

A Multi-Component, School-Based Approach to Supporting Regional Agriculture, Promoting Healthy Behaviors, and Reducing Childhood Obesity

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This proposed project will address the Healthy Families and Communities Initiative, and the “Promoting Healthy Behaviors for Childhood Obesity Prevention” target area. The hallmark of the proposal is an integrative approach incorporating the sustainable food systems initiative and integrating with the youth science literacy, promoting positive youth development, food safety, and ecosystems services educational outreach target areas.

This 4-year study will use the socio-ecological framework emphasizing interaction among and interdependence of factors within and across all levels of the school community. The study will be coordinated by multidisciplinary leadership teams and conducted in two California counties to develop and evaluate a system-wide, sustainable program (Shaping Healthy Choices; SHCP) to achieve the following objectives: 1) increase availability, consumption, and enjoyment of fruits and vegetables; 2) improve dietary and exercise patterns consistent with the 2010 US Dietary Guidelines for Americans; 3) improve critical thinking skills to sustain patterns learned and adopted through participation in the program; 4) promote positive changes in the school environment to support dietary and exercise patterns; 5) facilitate development of an infrastructure to sustain the program beyond the funding period. The SHCP will rely upon integration of five program components: (1) nutrition education and promotion; (2) family and community partnerships; (3) integration of regional agriculture; (4) foods available on school campus; and (5) school wellness policies. A longitudinal, pre-test/post-test randomized, controlled intervention will test the hypothesis that schools utilizing the SHCP will have improved and measurable student outcomes with regard to dietary and nutrition knowledge and behavior, healthy food preferences and consumption, and physical activity compared to controls. The tested program will be sustained through an infrastructure of statewide collaborators and SHCP mentor sites entitled the SHCP Collaborative. Results will provide the evidence base for state and nationwide dissemination of a tested integrated school-based multicomponent program to prevent childhood obesity.

Previous research by the PI’s laboratory group and others has demonstrated the effectiveness of specific components of the proposed program model in improving children’s nutrition knowledge, attitudes, and behaviors. A recent Institute of Medicine report cited the PI’s nutrition education and gardening research program as a promising, innovative strategy to reduce childhood obesity. Formal evaluation of this multi-component program, using a longitudinal experimental research design, will provide important and novel insight for future policy changes to prevent childhood obesity. In addition, a focus on developing sustainable food system changes leading to statewide policies enhancing and promoting agricultural production statewide is a related, expected outcome.

This proposal provides an opportunity to maximize ANR’s strengths in research, education and extension by capitalizing on the diverse perspectives of experts in nutrition, medicine, food science, food safety, agriculture, child development, and education in partnership with the kindergarten through grade twelve school community setting. Through an interdisciplinary, team approach among: UC faculty; UC Cooperative Extension nutrition and youth development specialists and advisors, and ASI staff; food and agriculture industry representatives; public school educators, administrators, after-school providers, and families; community members; health practitioners; farmers; and state/county agency nutrition, food science, agriculture, and health care representatives, a

coordinated program will be delivered to improve dietary and lifestyle habits with the greatest potential for sustainable childhood obesity prevention.

Program outcomes will be coordinated by multidisciplinary teams working in two California counties reflecting California's diverse population. Quantitative and qualitative pre and post data will be collected from intervention and control schools (matched for demographics and eligibility for free and reduced price lunch) including outcome measures within the whole-school environment. Children will be followed throughout grade 4 with clinical (BMI and biomarkers; UC Davis School of Nursing) and dietary intake assessments taken at 2 timepoints. Building on the research continuum, program components will support science-based decision making and emphasize the delivery of useful findings to support policy and outreach efforts. For example, an evidence-based school wellness policy self-assessment tool developed by the PI's Center for Nutrition in Schools will be tested for statewide dissemination by the California Department of Education, to support recent policy changes within new federal legislation. Food availability within the school environment has been previously studied, with statewide policies currently in place.

This proposal will take the next step in promoting the use of California agricultural products to enhance the school food environment, in addition to focusing on the development of statewide policies which reduce barriers to procuring regional, healthful California foods in schools. These changes will be linked to educational programs, based on state standards, which address children's knowledge, attitudes, and behaviors related to healthful dietary selections. Additional funds will be leveraged from other sources, including those recently awarded to this research group by the California Department of Education, USDA, and the California Department of Food and Agriculture.

At the completion of data analysis, the project team will review major findings and confer with the Center for Health Improvement (CHI) to identify policy implications and avenues for practice dissemination. CHI uses evidence-based analyses to translate knowledge gained through research into policies and practice, supporting communitybased programs that target change at multiple levels. The project team will build on the current UC Davis School of Nursing partnership with the CHI, with the goal of improving population health and encouraging healthy behaviors. Results of this consultation will be shared with leaders in schools and policy-makers to promote adoption of successful strategies.