Introduction
The Healthy Eating Active Living – Community Health Initiative (HEAL-CHI) was a five-year initiative (2006-2011) funded by Kaiser Permanente’s (KP’s) Northern California regional Community Benefit office. HEAL-CHI was part of KP’s ongoing national Community Health Initiative (CHI), a Community Benefit strategy for achieving a significant and measurable impact on the health of communities served by KP. The thematic focus of CHI is on healthy eating and active living to improve nutrition and physical activity and reduce overweight/obesity. In many of our communities, as in the nation as a whole, obesity is a significant and growing public health problem. By making progress, however incremental, in reversing this epidemic, we can have a major impact on a wide range of health conditions including metabolic syndrome, diabetes, cardiovascular disease and several cancers. We also recognize that clinical approaches alone will not be sufficient to address the epidemic. Rather, in order to have an impact, we must work with others to bring about significant, sustained and large scale community-level efforts.

KP’s Framework for Community Health Initiatives identifies core CHI design principles¹ that were used in the design of HEAL-CHI in Northern California, including: a place-based focus; an emphasis on change at multiple levels, particularly environmental and policy change; a multi-sectoral collaboration that involves sectors such as health care, neighborhood, schools, and work sites; and community engagement and community ownership. All of these principles were incorporated into the three communities that participated in HEAL-CHI.

This report summarizes the evaluation findings from the HEAL-CHI Initiative, including a description of the HEAL strategies implemented and their impact on health and behavioral outcomes. In addition, lessons learned from HEAL-CHI are presented that have now been incorporated into the HEAL Zones Initiative, the second phase of the Northern California CHI effort.

The HEAL-CHI Initiative
Three communities were selected for participation in HEAL-CHI using a request for proposals (RFP) process. The RFP was sent to existing community collaboratives that had a track record in other initiatives. Three neighborhoods within larger cities were selected for five years of funding: Modesto (population 38,400, 54% Latino), Richmond (52,900, 45% Latino, 29% African American), and Santa Rosa (37,960, 41% Latino).

During the first year of funding, each HEAL-CHI collaboratives convened a community-wide planning process that involved a range of community-based organizations, institutions and residents. The end result of the planning process was a Community Action Plan (CAP) that set the objectives for interventions. Significant requirements for the CAPs were that: (1) they

include activities in each of four sectors—schools, health care, worksites, and the neighborhood; and (2) at least one intervention strategy in each sector was drawn from a menu of evidence-based policy and environmental change approaches provided by KP.

The emphasis in HEAL-CHI strategies was on policy and environmental strategies. **Policy strategies** included both organizational policy changes and public policies implemented by local governments. Examples of organizational policy changes included:

- Changing cafeteria policies in schools and worksites to increase the number of healthy entrees
- Implementing California Standards-based physical activity curriculum during school hours in local elementary schools
- Implementing Body Mass Index (BMI) as a vital sign into well-visits and offer routine obesity counseling and referral

Examples of public policy strategies included:

- Impacting the urban planning via the city general plans, for example adding “health elements” that require a consideration of the health consequences of new zoning and construction
- Working with city and county code enforcement to enforce existing laws and ordinances that govern the sale of alcohol to decrease the safety hazards associated with liquor stores

**Environmental strategies** focused on increasing access to healthy food and changing the built environment to promote physical activity. Examples of environmental strategies included:

- Increasing purchase or distribution points for fresh fruits and vegetables in the community
- Changing the infrastructure around schools to promote walking and biking to schools
- Installing a lighted walking trail to provide access to safe physical activity

In addition to policy and environmental strategies, there were a number of programmatic efforts and attempts to build community capacity to promote healthy eating and active living. Examples of **programmatic strategies** included:

- Incorporating physical activity into afterschool programs
- Promoting parents’ and students’ positive behaviors regarding healthy eating and active living at the targeted schools

Examples of **capacity building** strategies included:

- Mobilizing and training residents to create an ongoing grassroots effort to advocate for healthy eating and physical activity options in their neighborhoods
- Building worksite sector leadership and infrastructure
- Recruiting the faith-based community into promoting HEAL activities
Evaluation Methods
The HEAL-CHI evaluation used a logic model approach to assessing impact that combined tracking the implementation of environmental and policy changes, doing more in-depth evaluations of specific HEAL strategies, and tracking population-level measures of physical activity, nutrition, and overweight. The evaluation was led by the Center for Community Health and Evaluation (CCHE) at Group Health Cooperative in partnership with the Dr. Robert C. and Veronica Atkins Center for Weight and Health (CWH) at University of California, Berkeley.

Tracking implementation and measuring “population dose.” We tracked the implementation of intervention strategies using the Documentation of Community Change (DOCC), a database that included strategy characteristics (e.g., strategy category, community sector targeted), implementation status, and number of people exposed to the strategy. The DOCC was updated each year through progress reporting, site visits, and conversations with collaborative staff and technical assistance providers. To provide an estimate of the impact of the CAP strategies on behavior change, we also assessed “population dose,” defined as the combination of reach (i.e., number of people exposed to each strategy) and strength (i.e., impact on each person exposed).

Measuring population-level change. Population-level change was tracked for adults using automated phone surveys (known as Interactive Voice Response (IVR)) administered to a sample living within the designated geographical area and, for youth, using a self-administered school-based survey and Fitnessgram in intervention schools as well as a sample of comparison schools. Fitnessgram is a statewide program conducted in all elementary, middle, and high schools in California that measures three components of health-related physical fitness that have been identified as important to overall health and function: aerobic capacity; body composition; and muscular strength, endurance and flexibility. In addition, we used clinical data from KP to provide information about community-level rates of overweight and obesity.

Capturing impact from a community perspective. We used Photovoice and key informant interviews to document the impact of the Initiative from the perspective of community members. In Photovoice, community residents are given cameras to take pictures that represent their ideas, thoughts or feelings about particular issues in their communities. Photovoice was used at baseline in the HEAL-CHI Initiative to identify issues for advocacy, and at follow-up for community members to take photos of the most significant changes they had seen. In addition to Photovoice, key informant interviews were conducted with collaborative members in both 2007 and 2010 to gather information about collaborative functioning and to ask community members about the key accomplishments and challenges of the Initiative.

Key Findings
Strategy implementation. The HEAL-CHI Community Action Plans implemented by the end of the Initiative contained 76 strategies across the three communities (range 25–26 per community). These included 26 (34%) organizational policy change strategies, 12 (16%) environmental change and 5 (7%) public policy strategies. Another 19 (25%) strategies were programmatic and 14 (18%) focused on building community capacity.

Of the 62 strategies that did not involve capacity building, 49 had been implemented successfully by the end of the Initiative and 38 of those were judged to be potentially sustainable beyond the
period of grant funding—either because they were policy or environmental changes that were durable by their nature, or because programs had found an institutional home and secure funding. Of the 38 implemented and sustained strategies, 30 focused on policy or environmental change. Therefore, almost half of all strategies (48%) that were attempted by the community collaboratives over the course of the Initiative were successfully implemented, sustainable, policy and environmental change strategies.

**Reach and population dose.** Across all three communities a total of over 41,000 people were exposed to environmental and programmatic interventions in their neighborhoods, worksites and health clinics, and 17,000 school-age youth were exposed to interventions in their schools. The penetration, or percent of the target population reached, was greatest for environmental interventions in the schools; for example from 73% to 100% of school children across the three communities were exposed to changes in the food environment (e.g., healthier cafeteria menus, more healthy food in vending machines).

Population dose considers the strength of the interventions as well as the number reached. We found the highest dose strategies (greater than 20% of the target population reached by “high strength” interventions) in strategies targeting physical activity and implemented in and around schools, including:

- Inclusion of an after-school exercise into an after school program, reaching 25% of children with 20 minutes of additional exercise per day
- Implementation of a new PE curriculum that significantly increased the number of active minutes of PE, reaching all students in the district
- The combination of new PE standards, after-school exercise programs, and neighborhood infrastructure enhancements making it safer to walk/bike to school reaching a combined total of more than 50% of school-age children

In the area of school nutrition, there were high dose strategies attempting to improve the healthfulness and participation in school lunch and breakfast programs, and to use a combination of healthier menu options, a salad bar, and garden education to increase the consumption of fruits and vegetables.

While there were a number of high reach strategies in the neighborhoods, worksites and health care settings targeting adults and families, none was intensive enough to be rated as high population dose.

**Population-level Impact.** It is difficult to achieve a measurable population-level impact in community initiatives such as HEAL-CHI since the intervention activities being pursued were small in relation to the array of powerful cultural and environmental factors that shape physical activity and dietary behaviors and the intervention period was relatively short. And indeed we did not find overall consistent patterns of behavior change for the measures of physical activity, food behaviors and obesity across the full range of youth, IVR, KP member and Fitnessgram data.

However, where there were high dose strategies we *did* find a number of significant and positive population-level changes in the three HEAL-CHI communities. Using the youth survey data, of
the nine instances where there were high-dose strategies in place (see previous section for examples), four of those were statistically significant and favoring the intervention; for example:

- The percent of children reporting exercising in after-school programs increased from 33% to 42% in the community implementing the high-dose after-school program
- The percent of children reporting active exercise for at least 20 minutes in after-school programs increased from 43% to 49% in community implementing the high-dose PE curriculum

These results were supported by the Fitnessgram data, particularly aerobic capacity measures among fifth graders:

- The percent of fifth graders in the “healthy fitness zone” of aerobic capacity increased from 24% to 64% in one community and from 54% to 70% in another community

**Community Perspective: Photovoice and Key Informant Interviews.** The Photovoice process identified a number of community changes that were seen as beneficial by community members:

- Increased access to fresh, healthy food in neighborhoods
- Increased (safe) walkability
- Leadership development
- Healthy messaging

In addition, Photovoice results were used in several successful advocacy efforts:

- In Richmond, Photovoice was used in collaboration with other efforts to achieve the demolition of a long-standing, crime-ridden liquor store.
- In Santa Rosa, photos were used by one of KP’s physician champions to successfully advocate at the state level for Safe Routes to School.

Key informant interviews of collaborative members produced a similar list of key accomplishments, including:

- The opportunity to have input into the city general plan policy initiatives having to do with health elements
- School changes: after school programming, after school cooking clubs, and encouraging schools to offer universal breakfast
- Healthier schools: school menus/added salad bars and food policies were changed, and schools changed practices for providing food at events
- Institutionalized BMI counseling and screening in all community clinics

**Lessons Learned**

Several lessons emerged from the process of implementing the HEAL-CHI intervention and evaluation that may be useful for other, similar initiatives:

- **Select smaller communities and fewer, more focused strategies.** It may have been overly ambitious to have population-level change as a goal with communities of approximately 40,000 people, attempting to implement 20+ significant environmental change strategies across multiple sectors in five years. The project staff and collaborative members may have been spread too thin to sufficiently implement strategies that are often time intensive to implement.
• **Implement interventions of sufficient population dose.** To have a realistic chance of making change at the population-level, interventions need to be of sufficient reach and strength. Ongoing feedback on how to deliver this and accountability for doing so should be communicated throughout the planning and implementation phases, with support to communities on ways to achieve adequate dose.

• **Develop more sensitive measures of impact.** The principle, longer-term outcome measures in our evaluation design were standard behavioral and health outcomes (e.g., servings of fruits and vegetables, minutes of physical activity, body mass index) measured using population-level surveys or clinical data. These outcomes are likely too distal to be achieved within a five-year initiative. Options for more proximal outcomes include strategy-level evaluations that look at behavioral impact on those directly exposed. Another way of capturing more proximal outcomes is to add questions to the population level surveys that ask about changes in HEAL-related attitudes and knowledge that may be precursors of longer-term behavior change.

**Summary and Conclusions**
The evaluation results showed that HEAL-CHI was generally successful in achieving its goals. In particular:

• **Sustainable policy and environmental change strategies were successfully implemented.** The Initiative was successful in implementing policy and environmental strategies, the majority of which are potentially sustainable.

• **Population-level impacts were observed where high-dose strategies were implemented.** The population-level results were inconclusive overall, but showed positive and significant changes in several instances where “high dose” strategies were implemented, primarily physical activity interventions targeting school-age youth.

• **Community residents reported significant, positive changes.** Significant community changes were reported by residents through interviews and Photovoice that they believed were positive steps that could lead to long-term improvements in health.

**Future Directions**
Lessons learned from the Initiative—smaller communities, more focused strategies, more sensitive population-level measures—are now being incorporated in the second phase of HEAL-CHI. A total of seven communities have been selected for three years of implementation funding in the HEAL Zones Initiative.