a more comprehensive and coordinated approach to nutrition that involved education, promotion and changes in the school food environment.
- **Most teachers, parents and students concurred regarding the need for freshly prepared foods, increased variety and sufficient quantity to meet student demand.** Most students and parents appreciated the efforts made to improve the school food service. The students, but not the parents, perceived that improvements in both the food and the cafeteria atmosphere had been made.
- **However, many parents and students remained unsatisfied with the menu offerings, cafeteria ambience, and the short meal periods.** By the end of LEAF only 18-31% of the students surveyed reported eating the school lunch at least 1-3 times per week.
- **Teachers were more likely than parents to support restrictions on the foods and beverages that are available to students and were more likely to recognize the role of the school in supporting healthy eating.** Parent support for school-based nutrition interventions varied widely from school to school. However, LEAF did appear to increase parental support for the school's role in increasing student physical activity levels. Teachers were also more likely to perceive that students' dietary intake and physical activity levels were suboptimal which may explain their greater support for action on the part the schools.

What was the impact of SB 19 implementation on the schools' finances?

The implementation of SB 19 financially benefited the schools' food service departments because students decreased their purchases of competitive foods and beverages in favor of participation in the school meal program. At the majority of the sites school food service revenues increased during LEAF due to an increase in *meal* revenues that offset a concurrent decrease in à la carte sales. The greatest meal revenue increases were seen at schools that completely eliminated à la carte food sales. Findings indicate that increases in food service expenditures during LEAF were offset by increased revenues resulting in a gain in overall profits.

The reported net gains in food service revenues appeared to be the result of improvements in the variety and appeal of the meals, and improved attractiveness and efficiency of the serving areas, concurrent with reduced appeal and access to à la carte and other competitive foods and beverages. On average the schools spent \$65,126 of their LEAF funds on food-service related improvements, the majority of which was spent on equipment, facilities upgrades and one-time consulting costs. These findings suggest that when nutrition standards for competitive foods and beverages are implemented food service revenues can improve significantly provided that: a) all non-food service venues meet the nutrition standards, b) à la carte food offerings are reduced or eliminated, c) menu offerings are appealing, and d) facilities and time are adequate to meet student meal needs.

Increased costs were primarily associated with the purchase, storage and preparation of more fresh produce and other menu changes and not with SB 19 compliance per se.

According to food service directors, increases in labor costs that were generally independent of SB 19 represented the biggest challenge to maintaining fiscal solvency.

Although the LEAF related interventions and SB 19 compliance in particular appeared to benefit food service departments, this was not the case for other venues on campus such as vending machines and student stores. All but 2 schools experienced declines in per capita net income at these other venues during the course of the LEAF project. The declines in income at these venues appeared to be due, at least in part, to reduced availability and promotion of competitive foods and beverages. The 2 schools that experienced increases in net revenue at these venues made physical improvements to the student stores and/or carried out intensified marketing efforts with high levels of student involvement. For example, at one school students worked with the vendor to establish a compliant product line. In both cases these schools (both of which were high schools) also experienced increases in net food service revenues. ***These exceptions to the rule demonstrate that under SB 19 increases in both meal revenues and competitive food and beverage sales are possible.***

Did LEAF promote increased consumption of California grown fruits and vegetables?

One of the objectives of the LEAF program was to promote the consumption of California grown produce. Although student consumption was not measured, LEAF school food service departments did increase their purchases, and hence the provision to students, of fresh produce.

- **On average the total per meal weight of *vegetable* purchases (excluding potatoes) increased by 27%** (range: -58% to +383% per school).
- **On average total per meal weight of *fruit* purchases increased by 23%** (range: -42% to +104% per school).
- **The largest increases were seen in the “other fruit”¹ and “other vegetable”² categories suggesting that schools were successful in increasing the *variety* of fresh produce offered.**

Most LEAF schools increased their fruit and vegetable offerings through the reimbursable meal program by adding fruit and/or salad bars, expanding existing meal offerings and/or enhancing the presentation of the food. ***Cross-site trends suggest that the addition of fresh salad & fruit bars and cooking & gardening classes offered after school, and to a lesser extent, field trips to farms or farmers’ markets, improved kitchen facilities and gardening classes offered during school contributed to increases in fresh produce purchases.*** Although students, parents, teachers and food service directors were all enthusiastic about the meal improvements and the increased provision of fruits and vegetables in particular, food service directors expressed concern about the increased costs. ***Providing more fruits and vegetables involved increased labor and food costs as well as capital expenditures for new serving and expanded storage facilities.***

Results suggest that if food service directors are expected to increase the purchase of California-grown produce the following would be required:

- ✓ Produce labeled as to country/state of origin
- ✓ A focused effort that involves vendors and farmers
- ✓ Assistance to help schools identify a sufficient variety of California grown produce year-round at affordable prices that can be accommodated given current meal reimbursement rates, or
- ✓ Additional funding to accommodate increased costs.

¹ “Other fruit” category indicates fruits other than apples, bananas and citrus. This category includes fruits such as grapes, melons, peaches, nectarines, apricots, pears, plums, strawberries, watermelon, kiwi, pineapple, mango, papaya, mixed fruit, and fruit salads.

² “Other vegetable” category indicates vegetables other than carrots, celery, salad greens and potatoes. This category includes vegetables such as tomatoes, squash, onions, mushrooms, peas, radishes, peppers, broccoli, cucumbers, parsley, sprouts, green beans, jicama, cauliflower, avocado, and vegetable mixes (stir fry, oriental, salad, and fajita).

What did the LEAF schools learn about the adequacy of the SB 19?

The teams responsible for implementation of LEAF at the 16 schools tended to be very supportive of the legislation and reported that they were able to comply with most aspects of SB 19. Most reported being able to comply with requirements regarding 1) the formation of a CNPAAC and 2) the nutrient standards for competitive foods and beverages. The areas that they struggled most with were:

- having a designated person to monitor compliance,
- nutrient standards for foods (as opposed to beverages), and
- provision of fruits and vegetables at every sales venue.

Most team members supported the increased meal reimbursement provision and even recommended increasing the amount to be provided. One third believed that they could *not* implement SB 19 without the additional reimbursement; one third believed they could, and another third were uncertain.

The majority recommended that the SB 19 requirements be more specific, clear and consistent. They wanted more comprehensive nutrition standards that apply to all grade levels and at all times of the day including after school. A minority wanted less stringent regulation and more flexibility. Concern was also expressed about keeping focused on priority issues, such as applying the nutrient standards, and not getting bogged down on what many perceived as secondary issues such as organic produce, school gardens, and farmers markets. ***The teams also expressed the importance of improving the quality of, and access to, the meal program in conjunction with the application of nutrient standards for competitive foods.***

Two priority needs were identified with regard to improving future legislation:

- 1) A comprehensive approach that does not increase the administrative burden on the schools and is supported by adequate resources, and
- 2) A system for monitoring, enforcement, and incentives.

How did the food and beverage industry respond to SB 19?

The study findings suggest that SB 19, and the flurry of legislative activity since SB 19 passed in 2001, influenced both the demand for healthy foods and beverages from schools and the corresponding response from the food and beverage industry. Although LEAF team members felt that food and beverage vendors had been responsive to their requests for compliant items, a majority of sites indicated that there was still a need for *less expensive, better tasting items, and a greater variety of options.* Both the requests from schools, and product development response on the part of the vendors, tended to focus on fat and sugar content and hence reflected the SB 19 standards. ***Despite these promising trends, compliant products tended to be more expensive, received variable consumer response, and were often low fat versions of otherwise still not very healthy products*** (i.e. low fat donuts, low fat chips and cookies made with fruit juice concentrate).

Vendors mentioned the challenge of providing reasonably priced alternatives, especially for the reimbursable meal program that could withstand the cost and operational limitations faced by school food service. They struggle to balance the properties of foods so that they are easy to handle, nutritious, affordable and acceptable in taste and texture. Therefore, in order to ensure the healthfulness of foods provided to students, and thereby prevent obesity, the nutrient standards may need to be improved and/or a more active dialogue with industry may be merited. Food service departments and other providers of foods and beverages on school campuses should be encouraged and supported to play a leadership role in insisting upon the healthiest foods and beverages possible for their students. However, in order for the schools to provide foods that not only meet the letter but also the intent of recent legislation, commitment from everyone involved is required. *In particular, funding to cover increased labor and food costs as well as improvements in food service facilities will likely be needed.*

What lessons did we learn from the LEAF program?

FOOD AND BEVERAGE ENVIRONMENT

- The development of a district nutrition policy is a necessary first step to school nutrition reform, including the clear articulation and gradual phase-in of standardized regulations governing the sale of all campus competitive foods and beverages.
- SB 19 limits on fat and sugar should be viewed in the context of overall nutritional goals to avoid the pitfall of providing items which comply with certain standards but are still not otherwise healthy.
- A phase-in period for compliance with nutrition standards, at the high schools in particular, may be necessary as a compromise to resistance by entities at all levels, to allow for adjustments to shifts in revenues, and in order to get the policy passed.
- Various factors that challenge a school's ability to implement nutrition standards need to be identified and addressed in program development; these include open campus status, existing long-term contracts with soda vendors, existence of multiple vending machine contracts on single campus, and lack of a statewide data base or other easy means of determining compliance status of foods and beverages.
- The implementation of nutrient standards for competitive foods needs to be complemented with improvements in, increased access to, and promotion of the reimbursable meal program.
- Increases in meal participation must be supported by expansion in food service capacity to prepare healthy, appealing foods and efficiently serve increasing numbers of students.
- Technology upgrades are necessary for school food service departments to improve their operations and conduct ongoing monitoring and evaluation of their programs.

- Innovative marketing of cafeteria food offerings can have a dramatic impact on sales, and should go hand-in-hand with menu improvements. This marketing should be coupled with efforts to promote enrollment in the free/reduced price meal program.
- Cafeteria staff is critical to the implementation of change within the food service department: adequate training and support should be provided and staff should be actively involved in the change process.
- Active student involvement in selecting healthy and/or compliant foods and beverages can help ensure adequate sales volume.
- Increases in the purchase of California grown produce by school food service will require a focused effort that includes farmers and vendors. Labeling produce as to state/country of origin is essential.
- Additional funding or other incentives may be necessary to ensure ongoing promotion and increased provision of fresh fruits and vegetables.
- Effective means and methods for monitoring and enforcement of nutrition standards need to be explored.
- A more comprehensive and consistent regulatory approach is needed: inconsistencies between different levels of regulation should be reconciled; standards should be consistently applied across settings, grade levels and times of day; specific standards should be sufficiently comprehensive and consistent to meet the intent of the regulation.
- A more active dialogue with vendors with regard to compliant food and beverage product availability and development is merited. School personnel involved in the provision of foods and beverages on campus should be supported and encouraged to take a proactive, leadership role in these negotiations.

NUTRITION EDUCATION AND PROMOTION

- Practical, hands-on approaches to nutrition education such as cooking classes, garden-based learning and farm-to-school activities were well received by students and staff and were considered to be worth the investment of time and resources.
- The more popular and/or effective nutrition education approaches tend to be the most resource intensive and therefore may require additional on-going funding.
- Dependency on grant funding hampers schools' ability to mainstream the more effective approaches to nutrition education.
- The exclusive focus on standardized test scores to the exclusion of health-related concerns hinders the schools' ability to support nutrition education and promotion.

- Incentives in the form of test requirements may be needed to ensure that adequate nutrition education is provided to all students.

PHYSICAL EDUCATION

- The addition of fitness centers may have a positive impact on student activity levels, but will require ongoing funding to sustain.
- In order to impact student practices, efforts to promote physical activity may need to address multiple barriers and not just focus on adding or upgrading facilities but also address class size, time allocated for PE, PE content, and the availability of intramural and after school sports programs. Additional funding would likely be needed.
- Greater commitment from the districts, the State and stakeholders is needed to improve PE and related athletics programs, many of which are dependent on funding through candy, soda or junk food-related sales.

THE POLICY PROCESS

- Adequate representation from all key stakeholder groups is key to ensuring adoption and successful implementation of policies. The time required to obtain buy-in from all stakeholder groups is worth the investment.
- Students and school/district administrator support is particularly critical but they need to be brought into the process in a way that considers their particular interests and time limitations.
- Educational efforts for the wider community, parents and students help garner support for the policy and ensure its successful passage and implementation.
- Concurrent development of policy and administrative regulations appears to be most effective.
- Keeping the process as streamlined as possible is key to efficient and effective policy development. To this end it is critical to avoid multiple committees with overlapping roles and processes; keep committee size reasonable; manage meetings to keep on task; and staying focused on priority issues.
- Districts made the most progress when they set realistic and achievable goals, did not take on too much, and stayed focused on established priorities. A comprehensive effort may need to be implemented in a stepwise fashion to avoid being overwhelmed and spread too thin.
- The implementation of various elements of the policy should not remain dependent on the enthusiasm and commitment of a few individuals but rather must be institutionalized or mainstreamed if they are to be sustained.

The ultimate impact of LEAF is yet to be determined

Follow-up studies are needed to determine the ultimate impact and sustainability of the LEAF school accomplishments. As would be expected, many policies were not fully institutionalized until somewhat late in the grant period; the ultimate impact of these changes on the school environment, students, and other stakeholders therefore could not be fully measured within the time constraints of this evaluation. The sustainability of many of these efforts is also yet to be determined. In order to address these issues and determine their applicability to other sites, a follow-up study of the longer term impacts of LEAF is merited.

<p>Table 1: Summary of SB 19/56 Nutrition Standards³ for competitive foods and beverages sold on LEAF school campuses from ½ hour before the start until ½ hour after the end of the school day</p> <p>Allowable food items:</p> <ul style="list-style-type: none"> a. Not more than 35% of total calories from fat (excluding nuts and seeds). b. Not more than 10% of total calories from saturated fat. c. Not more than 35% of total weight from sugar (excluding fruits and vegetables). d. Portion sizes not larger than the portions of those foods served as part of the federal school meal program. e. Fruit and non-fried vegetables will be offered for sale at any location where food is sold. <p>Allowable beverages:</p> <ul style="list-style-type: none"> a. Drinking water. b. Milk including, but not limited to, chocolate milk, soy milk, rice milk, and other similar dairy or non-dairy milk. c. Fruit-based drinks with not less than 50% fruit juice and no added sweeteners. d. Electrolyte replacement beverages that do not contain more than 42 grams of added sweetener per 20 ounce serving. e. Portion sizes of fruit juices and juice-based drinks not larger than 12 ounces and not larger than 20 ounces for electrolyte replacement beverages.

³ Had the legislation gone into effect the competitive *food* standards would have applied to all elementary schools with the exception of items d and e. The allowable beverages at elementary schools would have included items a –c, whereas at middle schools the only restriction would have been that no carbonated beverages would be allowed until after the end of the last lunch period.