

KAISER PERMANENTE COMMUNITY HEALTH INITIATIVE

Final Evaluation Report

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Executive Summary

Introduction

In the last half-century, a series of public health problems have risen to the top of the national agenda that can legitimately be labeled “crises” – from smoking, to teen pregnancy and drug use, cardiovascular disease, obesity, and more recently opioid addiction, and trauma/mental health. They all have significant health impacts that impose large costs on individuals and communities and have complex roots involving multiple segments of society.

In each case, there have been concerted efforts by a range of funders, institutions, community-based organizations, and public agencies to address the crisis at all levels - national, state, and local. While these combined efforts often resulted in improvements to long term trends in these health problems, there are questions about whether a better coordinated, more integrated approach might have resulted in more improvement using fewer resources.

How do we get better at responding to these public health crises? Are there learnings from the past that can guide future efforts going forward about the most effective models at both national/regional and individual community levels?

This report describes one organization’s response to one such crisis – Kaiser Permanente’s (KP’s) Community Health Initiative (CHI) addressing the obesity epidemic. This report uses the evaluation findings to answer several key questions relevant to the initiative itself: What was the impact? What was the return on investment? But also, importantly, what are the learnings that can be applied to future work in obesity and to work addressing other current and future crises.

Responding to the obesity epidemic

The risks of obesity to health are clear: life-threatening and chronic illnesses that shorten life spans, reductions in quality of life, and contributions to healthcare cost inflation, crowding out other critical social investments. Rates of obesity and the consequences for health are especially high in low-income communities of color. KP saw obesity rates as a critical concern for its members’ health and sought ways to join the efforts searching for solutions.

Several new ideas about how to intervene effectively at a population-level were emerging at the same time obesity became a top public health priority, including:

- **Comprehensive, community-level approaches** involving synergistic combinations of strategies and systems approaches. The idea of a “multi-level, multi-sector” approach emerged, using the levels of the socio-ecologic model (e.g., individual, family, community) applied to different community sectors (e.g., school, worksite, neighborhood). This more comprehensive approach recognized that problems such as obesity are driven by many complex and interrelated factors: cultural, economic, social, genetic, and environmental influences that are hard to disentangle and address separately.

- **Policy and environmental change.** System-level interventions focused on policy change (e.g., comprehensive school health policies) and changing food and physical activity environments (e.g., grocery stores, restaurants, built environment). After decades of education and promotion strategies, it was clear that a supportive environment and consistent practices making “the healthy choice the easy choice” was gaining momentum.

The KP Community Health Initiative

In 2003, KP recognized the importance of joining the fight against obesity and became one of the early adopters of these new intervention ideas in creating its Community Health Initiative (CHI). Key CHI components included:

Work in individual communities. The core of CHI was a place-based initiative designed to promote healthy eating and active living (HEAL) in 60+ communities across KP’s regions. The CHI communities were low-income areas with defined neighborhood boundaries and populations ranging from 10,000 to 50,000 people. The first sites began planning and organizing multi-sector collaboratives as early as 2005. The CHI framework included a focus on practice, policy, and environmental changes; strategies that employed both community and KP’s own assets as a health care provider; long-term partnerships and investments; and a commitment to using evidence where it was available and building the evidence base where it was lacking, particularly around the new policy and environmental change strategies.

CHI was phased in over time and varied somewhat by region in terms of how it was implemented. In all the sites it was community-driven, and the strategies adopted were in line with the interests and readiness of the community collaboratives formed in each site to lead the work. These collaboratives often engaged partners from multiple sectors who did not have a history of working together. The median duration of the funding for the sites was four years, with almost a third funded for 7-10 years.

Broader national and state-level partnerships. Surrounding and supporting the place-based CHI work, KP actively engaged with policymakers, funders and community partners to help promote coordination, bring about policy change, and share learnings to build the field. These partnerships occurred at all levels – national, state, regional, and local.

Changes within KP. Over a decade, CHI launched a number of projects and campaigns consistent with the CHI focus areas within KP, reaching both KP members and staff. These efforts to “walk the talk” included several internal policy and practice changes at KP medical facilities and other parts of the organization.

Initiative costs. The cumulative investment in CHI for the work in individual communities from 2004-2017 across all regional CHI initiatives was \$69 million with the largest investments made in the Colorado, Northern California and Southern California KP regions (85% of the total investment). Seventy percent of the funding went to support communities in strategy implementation; the remainder was split between evaluation (20%) and technical assistance

(10%). Costs were not documented for the national partnership work – primarily KP staff time and some grant funding - or for the internal KP initiatives.

What was the impact of CHI?

What were changes in communities?

Strategies were implemented widely. A total of 730 policy, programmatic and environmental strategies have been implemented, reaching a total of 715,000 people across all the CHI communities. Examples of strategies included implementing new physical education curricula in schools, enhancing the quality of food served in school cafeterias, installing a lighted walking trail to provide access to safe physical activity, and working to pass health-promoting policies (e.g., complete streets, sugar-sweetened beverage taxes). The majority of strategies focused on policy and environmental change, following the initiative design.

Strategies impacted individual behavior. The evaluation team evaluated the impact of many of the strategies on the health behaviors of people touched by them. The majority of strategies evaluated showed some positive impact; of 143 individual strategies evaluated, 98 (69%) resulted in positive impacts on individual health behavior. Impact was greatest in schools, especially in physical activity; more successful strategies included physical education curriculum, active recess, and Safe Routes to School. Impactful community strategies included physical activity programs and park improvements.

Population-level change occurred where the “dose” was strong enough. A “population dose” approach was developed to create and assess the potential impact of the CHI strategies and help determine whether CHI was responsible for observed population-level changes. One-half of the cases where high dose strategies were implemented (i.e., those reaching a large number of people, with more significant impact per person) showed positive population-level improvement. All the observed population health changes related to the presence of strong interventions (high dose) took place in schools, as opposed to community settings. And most of those school changes were in physical activity – nearly 40% of communities where the evaluation team measured population change showed increases in minutes of physical activity among school-age youth that were accompanied by strong interventions.

Changes in longer-term outcomes such as obesity rates were monitored but did not show improvement within the time frame of the initiative. Positive trends were seen among KP members in some CHI communities, but the trends did not differ from members residing in matched comparison communities. Similarly, Fitnessgram data (body composition, aerobic capacity) from California schools showed some improvement in the relative ranking of these measures compared to other schools in the same school district. However, data limitations did not allow attribution of these trends to the CHI community strategies.

Community capacity building and moving into areas beyond HEAL. In addition to the strategies designed to directly impact healthy eating and active living, there were also increases in community capacity through the CHI community collaboratives that are hard to quantify, but potentially significant. The collaboratives contributed to relationship building that facilitated the implementation of the policy, environmental, and programmatic strategies. Several

collaboratives moved into other content areas beyond HEAL where there were identified community health needs, leveraging the intersectoral relationships created by CHI.

What were impacts on KP and the nation?

KP influenced national and regional efforts and helped build the field. A number of partnerships instigated or co-led by KP provided support for better funder coordination, policy advocacy, and field building around obesity prevention, leading to stronger obesity prevention efforts in communities across the nation. The efforts were led both at the National Program Office and Regional levels. Examples of national efforts included:

- Partnership for a Healthier America - an outgrowth of First Lady Michelle Obama's Let's Move! Campaign to end childhood obesity
- The Convergence Partnership - a coalition of funders focused on accelerating policy and environmental approaches to prevention
- Weight of the Nation - KP was a partner and co-funder of this effort by the Institute of Medicine, the National Institutes of Health and HBO to bring national attention to the obesity epidemic

State and regional efforts supported by KP included:

- LiveWell Colorado, a non-profit organization committed to reducing obesity in Colorado by promoting healthy eating and physical activity.
- The HEAL Cities Campaign - Public health organizations working in conjunction with state municipal leagues provide support and recognition to cities and towns that were ready to act on obesity prevention.

In addition, KP supported efforts to build the evidence base for community obesity prevention efforts, including two influential National Academy of Medicine reports: *Bridging the Evidence Gap in Obesity Prevention: A Framework to Inform Decision Making*, and *Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation*.

KP changed its internal policies and practices to promote HEAL. Over a decade, CHI launched numerous projects and campaigns consistent with the CHI HEAL focus areas within the KP organization reaching KP members and KP staff. Just a few of the examples are:

- In 2003, Kaiser Permanente's Care Management Initiative created the Weight Management Initiative to develop and implement a plan to address overweight and obesity among KP members and share those approaches with safety net and other community providers.
- In 2004, Kaiser Permanente opened [Farmers Markets](#), now at 50 KP hospitals and facilities, to improve access to healthy and locally grown foods for staff, patients, and communities.
- In 2005, Healthy Picks was launched, which ushered in healthy food choices in Kaiser Permanente cafeterias and vending machines, and the development and dissemination of toolkits to spread best practices to other organizations. In 2009, calorie and nutrient information was added to cafeteria menus in KP facilities.
- In 2010 and 2011, inviting murals were added to stairwells to encourage stair use and short, physical activity breaks were incorporated into the work day in KP facilities.

- In 2011, KP launched an enterprise-wide Obesity Prevention and Treatment Strategy (OPT 2.0) and committed to breastfeeding practice guidelines. Baby friendly hospitals were established (placing an emphasis on breastfeeding).

What were the learnings?

For obesity prevention?

There were a number of learnings that may be helpful for others implementing community-based obesity prevention initiatives.

Focus on youth in schools for population-level impact, particularly physical activity. All the observed population health changes related to the presence of strong interventions (high dose) took place in schools, as opposed to community settings. There are a number of good, underlying reasons for both targeting school-aged children and using school-focused strategies. Children, especially in elementary school, are a captive population with more limited food choices while in school and there is greater opportunity for in-class, PE and recess physical activity minutes. It is also easier to make changes in school building policies, practices, and the environment that can impact all or most children

Use strategies that have evidence for success, and the strongest versions of those. As evidence accumulates about individual HEAL strategies, from our own evaluation and the literature, a number of strategies have emerged as having greater potential impact. These should be prioritized in planning and implementation. In addition, within those strategy categories, there are stronger ways of implementing them. For example, a Safe Routes to School strategy can range from one “Walk to School” assembly per year to weekly or daily “walking school buses” involving a significant number of children engaged in consistent active transport to/from school, year-round.

Dose matters. Half of the cases where high dose strategies were implemented showed positive population level improvement, versus less than 20% showing improvement when the dose was lower. This supports the idea that changing behavior across a population requires reaching relatively large fractions of people with strategies that have a high impact per person.

Focus community strategies where partners and champions exist. Because intervening at the community level is challenging, focus on sectors where willing partners, positioned to bring about policy, programmatic, and environmental changes, exist. The CHI multi-sector approach proved to be challenging for this reason – it was hard to find supportive partners and champions in all of the targeted sectors in relatively small geographic communities.

Be flexible and responsive to community priorities. Several communities determined that issues such as unemployment and violence were significant barriers to advancing their HEAL strategies. Being flexible in allowing communities to shift direction and work on these underlying issues was a key to success in several CHI communities. Examples of issues that were addressed included violence prevention, economic development, park safety, and blight removal.

For other health issues?

Lessons that may apply to initiatives addressing other health areas include:

Join forces. Be a catalyst to promote broader collaboration at all appropriate levels—national, state, regional, local. Try to avoid duplication of effort, share lessons, collaborate on initiative funding initiatives, and adopt common evaluation approaches as much as possible. Work to collectively identify best practices and build the field.

Walk the talk – Bring about change within your own organization to the extent possible. In addition to providing health benefits to staff and clients/customers, these changes will build credibility and allow you to speak more forcefully and convincingly to other organizations who are also being asked to make changes.

Reflect to improve. CHI evaluation findings and other information were intentionally fed back to the implementers in a variety of ways to help make program improvements. Interactive learning techniques were increasingly used in facilitating these learning sessions and retreats. Particularly influential were strategic “refresh” meetings – cross-regional meetings to review CHI progress and discuss barriers and opportunities. These led to large scale refinements to the CHI strategic approach and evaluation methodology that ultimately increased the impact of the initiative.

Use community coalitions wisely. Coalitions were useful early in the place-based CHI initiative to bring people together and agree on a common vision and strategy. But the ongoing work tended to be carried out by smaller numbers of key organizational partners. Substantial resources, including staff support, are required to build a successful broad-based community collaborative. If key strategic relationships can be built in the absence of such a collaborative, it is not necessary to create one.

Be strategic about evaluation and measurement. While it is important to have long-term monitoring of health outcomes in place, it is often not realistic to expect to attribute effects on population-level health behaviors within the time frame of a typical community initiative. It may be more cost-effective to carefully track strategy implementation and impact on those touched by the strategies, and then project population-level impact based on evidence in the literature and other program evaluation information.

What are next steps for KP?

Beginning in 2013, KP created new initiatives that are an outgrowth of the learnings from the CHI place-based work. HEAL will continue to be a major focus for KP; the most recent report on the prevalence of obesity among U.S. children from 1999 to 2016 shows no evidence of decline among any age group.¹ More concerning, there was a significant increase in prevalence of severe obesity among preschool-aged children. Efforts such as Thriving Schools and Thriving Cities described below and others must continue among all sectors and levels of society to improve the long-term health of today’s children.

Thriving Schools. An initiative dedicated to improving the health of students, staff and teachers in K-12 schools focused on four key areas: healthy eating, active living, school employee

wellness, and social and emotional wellness. Thriving Schools works to improve the health of students, staff and teachers by:

- Partnering with other organizations involved in school health.
- Engaging multiple departments within KP in the effort, including workforce wellness, union engagement, employee volunteerism, community health
- Building a culture of wellness and empowering wellness champions, by putting the best tools and resources into the hands of people supporting school wellness.

Thriving Cities. Kaiser Permanente is now building on the HEAL Cities work referenced above that focused on healthy eating and active living policies in small and medium-sized cities with its Thriving Cities Initiative, implemented in partnership with CityHealth, an initiative of the de Beaumont Foundation. The initiative will leverage the CityHealth accountability framework, established policy menu, and large city focus, and will expand the range of policies beyond HEAL to include economic well-being, education, tobacco prevention, and community safety.

The lessons learned through CHI are informing both the implementation and evaluation of these new large-scale initiatives.

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Background

The obesity epidemic and community health

In the early 2000s, the problem of obesity was already well-recognized² and rising to the top of the public health agenda. The risks of obesity to health are clear: life-threatening¹ and chronic illnesses that shorten life spans, reductions in quality of life, and contributions to healthcare cost inflation that are crowding out other critical social investments. Rates of obesity and the consequences for health are especially high in low-income communities of color.³

At that time, the obesity-prevention strategies that were being recommended and rigorously evaluated were individual-level interventions and more traditional health promotion approaches: for example, provision of information, counseling, education.¹ However, a number of new strategy ideas were surfacing and gaining traction, strategies that were system-level interventions and focused on policy change (e.g., comprehensive school health policies) and changing food and physical activity environments (e.g., grocery stores, restaurants, built environment).^{4 5 6} Evidence about the effectiveness of these newer strategies was limited, and recommendations for which strategies to implement were based largely on theory and expert opinion.⁷

Accompanying these innovative strategies were calls for more comprehensive, community-level approaches involving synergistic combinations of strategies and systems approaches.² The idea of a “multi-level, multi-sector” approach emerged, using the levels of the socio-ecologic model⁸ (e.g., individual, family, community) applied to different community sectors (e.g., school, worksite, neighborhood). This more comprehensive approach recognized that the epidemic is driven by many complex and interrelated factors: cultural, economic, social, genetic, and environmental influences that are hard to disentangle and address separately.^{9 10 11 12}

This comprehensive community-level approach to obesity prevention grew out of a longer tradition of community health-promotion initiatives that began with the North Karelia Project¹³ in Finland in the 1970s. Developers of these initiatives argued that health issues with complex causes could be more effectively addressed with multiple strategies targeting residents of a geographic location. Examples of these community-level initiatives included randomized trials such as COMMIT¹⁴ (tobacco prevention) and the Stanford Five-Community study¹⁵ (cardiovascular disease) as well as more community-driven, less rigorously evaluated initiatives such as healthy cities/healthy communities’ interventions.¹⁶

Kaiser Permanente's response: The Community Health Initiative

Kaiser Permanente (KP) is an integrated health care delivery system serving more than 12 million members in eight states and the District of Columbia. KP's overall Community Benefit commitment is to be proactive about keeping people healthy. KP saw the developing obesity rates rapidly developing within their care delivery system. A huge concern for the long-term health of the communities KP served, they began discussions about the important of a clinic and community approach.

In 2003, KP incorporated many of the ideas in the field about policy/environmental strategies and comprehensive community-level approaches into the development of its Community Health Initiative (CHI), a multi-sector, place-based initiative designed to promote healthy eating and active living (HEAL) and reduce obesity in low income communities.¹⁷ The CHI focus on community-level health improvement reflects a growing understanding that much of what determines health occurs outside of clinical settings.

The CHI framework includes a focus on practice, policy, and environmental changes; strategies that employ both community and KP's own assets; long-term partnerships and investments; and a commitment to using evidence where it is available and building the evidence base where it is lacking.

As CHI unfolded, evidence in support of these design principles began to accumulate in the literature,^{2,18} and other funders and organizations implemented similar comprehensive community initiatives: W.K. Kellogg Foundation's Food and Fitness Initiative¹⁹ and the Robert Wood Johnson Foundation's Healthy Kids/Healthy Communities²⁰ and Active Living by Design²¹ initiatives, and the Centers for Disease Control and Prevention's Communities Putting Prevention to Work Initiative funded under the American Relief and Reinvestment Act of 2009.²²

Much of the CHI work has taken place in place-based settings: low-income areas with defined neighborhood boundaries. However, this is not the only aspect of the work. Broader work at the city, regional or county work also took place, as well as more far-reaching state and national policy work in support of the local, place-based efforts. And KP's efforts to improve community health did go beyond CHI place-based initiatives in a wide range of undertakings consistent with identified needs that were systematically assessed and documented throughout KP regions. These include addressing concerns about community safety, economic health, and social and emotional wellness.

This report focuses on the evaluation results from the CHI place-based initiatives and includes a description of the broader work to support these sites that simultaneously took place.

Initiative design

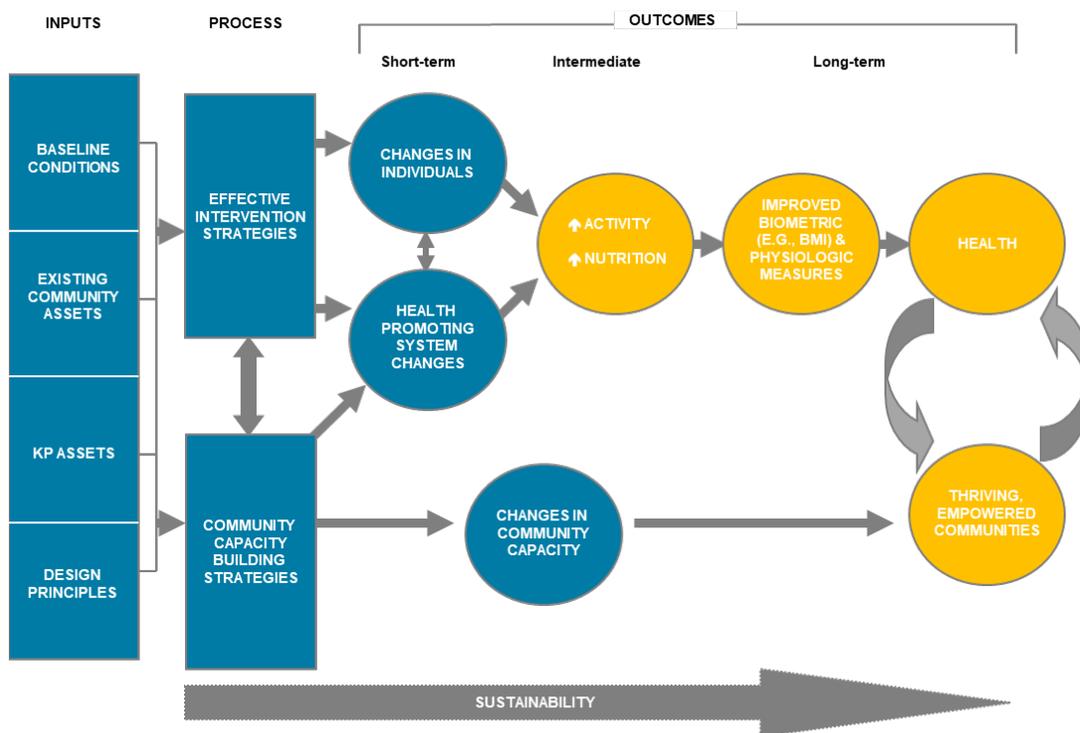
The CHI primary focus was on work in individual communities, described in more detail in this section. This “place-based” work was surrounded and supported by KP actively engaged with policymakers, funders and community partners to help promote coordination, bring about policy change, and share learnings to build the field. These partnerships occurred at all levels – national, state, regional, and local. In addition, over a decade, CHI launched a number of projects and campaigns consistent with the CHI focus areas within KP, reaching both KP members and staff. These efforts to “walk the talk” included a number of internal policy and practice changes at KP medical facilities and other parts of the organization.

Framework for work in communities

- KP’s Framework for the Community Health Initiative identified several core design principles that mature CHI sites were expected to manifest. These include:
- A place-based focus, with the target population larger than a few blocks and smaller than a county (i.e., a neighborhood)
- An emphasis on change at multiple levels, particularly environmental and policy change
- Multi-sectoral collaboration that involves multiple sectors in addition to healthcare
- Community engagement and community ownership
- Leveraging the assets and strengths of KP and of its communities
- A long-term commitment to these efforts, with an emphasis on sustainability and community capacity building
- An evidence-informed public health approach
- A commitment to learning and evaluation that drives improvement as well as accountability, and
- A focus on and commitment to reducing racial and ethnic health disparities

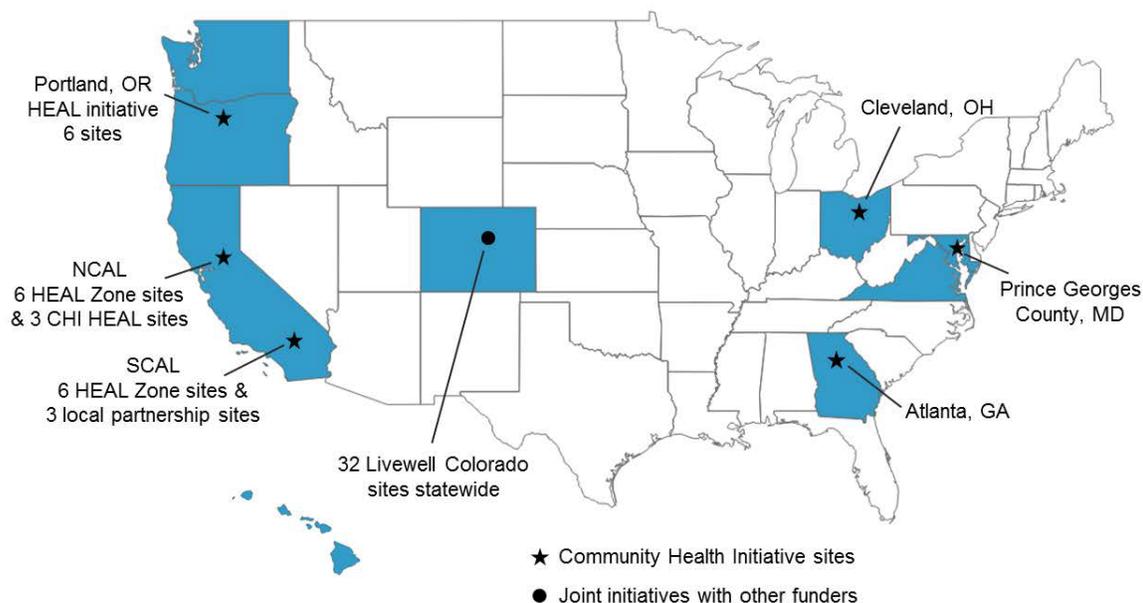
These design principles for the place-based effort are embodied in the CHI logic model (see Figure 1; a more detailed version is in Appendix A). There were two pathways for the place-based work; the first (upper) one focused on implementing strategies to impact health behavior, (e.g. levels of physical activity and proportions of the population eating a healthy diet) as well as longer-term improvements in related health outcomes (e.g., weight status, chronic illness outcomes).

A second (lower) pathway focused on community capacity building, including greater collaboration among community-based organizations. Within the time frame of the initiative, the collaboratives became a vehicle for community involvement in the effort, bringing together partner organizations to facilitate strategy implementation and providing a path for community input and participation. In the longer-term, the goal was to build lasting relationships that could identify and address other key community health issues in addition to obesity.

Figure 1: CHI Logic Model

Regional variation

Since 2005, when the first three CHI sites were begun in Colorado, KP has implemented CHI in seven of eight regions and nearly 60 communities: 32 communities in Colorado, 9 in Northern California, 9 in Southern California, 6 in the Pacific Northwest, and an additional 3 initiatives in Maryland, Georgia and Ohio (see Figure 2). The CHI communities were phased in over time and varied by duration and design—in line with the interests and readiness of the community collaborative in each site that were formed to do the work. The median duration of the funding for the sites was four years, with almost a third funded for 7-10 years.

Figure 2: CHI locations

CHI place-based sites were tailored to the needs in each region (see Table 1). Variations included the management and support of sites, duration of implementation, amount of investment and focus areas within the model. For example, in Colorado, the implementation of CHI was through a 501(c)3 organization—LiveWell Colorado—that received over half of its funding from KP and the rest from other foundations and state agencies. In the other regions, KP Community Benefit was the lead organization providing both funding and technical support. More details about the CHI sites in each KP region can be found in Appendix B.

Table 1: CHI community variations by region

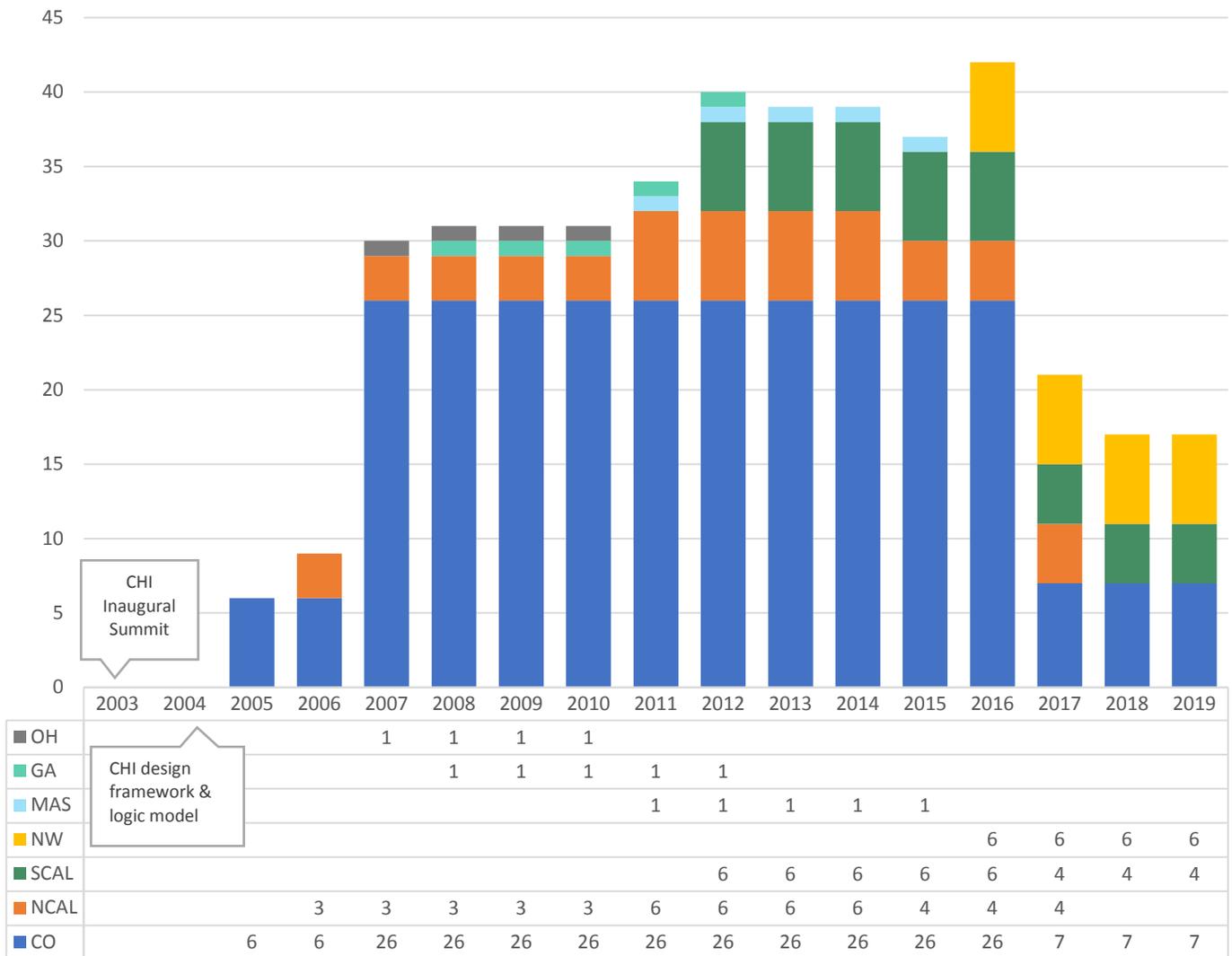
Region	Initiative	Communities	Model
Ohio^a	Lee-Harvard Cleveland 2007-2010	4 years 1 community	<ul style="list-style-type: none"> Community engagement and needs assessment focused Implemented community garden and Safe Routes to School audits and promotion
Georgia	Healthy Belvedere 2008-2012	5 years 1 community	<ul style="list-style-type: none"> Capacity building focused Walking clubs and community garden strategies
Northern CA	HEAL-CHI Phase I 2006-2010	5 years 3 communities	<ul style="list-style-type: none"> Organized by sector: schools, health care settings, worksites and neighborhoods HEAL evidence-based policy and environmental change strategies
	HEAL Zones Phase II 2011-2014	3 years 3 continued Phase I 3 new communities	<ul style="list-style-type: none"> Organized by four nutrition and physical activity goals Community environment and HEAL access, re-enforced by education, promotion and a focus on dose of HEAL strategies
	HEAL Zones Phase III 2015-2017	2 years 1 continued Phase I&II 3 continued Phase II	<ul style="list-style-type: none"> Organized by goal: four nutrition and physical activity goals and objectives Focus on fewer but stronger strategies
Colorado	Thriving Communities 2005-2006	2 years 6 communities	<ul style="list-style-type: none"> Initial coalition building Small investments in specific, limited strategies Co-funded with CO Department of Public Health
	LiveWell Colorado 2007-2016	2-8 years 6 continued Thriving Communities 26 new communities	<ul style="list-style-type: none"> Organized by phases First two years focused on mobilization & planning Years 3-6 focused on HEAL implementation Last years focused on sustainability of promising HEAL strategies
	Sustainable HEAL Communities 2017-2019	2-3 years 7 continued LiveWell communities	<ul style="list-style-type: none"> Focus on completing implementation and long-term sustainability of strategies for communities who were in year 4 or 5 of their implementation in 2017 Co-funded with the Colorado Health Foundation
Mid-Atlantic States	Port Towns 2011-2015	5 years 1 community	<ul style="list-style-type: none"> Capacity building focused Youth-led wellness, community garden, and HEAL program strategies
Southern CA	HEAL Zones phase I 2012-2016	4 years 6 communities	<ul style="list-style-type: none"> Focus on increasing access to healthy food, physical activity opportunities by improving policies and environments strategies
	HEAL Zones phase II 2016-2019	3 years 4 continued Phase I	<ul style="list-style-type: none"> Emphasis the same as Phase I
Northwest	HEAL Communities 2016-2019	3.5 years 6 communities	<ul style="list-style-type: none"> Capacity building and high dose strategy planning Focus on improve places and/or systems that support individuals to make healthier choices

^a Ohio KP region was discontinued.

Timing of the CHI sites

CHI place-based sites were phased in over time and varied in duration. The first sites were established in Ohio, Georgia, Colorado and Northern California, followed by sites in the Mid-Atlantic States (MAS), Southern California and the Pacific Northwest regions (see Figure 3). The most common funding period was 3-5 years, although some sites were extended beyond five years to continue to work on potentially strong strategies not yet completed, or to help in the transition to sustainability. Two KP regions, Southern California and the Northwest, started new communities at midpoint or later in the CHI initiative.

Figure 3: Timeline and number of CHI place-based communities



Evaluation

The CHI evaluation team, led by the Center for Community Health and Evaluation in partnership with the University of California Nutrition Policy Institute (formally the Center for Weight and Health at UC Berkeley), developed methods to address challenges with assessing the impact of complex, community-driven nutrition and physical activity interventions over time. A logic model driven, mixed methods design was used.

The methods and measures were developed to understand impact, provide results of use to both KP and the communities, as well as share outcomes of interest to public health and health care organizations. The evaluation included a strong formative component – using evaluation results and methods to help build stronger interventions.

Methods were enhanced over time to include the concept of “population dose” to help assess the impact of a diverse collection of environment and policy change strategies on population-level outcomes and more accurately attribute those changes to the initiative. This method is described further in this section. The evaluation team also added focused evaluations of individual strategies (“strategy-level evaluations”) that helped add to a growing evidence base on newer policy and environmental approaches to obesity prevention.

Evaluation goals and questions

There were three broad areas addressed in the CHI evaluation: 1) assessing impact, 2) promoting program improvement, and 3) sharing knowledge within KP, with communities, and the field. Under each broad area below are the questions that guided the evaluation effort.

1. What was the impact of CHI?

- In communities?
 - Were strategies implemented that changed community food and physical activity environments? Was community capacity enhanced?
 - Did those strategies lead to individual behavior change?
 - Did the combination of strategies change behavior at the population level?
- On KP and the nation?
 - Did national and regional obesity prevention efforts improve?
 - Did HEAL policy and practice changes occur within KP?
- What was the return on investment?

2. What were the learnings?

- Were efforts to enhance program implementation and outcomes effective?
- What was the role of community collaboratives in the initiative?
- What were learnings: for the field of community obesity prevention?

Evaluation design

The evaluation was a mixed-method design incorporating both quantitative and qualitative components. Because CHI communities were implemented at various times and duration throughout KP regions, some sites had considerable capacity gaps to fill before they could implement CHI strategies, and other sites were only able to implement a few, low-strength strategies, data collection was staggered and did not take place in every CHI community or KP region. As a result, pre/post measures were available at various points in time throughout the initiative, although the tracking of implementation was ongoing in all communities. See Appendix C for a summary of the evaluation questions, methods and quantitative/qualitative data sources and Appendix D for a timeline summary of the evaluation and measurement periods across sites.

Methods

The following are brief descriptions of the main methods used in the CHI evaluation.

Documentation of Community Change

Key short-term outcomes in the CHI logic model, including changes in program, policy, systems and the environment designed to reduce overweight and obesity, are referred to collectively as "community changes." The "Documentation of Community Change (DOCC) system" was developed as a database using protocols designed to capture collaborative progress in promoting community changes through the strategies, or interventions, they implemented.

Specifically, the goals of the DOCC system were to:

- Document collaborative progress toward implementing the strategies in their community action plan (e.g., new programs, policies and environmental changes)
- Provide an overall, initiative-level picture of the strategies being used
- Gather information about barriers, challenges, and lessons learned that can be shared throughout the initiative to promote program improvement
- Provide information for assessing the overall effectiveness of each site and CHI as a whole
- Capture the KP contribution toward these accomplishments

The DOCC protocol involved the following steps (repeated annually):

1. Community collaboratives developed/revised action plans to guide their work
2. Action plans were abstracted by the evaluation team and a summary of each individual strategy (e.g. promoting changes in school vending machine policies) was entered in an Excel spreadsheet template
3. The individual strategies were categorized along multiple dimensions (e.g. target population, type of activity)
4. Information from the spreadsheet was summarized for the collaboratives and KP Regional staff and used for program improvement and progress reporting

Surveys

Population level evaluations were conducted across the population in the schools and the community to detect behavior changes across these populations. Two groups of respondents were surveyed: adults living in the CHI sites and youth attending schools located in the CHI sites. In the early phases of CHI, Interactive Voice Response (IVR) was used to obtain self-reported

data from adults on healthy eating and physical activity behaviors. Due to non-representative and low response rates, this method was replaced by mailed questionnaires beginning in 2011. Youth surveys were obtained using paper questionnaires that collected self-reported data on healthy eating and physical activity behaviors that were administered to 5th, 7th or 9th grade students in schools. All surveys were administered pre/post over different phases and duration of CHI funding periods which ranged from 2 years to 5 years of exposure.

In the early stages of CHI, partnership surveys were also conducted in some regions to inform program improvement.

Strategy Level Evaluations

Strategy level evaluations were conducted among people actually touched by the interventions to detect behavior changes. These small, focused evaluations were typically pre/post surveys or observations conducted for promising new strategies or strategies where the evidence was still emerging.

Population dose estimates

The CHI evaluation team developed the “population dose” method to document implementation and estimate impact using the DOCC, survey, and strategy level evaluation data. Dose is the product of reach (number of people affected by a strategy divided by target population size) and strength (the effect size or relative change in behavior for each person exposed to the strategy). The dose estimates of the interventions were combined with the population-level survey change data to test whether higher dose community change strategies were associated with measured population-level changes—essentially the product of intervention reach times intervention strength.

Dose estimates were calculated by grouping strategies into clusters by target behaviors (e.g., physical activity, healthy foods, fruit/vegetable and sugar sweetened beverage consumption). For each strategy in a behavioral outcome cluster, an assessment of the number of lives touched (reach) and impact on those lives (strength) was calculated as the product of reach and strength. The dose of all strategies in a cluster targeting one behavioral outcome were added together to estimate overall population dose—population level impact on the target behavior. More information about the dose method is available in the paper *Using the Concept of ‘Population Dose’ in Planning and Evaluating Community-Level Obesity Prevention Initiatives*²³, in the monograph *Dose Matters: An Approach to Strengthening Community Health Strategies to Achieve Greater Impact*²⁴ and in the interactive resource *The Dose Toolkit*.²⁵

KP member data

In several regions where sample sizes were large KP member data was used to monitor population weight status for adults and children by year from 2007 to 2016 (quarterly data collapsed by year).

Fitnessgram data

Fitnessgram testing²⁶ is performed in all California schools every year in the 5th, 7th and 9th grades. The test results are available at the school level and were used as an indicator for assessing the impact of HEAL strategies in California CHI neighborhood schools after several years of implementation. The test includes measures of height and weight (body composition

test) and the time it takes to complete a one-mile walk (aerobic capacity test). This available data was reviewed for the Northern and Southern California CHI site schools during the 2011-12 and 2014-15 school years when CHI/HEAL intervention activities took place.

Key informant interviews

Interviews were conducted with a range of informants within CHI sites and across KP to assess the process, successes and barriers to implementation and the impact of CHI on the KP itself. The interviews were conducted between 2007 and 2015. More are planned in SCAL in 2018. The attitudes and opinions that were assessed included:

- An understanding of CHI overall and the goals
- The extent of connection/alignment of CHI with other initiatives and areas within KP
- Impressions of the impact of CHI/HEAL
- Opinions about CHI accomplishments, challenges, and lessons learned during implementation
- Perceptions of support from KP, technical assistance providers, evaluation
- Degrees of strategy and collaborative sustainability

Photovoice

Photovoice is a community-based approach to documentary photography that provides people with training on photography, ethics, critical discussion and policy advocacy. Community participants from CHI sites were trained, and given cameras to take pictures that represent their ideas, thoughts or feelings about CHI-related issues in their communities. Participants then wrote captions for their photographs about community issues, which could be shared with key stakeholders or policy makers in the community to advocate for change.

Photovoice was also used as a retrospective evaluation method in the Northern California and Colorado regions. Community participants took a second round of photographs, identifying the key changes they felt had occurred in their communities because of CHI. Baseline and endpoint photos were taken after three to five years of implementation between 2006 and 2011.

Periodic reviews, retreats and learning activities

Interim reports of results as they became available were communicated in a variety of ways, contributing to all three goals of the evaluation: assessing impact, improving the initiative, and informing the field. A national evaluation advisory committee was formed, interim reports produced, and evidence review meetings with KP and communities were held. Details about these activities and their descriptions can be found in the following results section.

Evaluation challenges and limitations

There are many challenges to conducting credible evaluations of community-level initiatives, particularly those that include an assessment of their impact on population-level behaviors and health outcomes.²⁷ Longer-term outcomes, such as improvements in food and physical activity behaviors, are expensive and difficult to measure accurately at a population level and attribute to a multi-strategy initiative. And more short-term outcomes, such as changes to the food and physical activity environments, are typically complex and multi-dimensional, making it difficult to create summary measures of the extent of the environmental changes and their likely impact on behavior. More broadly, because some work related to obesity prevention takes place in

most communities, it is difficult to find true comparison communities. Specific challenges and limitations related to measurement should be noted:

- Implementation tracking relied largely on progress reporting from the community collaboratives and other institutions involved (e.g., schools, worksites). These self-reported accomplishments may have been biased in favor of making changes appear to be more comprehensive and sustainable than was true in practice. Where possible, progress reporting was corroborated with secondary data such as strategy-level evaluations involving direct observation and environmental assessments.
- Measurement of behavioral outcomes of adults and youth across the population were based on self-reported surveys of eating and physical activity behaviors, and the ability to recall accurately and reliably without bias is difficult for many respondents. In addition, response rates to the mail survey of adults were relatively low – in the 15-20% range. Since rates were comparable pre-and post it is plausible that roughly the same biases applied on both occasions and that the *changes* were estimated accurately.
- The self-reported behavioral data from surveys was difficult to compare to national and state surveys, despite our attempts to use the same questions, because these larger surveys, such as the national Behavioral Risk Factor Surveillance Survey and Youth Risk Behavioral Surveillance Survey, often change questions from year to year, and the lag time to obtain results is often years after the survey was conducted.
- Ratings of the strength component of population dose were often necessarily subjective given the lack of information in the scientific literature or from strategy-level evaluations about effect sizes for CHI environmental and policy interventions. This and other challenges with implementing the dose methodology are explored in more detail in several publications about using the dose method and results from CHI sites in Northern and Southern California.^{28 29}

What was the impact of CHI?

A. What were changes in communities?

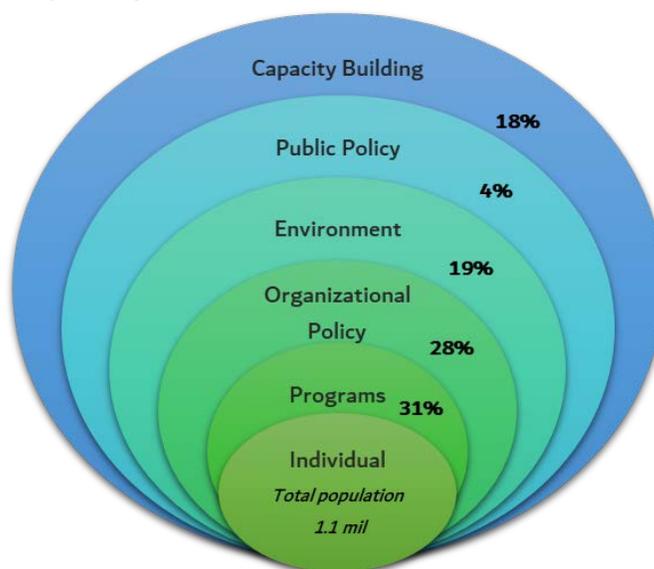
Strategies were implemented widely

A total of 730 community change strategies touching 715,000 people were implemented in the 60+ CHI communities. Over half of the strategies (51%) have resulted in either policy (32%) or environmental (19%) changes; 18% of strategies focused on community capacity building to engage in the work successfully. Figure 4 below shows the distribution of the 730 implemented strategies organized by the levels of the Social Ecological Model.⁷

This distribution of over half the strategies emphasizing public policy, environment, and organizational policies and practices, as opposed to programs (31%), was the intention of CHI. Communities were able to implement them, although they took more time to implement and questions arose about the reach and extent of implementation.

Mid-course corrections were made to strengthen reach and strength of the planned and implemented strategies. KP convened meetings annually (CHI-HEAL Academies) and held summits with all KP regions to review progress (Strategic Refresh in 2009-10 and 2014, and a CHI Retreat in 2017).

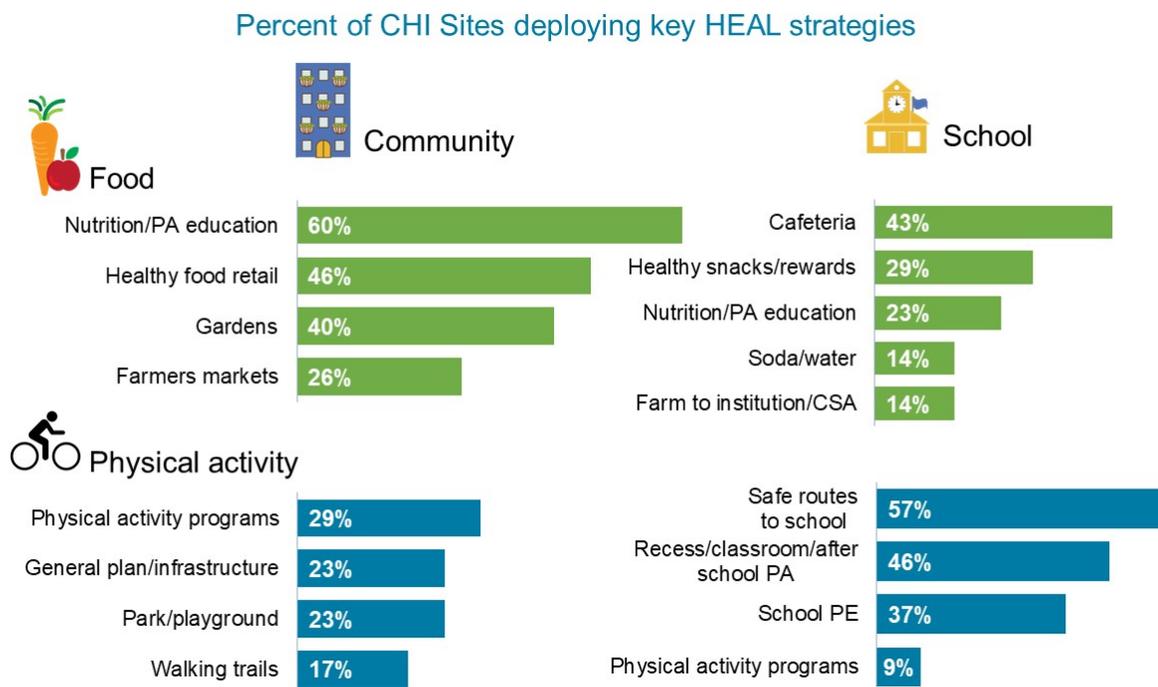
Figure 4: CHI Community Changes



The most commonly implemented strategies, both community-wide and in schools, are shown in Figure 5. Community strategies tended to be more programmatic; for example, 60% of communities implemented nutrition or physical activity education programs, and 29% implemented community physical activity programs. But, there were also a significant number of community strategies targeting the environment – 46% of communities had healthy retail strategies and 23% focused on general plan and infrastructure.

The most common school nutrition strategy was making changes in the school cafeteria; for example, adding salad bars and increasing the healthfulness of the entrees. Other school nutrition strategies were focused around having more healthy snacks (e.g., replacing candy as a reward for good behavior with healthier items). School physical activity strategies included more activity throughout the day – at recess and after school as well as PE, plus increasing the number of students walking and biking to school through Safe Routes to School strategies.

Figure 5: CHI Strategies



Many of the more significant environmental changes were captured using Photovoice, an interactive method of engaging residents around advocating for, and documenting, positive changes in their community. A full description of the methods used and examples of CHI Photovoice pictures can be found in the publication by Kramer et al, *Using Photovoice as a Participatory Evaluation Tool in Kaiser Permanente’s Community Health Initiative*.³⁰ Photovoice participants focused on the outdoor environment on the issues of safety and access to physical activity and on the indoor environment on the issues of food quality and healthy food access. Participants also summarized the accomplishments of CHI from their perspective (See Appendix H: Accomplishments Voiced by Community Participants in Photovoice Projects.)

The following are examples of pre/post Photovoice pictures and captions.

Denver Colorado



Traffic safety was a key theme of the community during the Derby Redevelopment effort. In the summer of 2010, the city constructed the \$900,000 Derby Diamond, a template intersection with colored concrete, landscaping and other features to make the crossing safe for people walking or biking. Prioritizing funding to construct other traffic calming features throughout the city will make walking and biking inviting for people of all ages.

Richmond California



I don't know what's more visible, the fruits and vegetables or the graffiti. I don't feel safe going into this market and the fruits and vegetables are only painted outside the market does not have any inside. This is one of the markets on 23rd Street which promotes fruits and vegetables only on the outside.

Through HEAL partnerships, local markets have converted into WIC vendors that carry healthier items. Now the community has access to and can purchase healthy food at their local markets. We need to continue our work with local markets that don't currently carry healthy items.

In addition to Photovoice, before and after photos illustrating environmental changes in CHI were taken in many communities. Roadways, signal lights, crosswalks and other transport improvements were captured, as well as park improvements and changes in grocery store product offerings. The following are examples of before and after changes. Other examples can be found in Appendix E: Before and After Photos of Changes to the CHI Community Environment.



Before and After. A sewer reclamation pond is now a community park in NW Colorado



Before and After. A corner store has removed extensive supply of sodas in Santa Rosa CA

Strategies impacted individual behavior

The impact of CHI on community health was a function of the collective impacts of the individual strategies. Therefore, a key evaluation focus was assessing the impact of individual strategies on the health behaviors of those touched by them. Of the 143 individual strategies that were evaluated, 98 (69%) showed positive results related to promoting individual behavior change.

Figures 6 and 7 show illustrative evaluations done of playground renovation and early childhood strategies. The playground renovation resulted in a 24% increase in vigorous activity among those using the playground.

Figure 6: Playground renovation in Lake County, Colorado

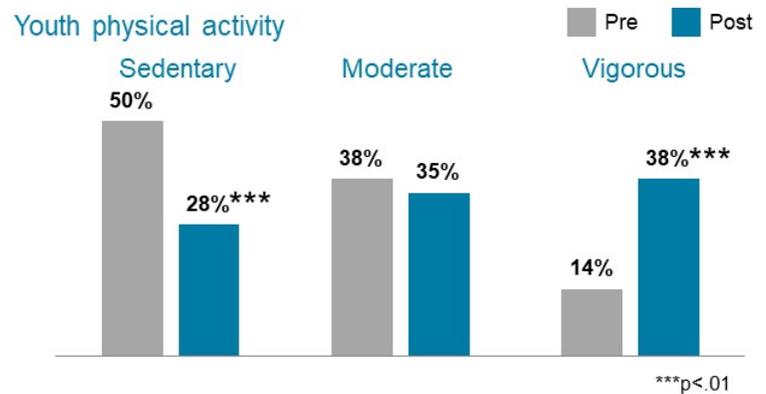
Intervention

Playground renovation added new structures to make it safer and easier for students to be physically active at Lake County Intermediate School.

Impacts

Following playground renovations:

- 24% increase in observed vigorous activity
- 22% decrease in observed sedentary behavior



Data source: Pre/post recess observations among youth (n = 162/121)



The changes in childcare policies resulted in a 19% increase in the percent of centers offering fruit as a snack, and a 17% increase in the percent of centers with active play time led by an adult.

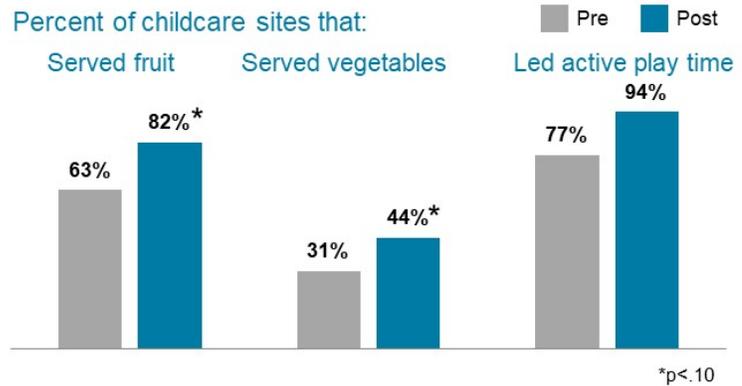
Figure 7: Childcare policy changes in Northern California: childcare centers in Concord, CA

Intervention

Technical assistance provided to 17 home-based childcare practices to implement HEAL policies and practices

Impacts

- **19%** increase in percent of the centers offering fruit
- **13%** increase in percent of the centers offering vegetables
- **17%** increase in percent of sites where active play time led by adult



Data source: Pre/post surveys and observations in 17 home-based childcare settings in Monument HEAL Zone in Concord, CA



Table 2 gives more examples of strategy-level evaluations conducted in each of the three regions where CHI was widely implemented. The table includes a description of the strategy that was implemented, evaluation methods, and a summary of the results.

Table 2. Summary of Selected Strategy-level Evaluations

Strategy	Description of activities	Evaluation methods	Results
PHYSICAL ACTIVITY			
Active Recess	Southern CA. Parent volunteers, teachers, or YMCA staff were trained to help engage students in steady physical activity during daytime school recess periods	Pre/post observation of student activity levels during recess	<ul style="list-style-type: none"> Increases in moderate or vigorous activity (MVPA) during recess in 3 of 4 communities Pre to post MVPA increases ranged from 17% to 19%
Childcare physical activity	Northern CA. Physical activity (PA) workshop for childcare staff and technical assistance to develop a policy to promote PA and other healthy behaviors	Pre/post observations, questionnaires and PA logs assessing change in PA resources and implementation of PA best practices	<ul style="list-style-type: none"> Providers significantly increased the number of structured, adult-led activities (2.6 vs.3.2 activities per day), improved screen time practices and made improvements to the PA environment
Parks and trails	Southern CA. Five of the six HEAL Zones added trails and new equipment to parks. Some sites began promoting the new equipment/trails through exercise programs.	Pre/post observation of activity levels among park users	<ul style="list-style-type: none"> No overall increase in intensity of exercise among park users 15% of park users at one site were observed using new exercise equipment
	LiveWell Colorado. Bike trail infrastructure development (in 3 separate communities)	Observations of new infrastructure use	<ul style="list-style-type: none"> Average 4% increase in PA minutes among trail users
Community physical activity programs	LiveWell Colorado. Seniors participate in a weekly exercise class. Latina women attended weekly Zumba classes.	Participation rates and class length	<ul style="list-style-type: none"> Average 23% increase in PA minutes for participants. Trends toward changes in biometrics like BMI and BP as well.
NUTRITION			
School cafeteria changes	LiveWell Colorado. Food service director attended a “boot camp.” Policy around whole grain introduction and other standards like processed to fresh, fried to baked, removing fast food.	Observations, menu analysis, sales data	<ul style="list-style-type: none"> 1-5% change in overall healthiness of food intake for students (1 meal a day improved by 50% on average)
Hospital cafeteria changes	LiveWell Colorado. Employees on hospital campuses got healthier, traditional food items, e.g., hamburger --> turkey burger	Analysis of sales data and caloric content pre and post intervention	<ul style="list-style-type: none"> 7% decrease in calorie content

Strategy	Description of activities	Evaluation methods	Results
Flavored milk removal	Southern CA. One community removed flavored milk during all meals at all 24 schools in the district. A community removed flavored milk during breakfast at all 10 schools in the district.	Cafeteria records showing provision of milk	<ul style="list-style-type: none"> Children selected nonfat or 1% regular milk, even though flavored milk was removed, with no overall decrease in milk consumption
	LiveWell Colorado. Campaign to remove flavored/high fat milk from cafeterias	Analysis of milk sales pre and post	<ul style="list-style-type: none"> 11% reduction of flavored/high fat milk based on sales data
Childcare - nutrition	Southern CA. In one community, 24 small early childhood care sites worked with a YMCA Health Educator to increase healthy offerings. In another center serving 144 children, they were deemed a healthy site by offering more fruits and vegetables and making other health-promoting changes	Pre/post self-assessment using the NAPSACC – Nutrition and Physical Activity Self-Assessment for Child Care instrument (in one community only)	<p>Results for one community showed improvements:</p> <ul style="list-style-type: none"> Mean number of healthy food items served per day increased by one. Percent of sites providing more than 60 minutes of physical activity increased from 56% to 71%. <p>Results for other sites: 2 sites were serving flavored milk at pre, but none at post.</p>
	Northern CA. Workshops for staff, materials, site visits and technical assistance regarding the development and implementation of nutrition policies and practices	Structured observation and questionnaires regarding nutrition policies & practices, lunch plate waste observations	<ul style="list-style-type: none"> Significant increases in the variety of fruit, and frequency of vegetables offered, and reductions in frequency of juice and high fat/processed meats offered
Corner stores	Southern CA. Store environmental changes included refrigeration units, promotional materials, healthy food labels	Pre/post shopper intercept surveys	<ul style="list-style-type: none"> Increases in awareness of healthy labeling No significant increases in purchasing of fruits & vegetables or other healthy items
	Northern CA. Added new product displays, additional produce and/or other healthy products, marketing and promotion, product placement, store layout, and facility improvements	Structured observations of the store environments and intercept surveys of adult shoppers conducted at baseline and follow-up	<ul style="list-style-type: none"> Stores experienced consistent declines in the purchases of sweets and chips and increases in the purchases of fruits and vegetables at select stores

Strategy	Description of activities	Evaluation methods	Results
Restaurants	Southern CA. In one community, ten restaurants created healthy menus for families and youth. In another community, three restaurants created healthy menus for youth.	Tracking of healthy menus, restaurant participation	<ul style="list-style-type: none"> After 6 months, only 3 of 10 restaurants in the first community still made the healthy menu available. The strategy was discontinued in the second community.
BOTH PA AND NUTRITION &/OR WEIGHT (BMI)			
Clinics	Southern CA. Clinics in three HEAL Zones developed and used a HEAL prescription with patients. In several locations, additional educational and promotional strategies were provided along with the prescription.	Clinic electronic health record data used to track number of BMI screening and follow-up discussions about HEAL	Significant uptake in the 3 clinics: <ul style="list-style-type: none"> Clinic 1: Increased BMI screenings from 42% to 82% Clinic 2: HEAL prescription given in 70% of encounters, including F&V vouchers Clinic 3: HEAL prescription written in 90% of encounters, including PA incentives (e.g., soccer balls)

Table 3 gives a high-level summary of the results from the strategy level evaluations – showing the most promising strategies and the effect size ranges. An important source of variation in effect sizes are the relative intensity of the strategies as actually implemented in different communities. For example, a Safe Routes to School strategy can range from one “Walk to School” assembly per year to weekly or daily “walking school buses” involving a significant number of children engaged in consistent active transport to school. For each strategy, the table includes a summary of the factors that were associated with greater strategy impact.

Strategies with demonstrated impact among youth in schools included physical education curriculum, active recess, Safe Routes to School and cafeteria modification. Impactful community strategies include physical activity programs and park improvements. More details can be found in papers describing regional evaluation results in the HEAL Zones in Northern and Southern California²⁸ and specific strategy evaluation in Northern California in childcare^{31 32} and corner stores.³³

Table 3. Summary of strategy-level impact and factors associated with greater impact

Strategy (# of evaluations) denominator	Effect size: median [range]	Factors influencing impact
YOUTH PHYSICAL ACTIVITY		
School PE (n=4) <i>All children in school</i>	4% [0.5% - 9%]	<ul style="list-style-type: none"> • Quality of evidence-based curriculum • Fidelity of implementation
Safe Routes to School (n=13) <i>All children in school</i>	1% [0.6% - 11%]	<ul style="list-style-type: none"> • Intensity of activities – from annual walk to school days to Walking School Buses and infrastructure changes for safety
After-school PA (n=10) <i>Children in after-school programs</i>	2% [0.2% - 14%]	<ul style="list-style-type: none"> • Frequency and duration of after-school PA activities
Media campaign in isolation <i>All children in school</i>	0% [0% - 1%]	<ul style="list-style-type: none"> • No impact in isolation but may support other policy and environment changes
YOUTH NUTRITION		
Cafeteria F&V strategies (n=6) <i>All children in school</i>	6% [3% - 11%]	<ul style="list-style-type: none"> • Number of items changed/introduced and significance of changes (e.g., daily salad bar) • Buy-in of food staff to implement healthy cafeteria changes
Cafeteria healthy food (n=7) <i>All children in school</i>	2% [0.5% - 5%]	<ul style="list-style-type: none"> • Number of items changed and significance of changes (e.g., eliminated fried food)
Cafeteria sugar-sweetened beverage (SSB) removal (n=5) <i>All children in school</i>	1% [0.5% - 3%]	<ul style="list-style-type: none"> • Degree SSBs are eliminated – e.g., all chocolate milk removed vs. non-fat still allowed • Buy in of school administration to revise, implement, and monitor policy
Healthy snacks/rewards (n=4) <i>All children in school</i>	0.5% [0.3% - 1%]	<ul style="list-style-type: none"> • Degree to which unhealthy snacks removed/replaced with healthy alternative (healthy snack, PA)
School gardens (n=2) <i>Children in program</i>	No evidence of behavior change	<ul style="list-style-type: none"> • Frequency/intensity of garden interactions, garden-based teaching
COMMUNITY PA		
Physical activity programs (n=10) <i>Program participants</i>	10% [0.6% - 31%]	<ul style="list-style-type: none"> • Quality of evidence-based curriculum • Frequency/duration of moderate or vigorous PA in class
Biking programs (n=6)	2% [0.5% - 10%]	<ul style="list-style-type: none"> • Quality of evidence-based curriculum • Frequency/duration of sessions
Parks (n=4) <i>Program participants</i>	1% [0.01% - 3%]	<ul style="list-style-type: none"> • Number of park users • Significance of renovations (e.g., exercise equipment added) • Promotion/activation of built environment changes
Media/promotion (n=3) <i>All people in community</i>	No evidence of behavior change	<ul style="list-style-type: none"> • No impact in isolation but may support other policy and environment changes
COMMUNITY NUTRITION		
Food bank produce (n=3) <i>Food bank users</i>	10% [2% - 19%]	<ul style="list-style-type: none"> • Pounds of produce distributed (e.g., to local food banks)
Community gardens (n=11) <i>Gardner's, produce recipients</i>	3% [0.3% - 19%]	<ul style="list-style-type: none"> • Number of plots, pounds of produce distributed (e.g., to local food banks)
Farmers markets (n=4) <i>Farmers market shoppers</i>	2% [0.5% - 4%]	<ul style="list-style-type: none"> • Voucher programs used (e.g., WIC) • SNAP more prominent at farmers' markets • Frequency of market being open
Grocery store changes (n=3) <i>Grocery store shoppers</i>	No evidence of behavior change	<ul style="list-style-type: none"> • Number of unhealthy items removed or healthy items added, degree of in-store promotion

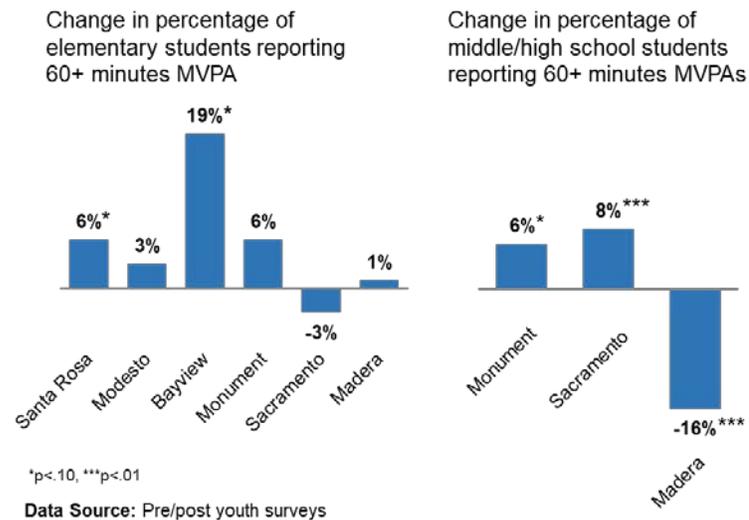
Population-level change occurred where the “dose” was strong enough.

Surveys of adult and youth community residents were used to assess the impact from the exposure to the overall portfolio of CHI strategies—policies, environmental changes, programs, promotion. Pre/post surveys of both youth and adults were conducted in approximately half of CHI communities (n=24).

Figures 8 and 9 below give examples of these population-level results for youth in Colorado and Northern California, along with strategies implemented in those communities that were responsible for the changes.

Figure 8: CHI population impacts on youth physical activity in Northern California schools

4 out of 6 sites increased the minutes of moderate to vigorous physical activity (MVPA)



 National YRBSS data shows 3.2% decline in PA from 2011 to 2015 (28.7% to 25.5% MVPA 7 days/week)

Figure 9: CHI population impacts on youth physical activity in Prowers County, Colorado

Intervention

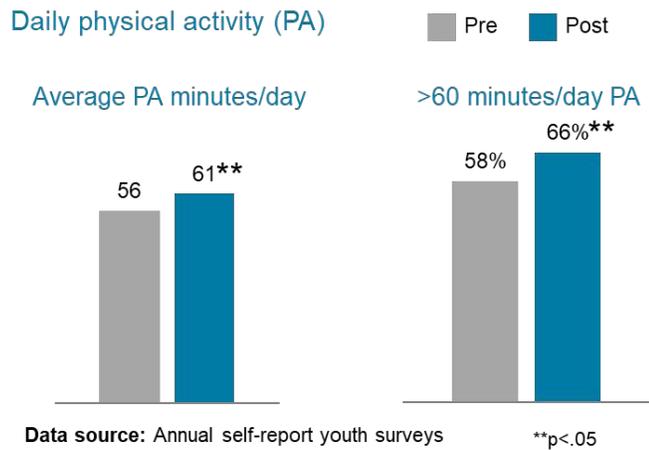
- Changes in school wellness policies
- Active play areas re-designed
- Open gym after school
- PE curriculum changes
- HEAL promotion (5-2-1-0 campaign)

Impacts

- **9%** increase in daily physical activity minutes among students (2010 to 2012)
- **8%** increase in percent of students engaged in 1 or more hours PA per day

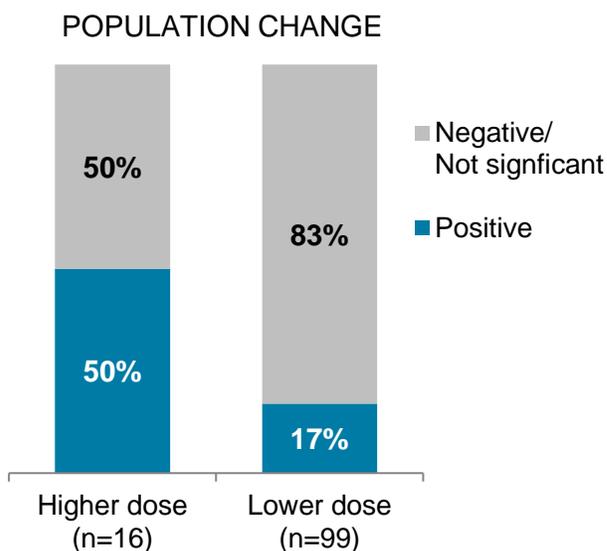


National YRBSS data shows 3.2% decline in PA from 2011 to 2015 (28.7% to 25.5% MVPA 7 days/week)



These examples illustrate our overall approach to attributing population change to CHI strategies. The evaluation team identified for communities where “high-dose” strategy clusters were implemented—i.e., a collection of strategies with relatively high overall dose—and then compared the population changes that occurred in those communities to the results from communities with less impactful strategies. The evaluation team counted population change as positive if it exceeded state or national trends estimated using either comparison data collected by the CHI evaluation team (for the community survey) or other secondary data sources; for example, the Youth Risk Behavior Surveillance Survey (see Appendix G). In general there were significant trends only for sugar-sweetened beverages (see next page); trends in minutes of physical activity, servings of fruits and vegetables, and other dietary measures typically had changes of 2% or less over the CHI time period.

Figure 10 summarizes the overall results relating dose to population change. Among the higher dose strategy clusters, there were positive population changes in eight out of 16 cases (50%) versus in only 17 out of 101 cases (17%) for lower dose strategy clusters ($p<.01$ for the difference in proportions). (Note: a “case” is a health target area (e.g., physical activity) in one CHI community). All eight “dose-aligned” improvements occurred among youth in schools, and six of those were in physical activity.

Figure 10: CHI population changes and dose of strategies

It is important to note that of the 17 cases with observed population-level change and *low* dose, over half (n=9) were in sugar-sweetened beverages (SSB). It is likely that at least some of this decrease in consumption can be attributed to the significant downward time trends,³⁴ at both the state level and nationally, that started during the period of the initiative (see Appendix G for more information on these trends). There were questions about whether the HEAL Zones SSB strategies were lower dose; there is some evidence suggesting that SSB consumption may be more sensitive than other health behaviors to modest, educational messaging.³⁵ In the end, given the uncertainty about the relative contribution of the HEAL Zones strategies, the conclusion drawn was that the strategies may have played a role in the observed changes in SSB consumption.

Table 4 gives an example of a higher dose strategy cluster to both illustrate the dose methodology and give examples of the kinds of strategies typically included in a youth physical activity strategy cluster. The dose of a strategy is the product of reach and strength. Then the doses of the individual, complementary strategies are added together to give an approximation of the overall impact to be expected. Note that the strategies include infrastructure changes (playground improvements), training (Safe Routes to School, classroom physical activity), and sustained programmatic changes (active recess).

Table 4. Example of a higher dose strategy cluster for youth physical activity

Strategy	Reach ^a	Strength ^b	Dose ^c	Strategy description
Playground improvements	100%	2.0%	2.0%	New playground equipment installed in schools
Safe Routes to School (SRTS)	74%	1.3%	1.0%	Teachers trained in promoting walking and biking to school
Classroom physical activity (PA)	38%	11.2%	4.3%	Trained teachers in “instant recess” in classroom In one district all 4th grade teachers did 30 minutes PA with all children
Recess PA	21%	4.2%	0.9%	Recess coaches trained and in place – program sustained through variety of partnerships
Total dose			8.2%	

Notes:

^a Reach = Number exposed to the strategy divided by the number in the target population (school-age youth)

^b Strength = Estimated percent change in physical activity minutes for each person exposed (i.e., the effect size)

^c Dose = Reach multiplied by strength

While high-dose strategy clusters, such as those in Table 4, were more likely to produce population-level change, there were relatively few of them—six out of 115 cases (14%). This low number is partly because there were *no* community strategies that met the higher dose threshold. It is challenging to implement community-wide interventions for several reasons. Community settings are more fragmented and diverse, making it harder to reach large segments of the population through single strategies, and harder to implement high-strength strategies. Adult residents typically interact with environments outside the community setting (commuting to work, shopping across town for groceries, etc.). And community physical activity programs may significantly increase activity among participants, but it is challenging to get widespread, consistent and frequent participation in these programs by many residents from a community.

By contrast, 24% of youth strategies were higher dose. Children, especially in elementary school, are a “captive” population with more limited food choices while in school and greater opportunity for physical activity in-class and during recess. It is also relatively easier to make changes in school building policies, practices and the environment that can impact all or most children.

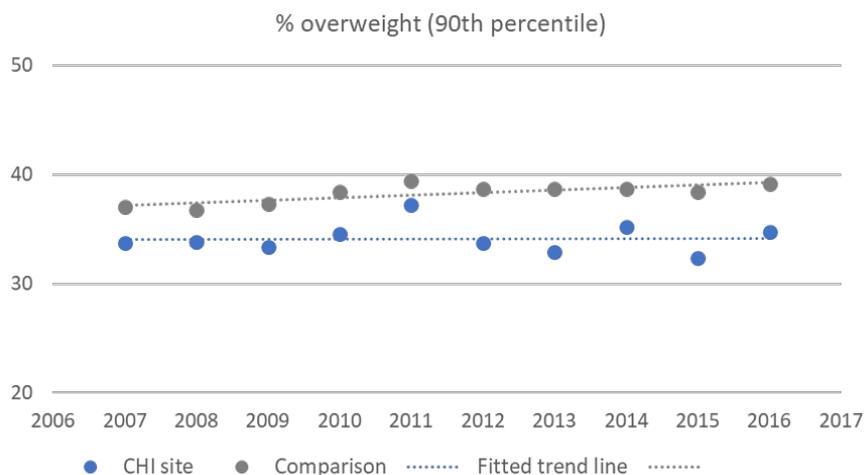
The high-dose clusters in schools shared some common features. For physical activity, higher dose clusters tended to be comprised of new activities implemented throughout the day—active recess programs, in-class physical activity, more vigorous exercise in PE, and physical activity in after-school programming. The higher-dose school nutrition interventions were more likely to be single, relatively significant changes to school cafeterias—e.g., implementing a salad bar or making significant changes in the entrees served.

No changes attributable to CHI (yet) in longer-term health status

While the evaluation team did not expect changes in longer-term health status measures—e.g., obesity—in the time frame of the initiative, the evaluation team did examine two readily available secondary data sources to look for potential impact.

KP member data. In regions where sample sizes were larger and KP penetration greater—namely NCAL and SCAL regions—a trend analysis of KP member adults and children with addresses within the CHI place-based communities was conducted from 2007 to 2016 (quarterly data collapsed by year). Some positive trends were seen in some CHI communities, but generally not different from comparison trends among KP members residing in comparison areas, and not statistically significant. See example in figure 11.

Figure 11. Example: Weight status trends among children in CHI communities



Fitnessgram scores. FITNESSGRAM® is the Physical Fitness Test (PFT) developed by The Cooper Institute. It is an annual physical fitness battery of tests conducted on students in California public schools. Results are accessible at the school and 5th, 7th and 9th grade levels. However, Fitnessgram reporting protocols were changed by The Cooper Institute in school year 2011-12, which prevented us from capturing baseline levels of CHI interventions. The evaluation team did look at trends in Fitnessgram body composition categories from school years 2013-14 to 2016-17 and did not see clear trends in higher percentages of students in the healthy (normal weight) category, or in lower percentages of students in the needs improvement categories (overweight and obese levels).

B. What were impacts on KP and the nation?

KP influenced national and regional efforts and helped build the field.

In addition to the CHI place-based initiatives, KP participated in a wide range of complementary activities to promote changes in national and state-level policies and overall norms around obesity, physical activity, and healthy eating (see Figure 12).

Nationally, partnerships with other funders, support for state policies that support healthy eating and physical activity opportunities, and participation at national forums to accelerate progress in obesity prevention occurred through the leadership of Kaiser Permanente at the Program Office and Regional levels. In many cases, KP’s experience with and investments in

place-based initiatives provided critical insight and guidance for these efforts, and local constituencies that advanced these efforts. Examples of these efforts include the following:

- **Partnership for a Healthier America.** Formed in 2010 with KP as a founding partner and co-funder, PHA was established as an independent, non-partisan structure to bring resources to and sustain First Lady Michelle Obama’s Let’s Move! Campaign to end childhood obesity. PHA also brought together leaders from all sectors to negotiate meaningful and measurable commitments, develop strategies, and track the impact of efforts to end childhood obesity. Commitments from PHA partners have resulted in nearly 70,000 children in daycare eating healthier meals; more than 370 new grocery stores opening in neighborhoods with low access to healthy, affordable food; and more than 3 million kids taking part in increased physical activity. More information about PHA accomplishments can be found in the [2016 PHA Annual Report](#).
- **Convergence Partnership.** Co-founded by KP in 2006, the Convergence Partnership is a coalition of funders focused on accelerating policy and environmental approaches to prevention—achieving the vision of healthy people living in healthy places. Notably, the Convergence Partnership catalyzed a network of 80 regional and local funders committed to advancing a place-based healthy equity agenda centered around healthy food systems, transportation and other built environment changes. The partnership has supported organizations that successfully advocated for the federal Healthy Food Financing Initiative, leveraging more than \$1 billion to bring healthy food retail into neighborhoods with inadequate access to healthy food. Additional impacts include: supporting the Food and Agriculture Policy Collaborative of equity, anti-hunger, and sustainable food system advocates to address the supply and demand side of healthy food access; inserting health and equity priorities into the federal transportation debate; and recommending investments and implementation best practices in community health prevention that have been included in several federal funding opportunities, including the Center for Medicare and Medicaid Innovation's 2013 State Innovations Model, Community Prevention Grants, and Racial and Ethnic Approaches to Community Health (REACH).
- **Weight of the Nation.** KP was a partner and co-funder of Weight of the Nation, with the Institute of Medicine, the National Institutes of Health and HBO, to bring national attention to the obesity epidemic, and related social media and community engagement strategies linked to mobilize action.
- **Everybody Walks Campaign.** In 2011, KP launched the *Every Body Walk!* campaign to inform adults about the overall health benefits of walking. The goal is to provoke a national conversation about the health benefits of walking and what we can do together to address the barriers to making walking a part of everyday life.

- **National Academy of Medicine.** KP serves as a sponsor and member of the Health and Medicine Division of the National Academies of Sciences, Engineering and Medicine’s *Roundtable on Obesity Solutions*, established in 2014. KP also informed a number of National Academy of Medicine publications including [Dose Matters: An Approach to Strengthening Community Health Strategies to Achieve Greater Impact](#), and two consensus publications mentioned in more detail on page 39: [Bridging the Evidence Gap in Obesity Prevention: A Framework to Inform Decision Making](#) and [Accelerating Progress in Obesity Prevention – Solving the Weight of the Nation](#).

Regionally, there were formations of coalitions, partnerships and support for state and local coordination and policies. Examples of some of these efforts include:

- **LiveWell Colorado** has its roots in work started by the Colorado Physical Activity and Nutrition Program of the Colorado Department of Public Health and Environment. Through support from Kaiser Permanente and others, LiveWell Colorado became a nonprofit in 2008 with a mission of reducing obesity and promoting healthy nutrition in Colorado. LiveWell Colorado intentionally sought to bring greater coordination and consistency to statewide efforts to reduce obesity by promoting healthy eating and physical activity. Now ten years later, LiveWell Colorado focuses on changing systems to create opportunities for health and wellness in partnership with communities and individuals who face systemic and institutional barriers to a healthy lifestyle: low-income communities and people of color in urban, suburban, and rural parts of Colorado. LiveWell supported statewide initiatives such as the **Double Up Food Bucks Colorado** to increase access to fresh, Colorado-grown fruits and vegetables by recipients of Supplemental Nutrition Assistance Program (SNAP) at farmers markets, and is supporting policies to increase transportation funding, including dedicated dollars for **pedestrian and bike infrastructure**, and increased funding from sustainable sources.
- Partnership in The **California Accountable Communities for Health Initiative (CACHI)** to address health issues in 15 communities across California. CACHI was established to lead efforts to modernize the health system and build a healthier California. The effort aims to transform the health of entire communities through local residents and community institutions – hospitals, public health, schools, public safety agencies, parks, and local businesses to align interventions for maximum impact through the most effective strategies.
- The **California Convergence**, sponsored by Kaiser Permanente and others, formed in 2008. The group, represented by more than 40 communities and seven separate initiatives, sought ways to work together across California to advocate for statewide policies, to learn from each other and foster a movement to improve the health of all Californians. The policies and programs promoted by California Convergence are designed to engage typically disenfranchised populations and address the specific challenges they face.

Locally, place-based collaboratives discovered that creating change in small neighborhoods often required engagement at the broader city and county levels. Examples of these efforts included:

- **Denver Healthy Food Access Initiative** which grew out of efforts in a LiveWell Colorado community in Denver called Park Hill. The initiative was formed to find innovative ways for encouraging healthy food retail development with the goal to eliminate “food deserts” and increase access to grocery stores for all of Denver’s residents. Similarly, the **Denver Sustainable Food Policy Council** was formed, a citywide strategy to address local food production, healthy food access and sustainable food financing.
- **Community Activity and Nutrition Coalition of Sonoma County (CAN-C)** – an outgrowth of the initial Northern California CHI initiative in Santa Rosa, that worked to make it easier for community residents to eat healthier foods and be more physically active. The coalition supported City and County-level efforts to create opportunities for access to healthy foods and physical activity in all environments where children and adults live, work, learn and play; and advocated for health-focused policies and practices in school and community environments. The **South Santa Rosa HEAL Zone Collaborative**, an outgrowth of CAN-C, was coordinated out the County of Sonoma Department of Health Services. This department replicated the CHI-HEAL model in other neighborhoods in the County, built an effort to improve physical education in schools and created a Healthy Food Outlet Project that spread the HEAL Zone’s healthy retail work to other neighborhoods.
- **Southeast Food Access Working Group (SEFA)**. The Bayview HEAL Zone in San Francisco participated in the formation of this group which aims to create a “vibrant and robust food system for all Bayview-Hunters Point residents” by improving food access, improving diet through awareness and education, and developing community gardens. They improved healthy food and retail grocery options in the neighborhood and launched the Food Guardian Project that trained residents to become food justice experts who act as community liaisons with local food retailers. The Tenderloin neighborhood then formed the **Tenderloin Healthy Corner Store Coalition** to do similar work, leading to the creation of the **Healthy Retail SF pilot initiative** in 2014, a city-wide effort involving the Mayor’s Office and the San Francisco Department of Public Health.

In addition, KP supported efforts to build the evidence base for community obesity prevention efforts, including:

- **Bridging the Evidence Gap in Obesity Prevention: A Framework to Inform Decision Making.** Released in April 2010, this report from the Institute of Medicine (IOM) addresses what is often perceived to be a dearth of actionable, evidence-based recommendations for what policymakers, community leaders and others can do to stem the rising tide of obesity rates. The report was commissioned by KP, the Centers for Disease Control and Prevention and the Robert Wood Johnson Foundation.³⁶
- **Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation.** Released in 2012, this IOM committee report focused on the areas of obesity prevention that are most important to pursue to significantly accelerate progress in obesity prevention. The report was funded by KP, the Robert Wood Johnson Foundation, and the Michael & Susan Dell Foundation.³⁷

CHI-related public policy

An element of the Community Health Initiative was making changes to public policy to support the place-based work. Kaiser Permanente direct engagement on policy issues varied from region to region. In Colorado, for example, Kaiser Permanente supported state legislation requiring elementary schools to provide students with 600 minutes of physical activity per month, and other legislation that supported complete streets and active transportation measures.

Beyond direct Kaiser Permanente engagement on policy issues, the HEAL Cities Campaign was initiated in California by the Public Health Advocates in 2008 and later spread to Oregon, Colorado, Maryland and Virginia to build healthy cities with attention to neighborhoods that lack basic building blocks for health—nutritious food, parks and open space, walking and biking infrastructure. Public health organizations working in conjunction with state municipal leagues provide support and recognition to cities and towns that are ready to act on obesity prevention. Through workforce wellness, active transportation, healthy general plans, and other strategies, more than 330 cities have passed nearly 1,000 policies related to HEAL. For Kaiser Permanente, this policy approach was a way to spread meaningful obesity prevention efforts on a larger scale than possible through intensive, place-based, community change efforts.

A cross-site evaluation of HEAL Cities identified three essential elements of a campaign’s design that contribute to success. First, cities need to make a commitment to the campaign by passing a resolution that provides a policy framework for future action. In the resolution, cities create awareness about pressing concerns, such as obesity, and prioritizes specific policies, programs, practice and environmental changes to address the problem. In many small and medium sized cities, this resolution leads to action by city staff to implement HEAL changes. Second, staff HEAL Cities with regional coordinators—they offer valuable assistance by making connections to resources, funding opportunities and model policy language. Third, connect to state municipal leagues—they are instrumental in opening doors for city leaders and lending credibility to the HEAL Cities Campaign. Together, these best practices in local policy work advance community health goals.

Field building

As evaluation findings became available, KP staff members and members of the evaluation team presented findings and published in peer-reviewed journals to inform the field of interim learnings and share knowledge gained about the process and impacts as they were unfolding.

Presentations at national convenings

Over the course of CHI, interim results were regularly presented at professional conferences and invited convenings. Examples include:

- Promoting Policy and Environmental Change using Photovoice: Kaiser Permanente’s Community Health Initiative. American Public Health Association, 2008.
- Kaiser Permanente Community Health Initiative -National Cross-Site Interim Evaluation Report. Childhood Obesity Conference, 2009.
- Community Health Initiative School and Neighborhood Strategies. Childhood Obesity Conference, 2009.

- Evaluating policy and environmental approaches to obesity prevention: Lessons from the evaluation of Kaiser Permanente’s Community Health Initiative. American Public Health Association, 2011.
- Making Strategic Health Investments in Communities: The Issues of “Dose” or Intervention Strength. Association for Community Health Improvement, 2011.
- Using the Concept of “Population Dose” to Identify Promising Community Level Nutrition and Physical Activity Intervention Strategies. International Society for Behavioral Nutrition and Physical Activity, 2012.
- Using the Concept of “Population Dose” in Planning and Evaluating Community Health Initiatives. American Public Health Association, 2012.
- Lessons Learned from Kaiser Permanente’s Community Health Initiative (CHI) Evaluation. Institute of Medicine Roundtable on Obesity Solutions, 2014.
- Findings from Kaiser Permanente’s Community Health Initiative (CHI) Evaluation. Childhood Obesity Conference, 2017.
- Community-Based Obesity Prevention: A Decade of Lessons from the Community Health Initiative. Childhood Obesity Conference, 2017.
- Using Dose in Planning and Implementation: Examples from California HEAL Zones. Childhood Obesity Conference, 2017.

Peer-reviewed journal publications

Nearly 30 peer-reviewed journal articles and reports about CHI and related community health strategies were published by KP and the evaluation team, including a collection of the most recent results in a 2018 supplement of the American Journal of Preventive Medicine. Key articles include:

- **Cheadle A, Atiedu A, Rauzon S, Schwartz P, Keene L, Davoudi M, Spring R, Molina M, Lee L, Boyle K, Williamson D, Steimberg C, Tinajero R, Ravel J, Nudelman J, Azuma A, Kuo E, Solomon L. A Community-level Initiative to Prevent Obesity: Results from Kaiser Permanente's HEAL Zones Initiative in California. *Amer J Preventive Medicine*, in press.** Description of evaluation findings from the two HEAL Zone initiatives in California, including implementation, strategy- and population-level outcomes.
- **Harner L, Kuo E, Cheadle A, Rauzon S, Schwartz P, Parnell B, Kelly C, Solomon L. Using ‘Population Dose’ to Evaluate Community-level Health Initiatives. *Amer J Preventive Medicine*, in press.** Describes how to use population dose to evaluate the impact of community initiatives with an example of the method from LiveWell Colorado.
- **Cheadle, A. Rauzon, S., Schwartz, P. (2014). Community-Level Obesity Prevention Initiatives. *National Civic Review*, 103(1), 35-39.** Reviews the evidence to date on the impact of community-level initiatives to prevent obesity and offers suggestions for both future intervention and evaluation design for this type of community initiative.
- **Cheadle, A., Schwartz, P., Rauzon, S., Bourcier, E., Senter, S., Spring, R. (2013). Using the Concept of “Population Dose” in Planning and Evaluating Community-Level Obesity Prevention Initiatives. *American Journal of Evaluation*, 34(1), 71-84.** This paper describes the concept of "population dose"- combining reach and strength to estimate

- the impact of an obesity-prevention strategy on risk behaviors within a target population. Provides a definition and examples of measuring population dose, reviews ways of increasing dose, and illustrates how the concept of has been used in the KP-CHI.
- **Cheadle, A., Rauzon, S., Spring, R., Schwartz, P., Gee, S., Gonzalez, E., Ravel, J., Rielly, C., Taylor, A., Williamson, D. (2012). Kaiser Permanente's Community Health Initiative in Northern California: Evaluation Findings and Lessons Learned. *American Journal of Health Promotion*, 27(2), e59-e68.** Describes evaluation findings and lessons learned from the Kaiser Permanente Healthy Eating Active Living–Community Health Initiative. The population-level results were inconclusive overall, but showed positive and significant findings for four out of nine comparisons where “high-dose” strategies were implemented, primarily physical activity interventions targeting school-age youth.
 - **Cheadle, A., Schwartz, P., Rauzon, S., Beery, W., Gee, S., Solomon, L. (2012). The Kaiser Permanente Community Health Initiative: Overview and Evaluation Design, *American Journal of Public Health*, 100(11), 2111-2113.** Gives an overview of the Kaiser Permanente Community Health Initiative—created in 2003 to promote obesity-prevention policy and environmental change in communities served by Kaiser Permanente—and describe the design for evaluating the initiative. The evaluation assesses impact by measuring intermediate outcomes and conducting pre- and post-tracking of population-level measures of physical activity, nutrition, and overweight.

For a complete list of articles, see Appendix F: CHI Publications.

Population Dose

The evaluation team produced *Dose Matters*, a monograph to introduce the concept of population dose in enough detail that a broad audience of community health researchers, evaluators, practitioners, and planners will be both interested and prepared to apply these analyses and approaches to their own work.²³

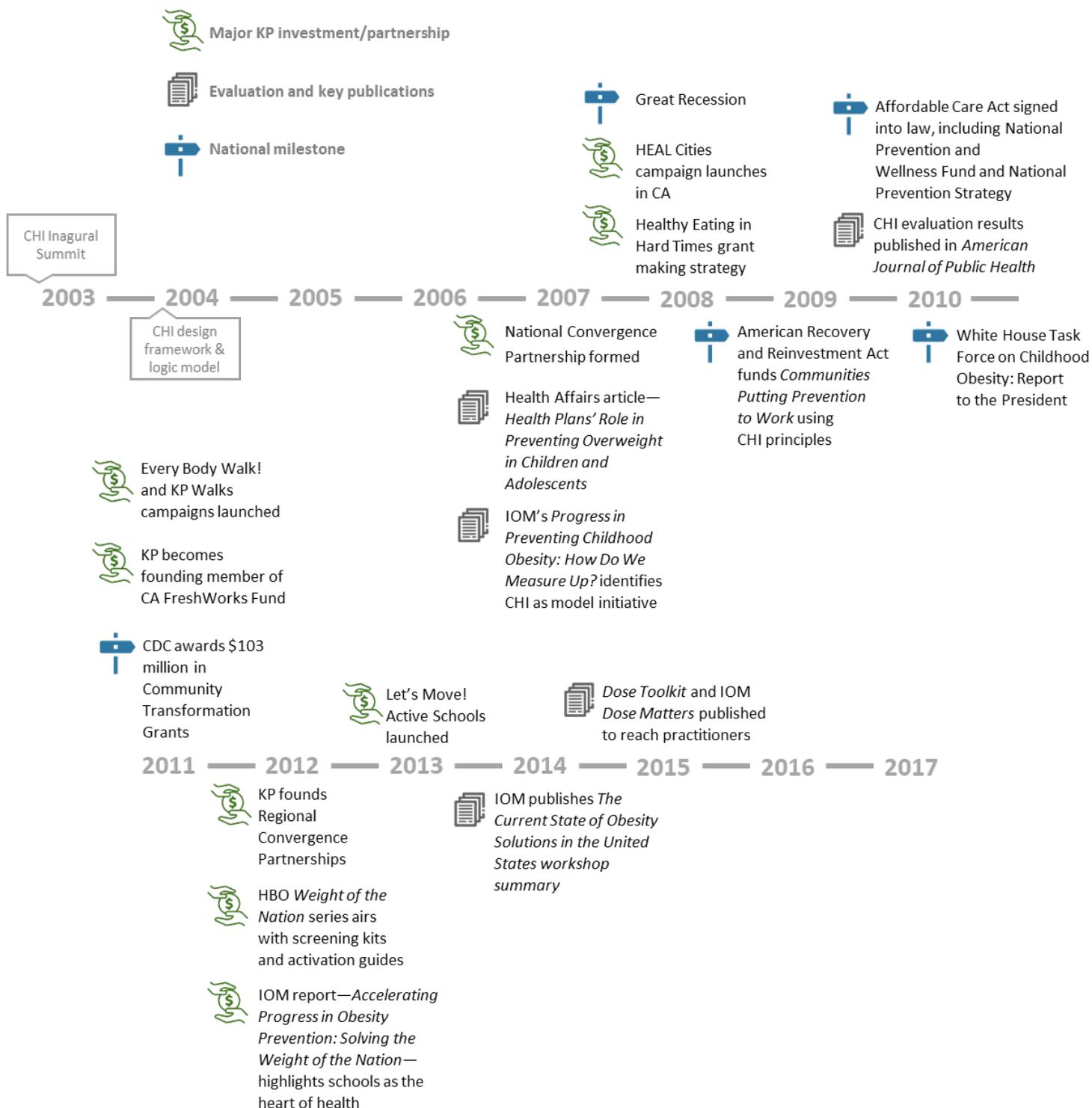
The evaluation team also created a *Dose Toolkit*, an additional interactive toolkit that describes in detail the uses of the dose concept for evaluators and researchers who want to use the quantitative calculations, and practitioners and funders who wish to apply the overall concept to strengthen every phase of improving community health outcomes, from planning to implementation to evaluation.²⁴

Convening to identify effective obesity prevention strategies

On January 12, 2015 evaluators and funders from the California Endowment, Kaiser Permanente, Nemours, the Robert Wood Johnson Foundation, and the W.K. Kellogg Foundation met in Oakland, California to discuss what was working with their initiatives to reduce the prevalence of childhood obesity. They considered a decade’s worth of obesity prevention initiatives, asking the question, “What have we learned about what works and what doesn’t?” A product of that discussion was a report focused on a variety of interventions in early care and education, schools, communities, and food systems - [Obesity Prevention Efforts: What Have We Learned? Highlights from a Conversation of Funders and Evaluators](#).³⁸ This was used to establish agreement on the best investments and future directions for the field.

Overall, Kaiser Permanente took a comprehensive approach with the Community Health Initiative. In addition to the place-based work, intentional efforts were made to influence national and regional efforts and make a contribution to advancing the field. Figure 12 below includes some of the major milestones. For more detail, view the [CHI interactive timeline](#).

Figure 12: Regional and National CHI contributions



KP changed its internal policies and practices to promote HEAL.

Over a decade, CHI launched numerous projects and campaigns consistent with the CHI focus areas within the KP organization reaching KP members and staff. These *“Walking the Talk”* efforts applied to internal policy and practice changes within KP. Examples include:

- In 2003, Kaiser Permanente’s Care Management Initiative created the [Weight Management Initiative](#) to develop and implement a plan to address overweight and obesity among KP members and share those approaches with safety net and other community providers.
- In 2004, Kaiser Permanente started [Farmers Markets](#) at hospitals and facilities to improve access to healthy and locally grown foods for staff, patients, and communities. Currently, more than 50 markets offer fruits and vegetables at Kaiser Permanente facilities.
- In 2005, Healthy Picks was launched, which ushered in healthy food choices in Kaiser Permanente cafeterias and vending machines, and the development and dissemination of toolkits to spread best practices to other organizations.
- In 2009, Kaiser Permanente started providing calorie and nutrient information on [cafeteria menus](#), after a study found that two-thirds of respondents at KP pilot sites with menu labeling noticed the nutrition labeling, and one-third of those altered their purchases as a result. KP’s voluntary action predated state and federal policymaking in this area.
- Around 2010, stairwells in some existing Kaiser Permanente facilities were enhanced with murals and inspirational messages to encourage walking in lieu of elevators, and features such as walking paths and labyrinths were incorporated into new construction.
- In 2011, KP launched an enterprise-wide Obesity Prevention and Treatment Strategy (OPT 2.0) and committed to breastfeeding practice guidelines. KP signed a commitment with the Partnership for a Healthier America to support breastfeeding as a key strategy in preventing childhood obesity. By 2013, all of KP’s 29 hospitals offering maternal and child health services were designated as [Baby-Friendly Hospitals](#), and/or participated in the Joint Commission’s Perinatal Core Measures program, which requires participating hospitals to report their rates of exclusive breastfeeding at discharge. KP established a system-wide performance improvement program focusing on the development and implementation of evidence-based hospital breastfeeding practices and includes rates of exclusive breastfeeding at discharge as a core quality measure.
- Around 2011, activity breaks, such as instant recess, took hold among Kaiser Permanente unit-based teams and spread throughout other facilities. [Short physical activity breaks](#) were incorporated into the work day in small intervals to re-energize staff.
- In 2013, [Thriving Schools](#) was launched as a key element of KP’s Total Health strategy to spread successful interventions in schools among students, and bring KP’s workforce wellness expertise to school teachers and staff.
- In 2014, KP expanded the CHI framework to include other focus areas beyond place-based and healthy eating, active living (HEAL) initiatives. The CHI 3.0 framework describes a wide range of community health improvement efforts that includes community safety and violence prevention, economic stability and viability, mental health and social/emotional wellness, maternal and child health, and early childhood settings.

More information is available on the web that describes [Kaiser Permanente’s Comprehensive Obesity Prevention Approach](#).

Community capacity building and moving into areas beyond HEAL

In addition to the strategies designed to directly impact healthy eating and active living, there were also increases in community capacity through the CHI community collaboratives that are hard to quantify, but potentially significant. The collaboratives contributed to relationship-building that facilitated the implementation of the policy, environmental, and programmatic strategies. In addition, a number of communities expanded their focus to take on new priorities beyond HEAL where there were identified community health needs. In Northern California, the HEAL focus expanded to include violence prevention. This was a natural extension in many ways, as increasing outdoor physical activity required safe spaces, which are limited in many of the CHI communities. In Sacramento, residents conducting a walkability assessment heard gunshots. This resulted in an expanded, interlinked agenda: Increasing community safety and community health. The Sacramento HEAL Zone coalition created a joint effort with a local business group: “Sacramento Summer Night Lights,” an anti-youth violence, anti-hunger initiative embedded within a celebration of community.



We stopped thinking about walking and eating vegetables, started talking about why people won't do it. Parents won't let their kids be out in the parks.

Southern California sites used HEAL to increase community-clinic linkages that may expand into other resource areas of need. Clinics across three HEAL Zones and at Hollywood High School developed and began using a HEAL prescription with patients. In several locations, additional educational and promotional strategies were implemented in conjunction with the prescription. Preliminary data suggest there may have been improved outcomes for patients who received both the HEAL prescription and additional education and support.

In Colorado, LiveWell Colorado communities that launched more recently expanded their focus from neighborhood HEAL to advocacy for city, regional and state policies. They also implemented a new framework, collective impact, to engage in collaborative work across government, business, philanthropy, non-profits and citizens to achieve significant and lasting social change.

Finally, there were significant impacts from the national partnership work and internal KP initiatives. A number of significant national initiatives were launched with the support of KP that led to a more coordinated approach across funders, with strategies better supported by evidence. New federal regulations were implemented, at least in part due to the combined and coordinated efforts of KP and other national partners. New federal and foundation funding initiatives were launched that were influenced and supported by these coordinated efforts. Impacts of the internal KP initiatives included both the health improvement effects of the programmatic policy and environmental changes on staff, patients and others, as well as enhanced credibility when working with other organizations. Visibility of farmers markets, menu labeling in facility cafeterias, and healthier foods served in medical facilities, were also consistent with KP's Thrive campaign and leadership as a health organization that emphasizes prevention.

What were the learnings?

This section first summarizes results around several questions related to the implementation of CHI: the impact of technical assistance and support, the role of the community collaboratives, and the experience of sites with lower initial capacity. The remainder of the section summarizes learnings for the field—both for those implementing community-based obesity prevention initiatives and for initiatives addressing other health areas.

Impact of technical assistance and support

Several methods were used to improve and adjust the initiative to support strong strategies, including direct technical assistance, support by KP national and regional staff, using the concept of dose to help build stronger strategies, and convening of community stakeholders for learning and sharing lessons.

Provision of technical assistance and support. Several models of technical assistance (TA) were created to support communities in implementing their HEAL strategies and assesses their impact. Because KP support was integrated with that provided by others, including outside TA providers and local evaluators, the evaluation team included KP staff in the assessment. Most of the information about the success and impact of the TA support came from interviews with community coordinators and coalition partners most involved in the effort. The evaluation team focused as much as possible on concrete cases where TA was reported to affect implementation. There is considerable response bias in reporting by staff and collaborative members who often become friendly with the TA providers and who have obvious reasons for saying positive things about their funder. Therefore, ratings or general statements about the impact/quality of TA are of limited value.

There were regional differences in the TA models used. In Colorado, LiveWell Colorado, a non-profit organization formed to administer and support grantees, used a dedicated engagement manager who had regular discussions with the sites and helped link them to resources to implement their strategies. Southern California used an outside TA provider to support collaborative development, working in combination with the KP program manager and local evaluator who focused more on strategy planning and development. In Northern California, a separate TA provider was included in the first phase of the initiative, then support was provided by both the KP regional community benefit managers and the local evaluator who worked to strengthen the strategies during planning and implementation.

All three models had some successes, based on interviews with project coordinators and others in the communities closely involved with the implementation of strategies.

Colorado – LiveWell Colorado. In LWCO, the engagement manager was widely regarded as effective. They were initially a helpful source of information about what LWCO was looking for in proposals—clarifying the vocabulary and grant requirements, and providing direction and input. During implementation, support included providing resource information and connecting the local project coordinators with other LiveWell Colorado communities, experts, and others doing similar work. This networking enabled the sharing of information, training, and lessons learned.

There were drawbacks noted of having a single person providing the bulk of the TA: in such a large, statewide initiative, they were spread thin—one person cannot be knowledgeable in every area of need. For example, key informants mentioned the need for additional expertise related to rural issues, as well as specific intervention areas – e.g., schools, gardening, and nutrition.

Southern California. In Southern California, the outside TA provider, the local evaluator, and KP provided support to the sites. KP provided general oversight, guidance on grant objectives and priorities, and helped sites solve issues when they arose. The outside provider helped with connections to resources and supported cross-site learning through communications, activities and events, e.g., language-sensitive newsletters, convenings, and learning circles. The local evaluator, with some assistance from KP staff, provided guidance on the HEAL framework as well as strategy development and improvement.



Newsletters were helpful and the resident convenings were great... They did a great job like with bilingual stuff, having the translators.

I really liked the learning circles that they host. It's so great to be in a room with other HEAL Zone's and my peers in that sense and just kind of really have that open forum to talk.

Support from the outside provider was well-received. However, there were few examples given of outside TA support directly impacting strategy implementation. Regarding support from KP Southern California staff, they were regarded as helpful in navigating the project and sharing lessons from other initiatives.



Kaiser staff (has been helpful in) giving the guidelines on when to submit stuff, how to fill out the CAP, what are different models that are working in other places.

However, some sites indicated that they would like more direct support from KP particularly around the work they're doing in the clinic setting. Similarly, sites also shared that more direct communication would have been helpful.



I don't know how Kaiser works, but I always felt that they could have introduced us more to people, some champions in the medical field and the clinician field... we were walking blind when it came to clinics and we didn't have that support.

When I have a question and I can't get an answer and that person has to call or check, it delays things and it creates the feeling that there's this kind of Jell-O-like thing going on, that it's not really clear.

Northern California. In Northern California, Community Benefit managers were seen as engaged and active members of the collaborative and their participation was mentioned most.

Support provided by the CB managers included guidance and advice, advocacy within KP and the community, and providing an understanding of KP. Other KP support included educational and other materials and general assistance coordinators from regional staff. Several respondents

also appreciated the flexibility of KP in allowing changes to be made as circumstances warranted.

 *The CB manager has been such an advocate for us in so many different ways. He has kept in mind our CAP and goals. He made sure some funding went to fund our park clean up. He connected us to other funding opportunities and connected to other organizations that we should work with. Connecting us with different people and advocating for us. (Bayview)*

[The CB manager] is supportive of what we do in Parks and Rec and all the other agencies. She would help steer the ship if we got off track, good advice, she's always there. (Madera)

In general, KP is a wonderful partner. They try to come in with big ideas, recognizing those big ideas, recognizing that people need to be brought along...they don't have all the answers and they engage people closest to those communities that doesn't feel top down. (Monument)

Dose as a tool to support planning and implementation

An important lesson that emerged from our decade of implementing and evaluating the CHI place-based initiatives is that “dose matters” – i.e., the cluster of strategies in any one health area must be of sufficient scale and impact to produce positive changes in population health.

The following are ways that the dose concept was used by communities in promoting the implementation of stronger strategies, as reported by a sample of 11 project coordinators in all three of the regions with the most intensive CHI efforts. More details can be found in an article about implementing the dose method.²⁷

- **Tool for strategy and evaluation planning.** The dose framework provides a lens through which strategies can be assessed and prioritized, in light of overarching initiative goals.

For example, one coordinator from Northern California reported that dose is helpful for early decision-making, with the coalition deciding to include strategies in their Community Action Plan (CAP) based on contribution to overall dose to get “more bang for our buck.”

 *Every strategy we looked at, we looked at with the lens of dose. If it doesn't have all the ingredients of dose, we ask is it worthwhile to move in this direction.*

- **Promoting more coordinated, stronger strategies.** Coordinators whose coalitions began using the dose framework after they had already implemented their strategies reflected on how the tool would have been helpful at an earlier stage.

 *We would likely not have funded as many small isolated strategies and focused on strategies in clusters where there was momentum and greater potential for impact. (respondent from Colorado)*

Building consensus around strategy selection. Dose was also used as a common framework that allowed the coalitions to build consensus among their members during early-stage planning.

Eight coordinators described instances where dose language was helpful when explaining why a certain strategy should or should not be pursued. For example, one coordinator described how when community members supported a low-dose, high-cost strategy, discussing the concepts of reach and strength gave them a way to explain, in a quantitative way, what the potential for impact was.

- **Revising a strategy to increase strength.** Nine coordinators cited increasing strategy strength through changes in implementation to increase frequency, intensity or duration of a strategy. For example, one coordinator from Northern California described how they reviewed data with school partners to show them how better implementation would result in a stronger impact.



We have primarily used [dose] when we update our CAP every year... by eliminating strategies or components of strategies that aren't being impactful we can focus more on strategies that can get us to a higher dose.

- **Adding strategies to a dose cluster.** Ten of eleven coordinators said that thinking about the concepts of reach and strength led them to add new strategies to clusters of existing strategies targeting the same behavioral outcome. For example, one coordinator described how during implementation, their coalition identified the elementary school as an additional intervention setting that needed to be included to better reach their target population.



It's particularly helpful when we review the data with principals each summer and plan for the next school year's [health eating active living] work. It helps them see where changes are occurring, and where they can put resources into encouraging change.

- **Removing strategies from a dose cluster.** An equally important implementation tactic, cited by all coordinators interviewed, was removing strategies for reasons such as too resource intensive, lack of momentum, very low dose without having other benefits, etc. Dropping strategies is very common as coalitions begin to implement their plans. Communities start with 10-30 potential strategies, and typically drop over half of them throughout their grant. These decisions free up resources to spend elsewhere on higher dose strategies. CAPs usually have 6-10 sustained strategies by the end of their funding cycle.

Periodic Reviews, Retreats and Learning Activities

Interim reports of results as they became available were communicated in a variety of ways, contributing to all three goals of the evaluation: assessing impact, improving the initiative, and informing the field. Interactive learning techniques were increasingly used in facilitating these learning sessions and retreats, using tools developed in partnership with FSG – [Facilitating Intentional Group Learning](#).

Key activities included:

- **National Evaluation Advisory Committee (NEAC) reports and meetings** – a committee of national obesity prevention and community health researchers and experts

- **Evidence reviews** – reports scanning the peer-reviewed literature and initiative reports for promising and emerging community prevention strategies and approaches to obesity
- **Strategic “Refresh” meetings** – cross-regional meetings to review CHI progress and discuss barriers and opportunities. These led to refinements and changes in strategy approaches
- **Interim reports** - *KP CHI Interim Report, December 2008* – mid-initiative examination of progress to date with recommended strategies to advance or discontinue
- **Initiative planning meetings** – *CHI Academy*, annual, cross-regional summits to discuss program improvement
- **Evaluator meetings** - *Evaluating Obesity Prevention Efforts: What Have We Learned?* – proceedings from a January 2015 convening of evaluators and funders
- **Retreat with learning activities** - *Lessons Learned Retreat, January 2017*

Role and impact of community collaboratives

A key question was whether the broad-based collaboratives were critical ingredients in the successful implementation of HEAL strategies, or whether partnerships between a smaller number of organizations would have been sufficient. The role of the collaborative in implementing HEAL strategies varied by initiative/region and by individual community, but in general the answer to this question was “a little of both.” Coalitions were useful early in the initiative to bring people together and agree on a common vision and strategy, but the ongoing work tended to be carried out by smaller numbers of organizational partners most critical for the work. Some of the new relationships created in the initial phase were new partnerships with city and county agencies, such as the health department and city transportation and planning departments. Other new partners included law enforcement, businesses, faith communities, hospitals and schools.

For example, in Northern California, HEAL Zones followed a relatively decentralized coalition model, with leadership provided by the community coordinator and lead agency, with each partner engaged in specific strategies and tasks. The coalition facilitated the initial engagement and partnership formation but was less critical for ongoing work. Some of the relationships were formalized through MOUs, contracts, and budget allocations, but in most cases partners provided their expertise and support with no formal commitment.



*[The collaborative will continue] because it was in existence before the grant, for so long. Money is powerful, but it doesn't drive the passion we have.
(Modesto)*

In LiveWell Colorado, there was a similar tendency for the collaborative to be a vehicle for building the key relationships needed to implement the HEAL strategies. When describing their overall success, initiative stakeholders often referenced the coalition’s partners and its leadership. Success in project implementation was attributed to the partnerships that have been formed at the grassroots, organizational, and government levels, and the strong relationships that have been built over time.

In Southern California, more attention was given to building strong overall collaboratives, though the provision of technical assistance by an organization specializing in improving collaborative functioning. The collaboratives continued to meet throughout the initiative, but many formed smaller working groups to help move the work forward and others had leadership

groups that served an advisory role. A retrospective evaluation is currently being conducted of the role of coalitions in Southern California; the initiative will be ending in 2018.

The two factors most often mentioned across all regions and communities for successful collaborations, both larger collaboratives and individual partnerships, were project leadership and getting the right partners at the table. Regarding leadership, the majority of LiveWell Colorado communities pointed to the dedication and expertise of their coordinator as a major factor in their success. In particular, some respondents praised the coordinator's energy, organizational skills, and ability to pull the right people together and gain their buy-in. Three additional communities referenced exceptional leaders overall as having been instrumental in their success. In SCAL, effective coalitions also required a coordinating agency that was well connected to the community and headed by a strong coordinator who successfully navigated the needs of diverse groups.

Regarding finding the right partners, it was important to have the right partners on board. This included specific organizations or individuals who had the influence or authority to make decisions and a connection to the community. Additionally, having a good working relationship with these organizations/individuals was a key success factor.



You create a certain synergy among the groups and ideas and, first of all, being open to everyone's ideas and taking everyone's ideas into consideration I think has made this program successful.

Challenges with the Collaborative Model

Staffing. Turnover of key staff was the most frequently mentioned challenge. This included turnover of the project coordinator as well as changes at key partner institutions (e.g., schools). Another challenge was when the right partners could not be found or there were difficulties working collaboratively with partner organizations. At times it was difficult to come to agreement on priorities and plans, which halted progress.



Getting people more ready to collaborate from the get-go will help because that was sort of an initial challenge, just getting on the same page, of how to share our work.

Sustainability. Will the collaborations fostered by CHI in communities be sustained? And will they be able to broaden their focus beyond HEAL to other pressing community issues? These are the critical questions for judging the success of the “capacity pathway” in the CHI logic model.

The sustainability question will require years of experience and follow-up (“legacy evaluations”) to answer definitively. But when asked about sustainability, coalition key informant respondents were generally optimistic that the relationships would continue, even if the formal coalition did not continue beyond the period of KP funding. For example, LiveWell Colorado informants believed their coalitions would continue because the initiative is a priority of the city/county, there is momentum, the coalition is well-organized and representative of the leadership in the community, and/or because of the strong bond to the community and the number of people

who are invested in the work. Some changes may occur; there may be a different group of people involved, the coalition's areas of focus may be different, the coalition's structure and how it operates may be less formal, and partners may take over major portions of the work in different sectors. The most credibly optimistic groups around sustainability were those that had a history of working together prior to CHI.

CHI communities with lower initial capacity for change

Several sites in KP regions demonstrated an interest in and need for implementing HEAL strategies, but had less capacity to fully realize the CHI model. Extensive technical assistance resources and extended planning phases were provided to these sites, but took years to plan strategies, develop an implementing agency to fund projects, and achieve some implementation of the CHI model - mostly programmatic and low-reach strategies. Community engagement was often difficult, and residents often expressed that more pressing community issues were more important than HEAL (employment, safety, etc.).

The Healthy Belvedere site in Georgia was organized in 2006 but transitioned through several phases of limited governance that accomplished only some planning and implementation of low-dose HEAL programs. A neighborhood-focused, community-based organization was not present to fully implement a collaborative model to scale the work. In 2010, a steering committee was formed consisting of seven Belvedere-area residents and stakeholders with the intent of expanding and formalizing the group. An independent consultant was hired to provide the Committee with technical assistance on organizational development and building leadership capacity. This led to the adoption of formal bylaws and a 14-member committee consisting of residents, local businesses, non-profits, faith-based organizations and other community partners. Once formed, they engaged in regular meetings to guide the Initiative and conduct business, in addition to continuing training sessions to increase leadership skills, team building and organizational capacity. The committee produced a Community Action Plan (CAP) primarily focused on two initiatives to increase physical activity in the Belvedere neighborhood: walking clubs and a community garden. By 2011, 104 walkers joined six official walking clubs and 30 gardeners were renting 42 plots.

The Port Towns Community Health Partnership site in Maryland began in 2008 with an ambitious plan to organize three adjacent towns and launch HEAL strategies. A CHI Leadership Council was formed that consisted of the KP Project Director, an evaluation team member from the University of Maryland, Common HealthAction technical assistance team members, community stakeholders and elected officials. One of the first projects was a needs assessment survey to set planning priorities and engage community residents. By 2011, the Council formed subcommittees and developed Community Action Plans. By 2013, implementation consisted of several entities launching low-reach projects: promoting the use of a waterfront park, engaging apartment residents in HEAL education and gardening, establishing youth wellness ambassadors to reach peers with HEAL education, and involving a local official in forming a policy team to support HEAL in parks and urban farming.

The Cleveland City Ward One, Lee-Harvard Neighborhood site in Ohio held town halls, formed an advisory council, held community stakeholder meetings, performed neighborhood asset assessments, and conducted Photovoice, youth surveys and focus groups with residents from

2007 – 2009. Safety ranked the highest concern (36%) among residents, including the poor status of parks and recreation centers, violence, crime and drugs. By 2009, a community garden was started, and in 2010, a Safe Routes to School walking audit and Walk-to-School promotion were conducted. The lack of an organization within this neighborhood to form and fund HEAL collaborative efforts hampered the development and implementation of this site.

Lessons for the field of obesity prevention

There were a number of learnings that may be helpful for others implementing community-based obesity prevention initiatives. Lessons that may apply to initiatives addressing other health areas include:

Focus on youth in schools for population-level impact, particularly physical activity. All the observed population health changes related to the presence of strong interventions (high dose) took place in schools, as opposed to community settings. There are a number of good, underlying reasons for both targeting school-aged children and using school-focused strategies. Children, especially in elementary school, are a captive population with more limited food choices while in school and there is greater opportunity for in-class, PE and recess physical activity minutes. It is also easier to make changes in school building policies, practices, and the environment that can impact all or most children

Use strategies that have evidence for success, and the strongest versions of those. As evidence accumulates about individual HEAL strategies, from our own evaluation and the literature, a number of strategies have emerged as having greater potential impact. These should be prioritized in planning and implementation. In addition, within those strategy categories, there are stronger ways of implementing them. For example, a Safe Routes to School strategy can range from one “Walk to School” assembly per year to weekly or daily “walking school buses” involving a significant number of children engaged in consistent active transport to/from school, year-round.

Dose matters. Half of the cases where high dose strategies were implemented showed positive population level improvement, versus less than 20% showing improvement when the dose was lower. This supports the idea that changing behavior across a population requires reaching relatively large fractions of people with strategies that have a high impact per person.

Focus community strategies where partners and champions exist. Because intervening at the community level is challenging, focus on sectors where willing partners, positioned to bring about policy, programmatic, and environmental changes, exist. The CHI multi-sector approach proved to be challenging for this reason – it was hard to find supportive partners and champions in all of the targeted sectors in relatively small geographic communities.

Be flexible and responsive to community priorities. Several communities determined that issues such as unemployment and violence were significant barriers to advancing their HEAL strategies. Being flexible in allowing communities to shift direction and work on these underlying issues was a key to success in several CHI communities. Examples of issues that were addressed included violence prevention, economic development, park safety, and blight removal.

Lessons for initiatives addressing other health issues

There were a number of lessons from CHI that may apply to initiatives addressing other health areas. These include:

Join forces. Be a catalyst to promote broader collaboration at all appropriate levels—national, state, regional, local. Try to avoid duplication of effort, share lessons, collaborate on initiative funding initiatives, and adopt common evaluation approaches as much as possible. Work to collectively identify best practices and build the field.

Walk the talk. Bring about change within your own organization to the extent possible. In addition to providing health benefits to staff and clients/customers, these changes will build credibility and allow you to speak more forcefully and convincingly to other organizations who are also being asked to make changes.

Reflect to improve. CHI evaluation findings and other information were intentionally fed back to the implementers in a variety of ways to help make program improvements. Interactive learning techniques were increasingly used in facilitating these learning sessions and retreats. Particularly influential were strategic “refresh” meetings – cross-regional meetings to review CHI progress and discuss barriers and opportunities. These led to large scale refinements to the CHI strategic approach and evaluation methodology that ultimately increased the impact of the initiative.

Use community coalitions wisely. Coalitions were useful early in the place-based CHI initiative to bring people together and agree on a common vision and strategy. But the ongoing work tended to be carried out by smaller numbers of key organizational partners. Substantial resources, including staff support, are required to build a successful broad-based community collaborative. If key strategic relationships can be built in the absence of such a collaborative, it is not necessary to create one.

Be strategic about evaluation and measurement. While it is important to have long-term monitoring of health outcomes in place, it is often not realistic to expect to attribute effects on population-level health behaviors within the time frame of a typical community initiative. It may be more cost-effective to carefully track strategy implementation and impact on those touched by the strategies, and then project population-level impact based on evidence in the literature and other program evaluation information.

Future directions

In 2017, Kaiser Permanente refreshed its strategic framework and created core initiatives aimed to reach more people with high impact strategies. These signature KP community health focus areas are an outgrowth of the learnings from the CHI place-based work. They were built upon what worked in CHI and the interests in expanding obesity prevention efforts and reaching more of the 65 million people who work in areas where Kaiser Permanente is part of the community. They are:

Thriving Schools. An effort dedicated to improving the health of students, staff and teachers in K-12 schools. The work in schools is focused on four key areas: healthy eating, active living, school employee wellness, and social and emotional wellness.

Thriving Schools works to improve the health of students, staff and teachers in schools by:

- Partnering with other organizations involved in school health. Through our valued partnerships, KP is intentional about coordinating our own knowledge and existing work with that of our partners.
- Aligning Kaiser Permanente's diverse resources and expertise. KP engages multiple departments within Kaiser Permanente to include areas of expertise such as workforce wellness, union engagement, employee volunteerism, community health and more.
- Building a culture of wellness and empowering wellness champions, by putting the best tools and resources into the hands of people supporting school wellness. Thriving Schools will also focus on furthering the alignment of education and health policy agendas at the local, regional and national levels.

Thriving Cities. Kaiser Permanente is now building on the HEAL Cities work referenced above that focused on healthy eating and active living policies in small and medium-sized cities with its Thriving Cities Initiative, implemented in partnership with CityHealth, an initiative of the de Beaumont Foundation. The initiative will leverage the CityHealth accountability framework, established policy menu, and large city focus, and will expand the range of policies beyond HEAL to include economic well-being, education, tobacco prevention, and community safety.

HEAL will continue to be a major focus for KP; the most recent report on the prevalence of obesity among U.S. children from 1999 to 2016¹ shows no evidence of decline among any age group. More concerning, there was a significant increase in prevalence of severe obesity among preschool-aged children. Efforts such as Thriving Schools and Thriving Cities and others must continue among all sectors and levels of society to improve the long-term health of today's children.

The lessons learned through CHI are informing both the implementation and evaluation of these new large-scale initiatives.

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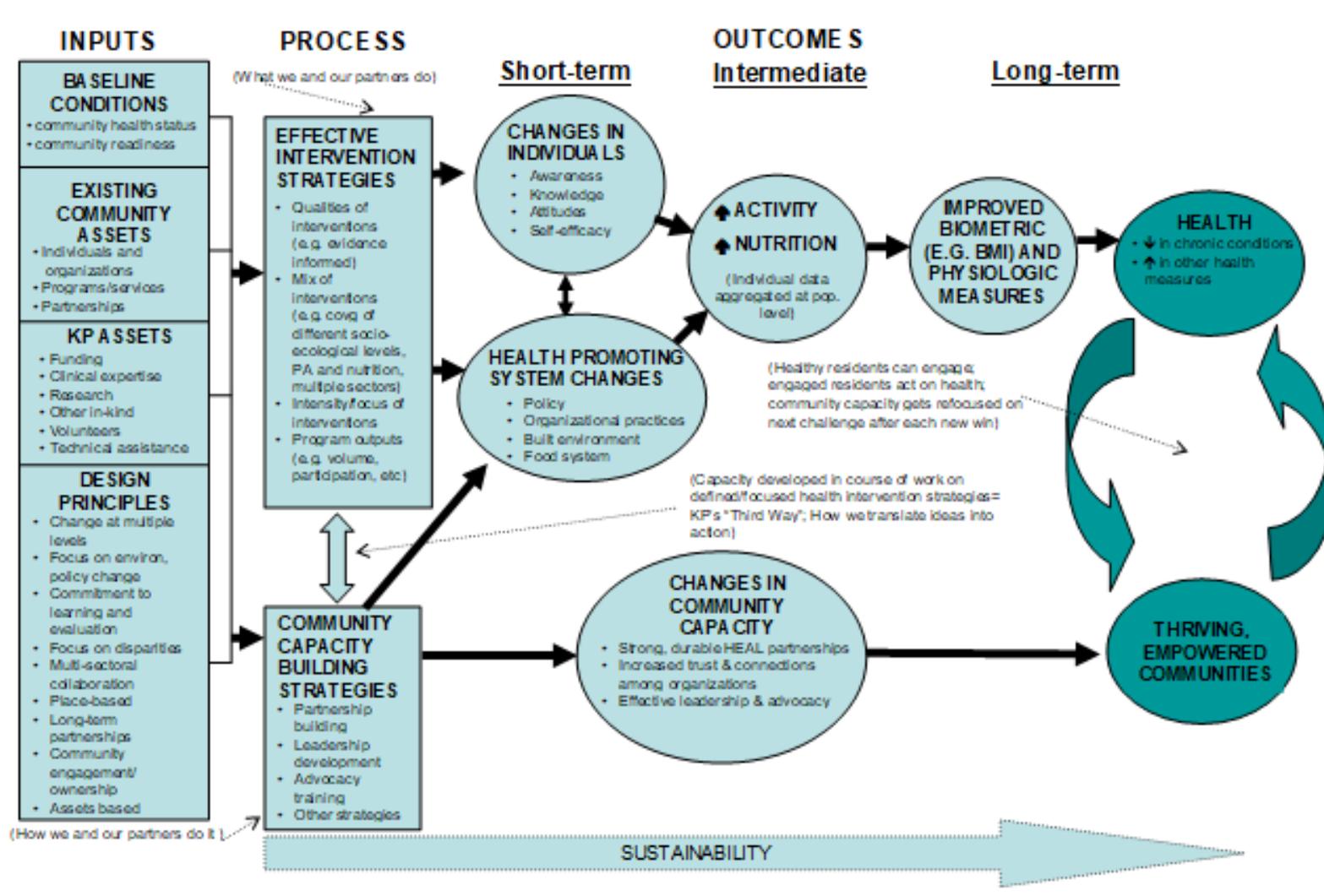
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Appendices

Appendix A: KP CHI logic model



Appendix B: KP CHI regional models

Each KP region identified focus areas for their CHI sites. Below is a description of each region’s CHI communities as they were phased in. All communities were low-income.

Region	Initiative	Funding	Model	Population
Ohio^a	Lee-Harvard Neighborhood Cleveland Ward One 2007-2010	4-year planning and implementation grants; \$220,000 1 community	<ul style="list-style-type: none"> Community engagement and needs assessment focused Implemented community garden and Safe Routes to School audits and promotion 	<ul style="list-style-type: none"> Approximately 7,500 residents
Georgia	Healthy Belvedere 2008-2012	5-year planning and implementation grants; \$250,000 1 community	<ul style="list-style-type: none"> Capacity building focused Developed a Community Action Plan of HEAL strategies Focused on two strategies: walking clubs and a community garden 	<ul style="list-style-type: none"> Approximately 7,500 residents
Northern CA	HEAL-CHI Phase I 2006-2010	5-year grants; \$1.5 million 3 communities	<ul style="list-style-type: none"> Organized by sector: schools, health care settings, worksites and neighborhoods Developed a Community Action Plan Strategies from menu of evidence-based policy and environmental change approaches 	<ul style="list-style-type: none"> Communities ranged in size from 38,000 to 50,000 residents
	HEAL Zones Phase II 2011-2014	3-year grants; \$1 million 3 communities continued from Phase I 3 new communities added	<ul style="list-style-type: none"> Developed a Community Action Plan with four nutrition and physical activity goals and use of evidence-based strategies Emphasis on community infrastructure changes (environment and HEAL access) re-enforced by education, promotion and a focus on the population dose of HEAL strategies 	<ul style="list-style-type: none"> Communities limited in size to 10,000 to 20,000 residents
	HEAL Zones Phase III 2015-2017	2-year grants; \$1 million 1 community continued from Phase I 3 communities continued from Phase II	<ul style="list-style-type: none"> Developed a Community Action Plan Organized by goal: four nutrition and physical activity goals and objectives Emphasis the same as Phase II. Added focus on fewer but stronger strategies 	<ul style="list-style-type: none"> Communities limited in size to 10,000 to 20,000 residents

^a Ohio KP region was discontinued.

Region	Initiative	Funding	Model	Population
Colorado	Thriving Communities 2005-2006	2-year grants 6 communities KPCO ~\$1.0 million total	<ul style="list-style-type: none"> Initial coalition building Small investments in specific limited strategies 	<ul style="list-style-type: none"> Communities ranged in size from 6,100 to 161,300 residents
	LiveWell Colorado 2007-2016	2-8 year grants 6 continued Thriving Communities 26 new communities KPCO ~\$11.6 million to LW communities (Note: a similar sized investment was also made by another funder)	<p>Phased funding approach:</p> <ul style="list-style-type: none"> 1-2 years mobilization and planning 4-5 years implementation: implemented strategic plan, focused on more promising strategies 1-2 years advanced implementation: focused on sustainable institutional adoption of HEAL 	<ul style="list-style-type: none"> Communities ranged in size from 6,100 to 161,300 residents
	Sustainable HEAL Communities 2017-2019	2-3 year grants 7 continued LiveWell communities KPCO \$1.6 million for 4 of the communities (Note: a \$1.7 million investment was also made by another funder for 3 of these communities)	<ul style="list-style-type: none"> Support for 7 continuing communities in year 4 or 5 of their funding to complete 7 years work 4 communities were funded for 2 years (KP) and 3 communities were funded for 3 years (another funder) Aim was to achieve long-term sustainability of community coalition HEAL efforts 	<ul style="list-style-type: none"> Communities ranged in size from 7,000 to 33,900 residents
Mid-Atlantic States	Port Towns Community Health Partnership, Maryland 2011-2015	\$800,000 for funding action plans 1 community	<ul style="list-style-type: none"> Capacity building focused Developed a Community Action Plan of HEAL strategies Focused on youth-led wellness, community garden, and group HEAL programs 	<ul style="list-style-type: none"> Approximately 13,300 residents

Region	Initiative	Funding	Model	Population
Southern CA	HEAL Zones phase I 2012-2016	4-year grants \$1 million 6 communities	<ul style="list-style-type: none"> • 9-month planning and 3-year implementation • Developed a Community Action Plan of HEAL strategies • The primary focus was to increase access to healthy food and physical activity opportunities by improving policies and environments so that the healthy choice is the easy choice 	<ul style="list-style-type: none"> • Communities ranged in size from 13,100 to 26,100 residents
	HEAL Zones phase II 2016-2019	3-year grants \$1 million 4 continued Phase I	<ul style="list-style-type: none"> • Emphasis the same as Phase I 	<ul style="list-style-type: none"> • Communities ranged in size from 16,400 to 26,100 residents
Northwest	HEAL Communities 2016-2019	3.5-year grants \$1.5 million 6 communities	<ul style="list-style-type: none"> • Increased capacity of organizations' ability to work collaboratively toward desired outcomes of the initiative • Aimed to improve places and systems that support individuals to make healthier choices that lead to better obesity-related chronic-disease outcomes • Worked with the grantees to implement high dose strategies 	<ul style="list-style-type: none"> • Communities ranged in size from 4,600 to 25,400 residents

Appendix C: CHI evaluation questions and data sources

DOCC - Documentation of community change: database of specific interventions, number of people reached, status, challenges, lessons learned, etc.

Surveys - Interactive Voice Response (automated phone surveys) and mailed surveys of adults and school surveys of youth to capture population-level change. In early stages of the CHI, partnership surveys were conducted to understand the collaborative functioning, successes, and challenges

Strategy Level Evaluations – Pre/post evaluations among residents touched by specific strategies assessing behavioral outcomes

Population Dose – Estimates of strategy reach, duration, frequency, potential strength to positively impact behavior

KP Member Data - Clinical information on KP members – monitoring of weight status (Body Mass Index – BMI), aggregated at population level

Key Informant Interviews (KIIs) - Key informant interviews of KP stakeholders, CHI communities, and other key informants

Photovoice - Photo documentation using community-based participatory process

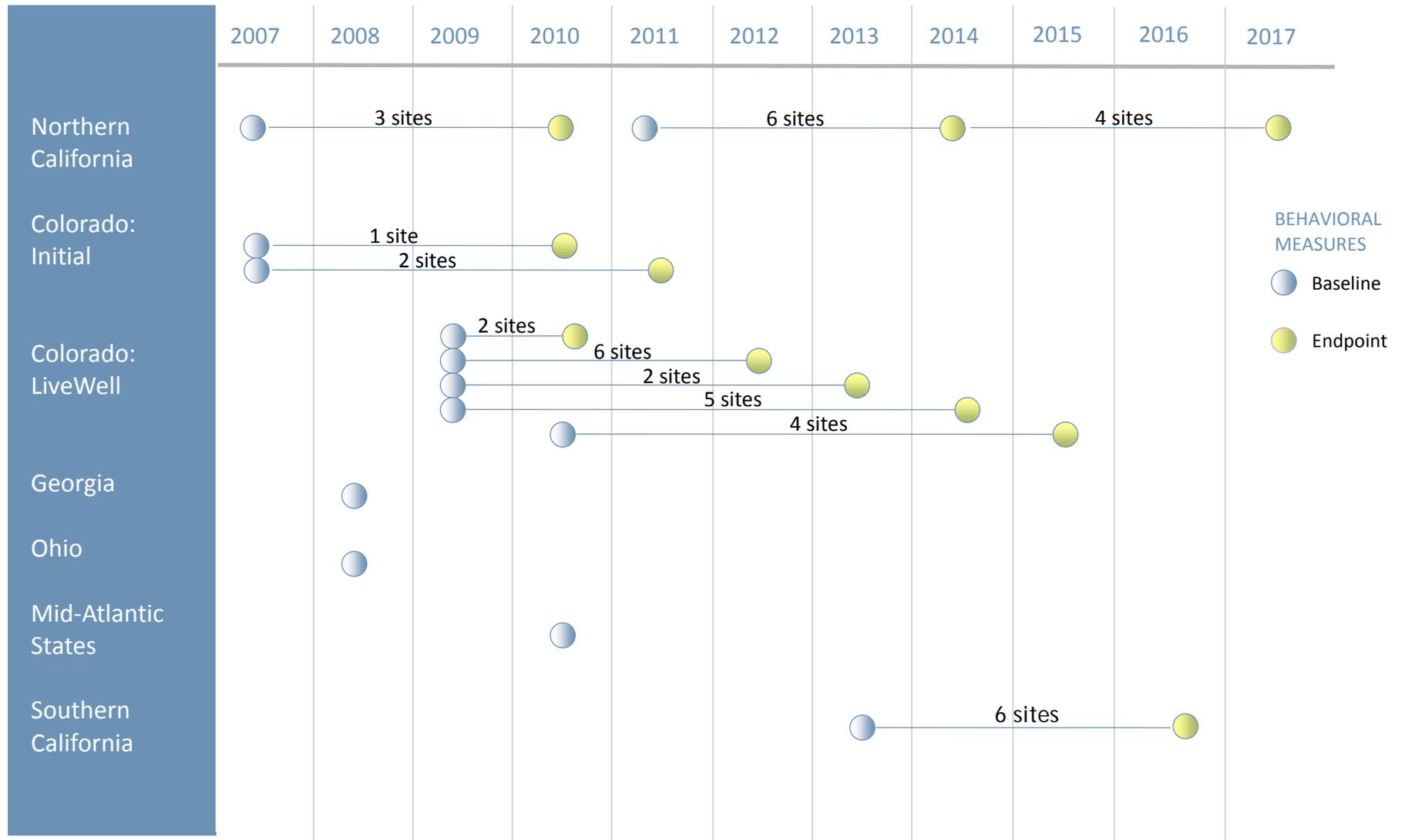
Reviews, Retreats, Learning Activities – Data summaries, reports, refresh meetings, data parties, active learning retreat to understand progress, successes, challenges, and areas needing improvement

Evaluation Broad Goals and Questions	DOCC	Surveys	KP member data	KIIs	Photovoice	Reviews, Retreats, Learning Activities
1. Assess Impact <ul style="list-style-type: none"> Did community food and physical activity environments change? Were there impacts on individual behavior? On health status? Was community capacity enhanced? 	Community changes (reach, intensity)	Food and physical activity self-reported behaviors	KP member BMI trend monitoring	Perceptions of successes, barriers, challenges, and improvements needed	Photo documentation of changes	Data briefs, refresh meetings, active learning
2. Promote Program Improvement <ul style="list-style-type: none"> Were strategies successfully implemented? Did the place-based focus, degree of partnerships, collaborative structure, and support help or hinder success? 	Intervention Strategies	Partnership functioning		Internal connections/alignment/capacity/support needs	Important changes as seen by community	Data briefs, refresh meetings, active learning
3. Share Knowledge within KP and the Field <ul style="list-style-type: none"> Did HEAL policy and practice changes occur within KP? Did national and regional obesity prevention efforts improve? 				Organizational and policy changes resulting from CHI		Data briefs, refresh meetings, active learning

Appendix D: CHI evaluation measurement timeline

CHI was implemented in a staggered rollout that presented evaluation challenges, but also opportunities to learn from the work. The phased in approach was particularly evident in Colorado where new communities were brought on in waves.

Survey data collection was conducted in sites that had built sufficient capacity to plan and implement strong strategies. Sites in Ohio, Georgia and the Mid-Atlantic regions continued to work on capacity building and implemented a few small strategies scaled to their capacity. In these cases, endpoint measures were not conducted. The NW region sites, not shown in the timeline below, focused on capacity building from the onset and did not plan pre/post evaluations of behavioral outcomes.



Appendix E: Photos of changes to the CHI Communities

Walkability improvements to neighborhoods



Crosswalk and stoplight adjacent to park
Santa Rosa



Photovoice with resident's caption - bridge walkway
made possible with General Plan revision in Modesto

This is a historically scary road for pedestrians. This narrow bridge is busy with big cars and tractors. The revised general plan allowed for the expansion so people can walk safely.



Crosswalk and stoplight
near school in Modesto



Walkability improvements in Santa Rosa



Mack Road landscape improvements in Sacramento



New path in Modesto



Gilman Park improvements in Bayview

Before and after park and trail improvements



New play structure in Modesto



Anaheim HEAL cooler at local market



Long Beach – new fitness equipment in a park



Lemon Grove (near San Diego) healthy food in early childhood setting



Playground renovation in Lake County, CO



Vending machine removal, Madera CA



Farm-to-school project in Chaffee, CO



School environment and education changes



Walking School Bus project in Modesto CA



Water drinkers



Tastings in Sacramento



School garden



Water stations at Millview School in Madera



Sugar sweetened beverage education in Madera



Water station and promotion in Santa Rosa

Appendix F: CHI publications

Peer reviewed publications on CHI 2004-2017

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Appendix G: National and State Level Trends

State and national surveys indicate trends for comparison to CHI results from population surveys. Benchmarking national surveys can be challenging because questions and analysis change over time and there is a lag in data availability (the most recent data is from 2015, and some national level data is not available at the state level). Despite these limitations, looking at trends helps gauge the extent to which these decreases, or increases, are tracking with larger societal trends. **Sources:** *Youth Risk Behavioral Survey (YRBSS)*, *California Health Interview Survey (CHIS)*, *Behavioral Risk Factor Surveillance Survey (BRFSS)*, *California Health Interview Survey (CHIS)*.

YOUTH

Fruits and vegetables – *National YRBSS data* showed no trend in fruit consumption, but an increase in vegetable consumption from 2005 to 2015: % eating fruits 3 times/day 19.8% to 19.9%; and vegetables 3 times/day went from 12.9% to 14.9% *California CHIS data* showed an increase in fruit & vegetable consumption from 2007 to 2011: % eating 5+ fruits and vegetables/day went from 48.2% to 52.4%

Fast food – *California CHIS data* showed an increase in fast food consumption from 2007 to 2015: % who ate fast food 1+ times/week went from 72.2% to 75.6%; and % who ate fast food 4+ times/week went from 10.6% to 12.8%

Sugar-sweetened beverages – *National YRBSS data* showed a decline in sugar-sweetened beverage consumption from 2007 to 2015: % drinking 2+ sodas/day went from 24.4% to 9.3% *NHANES data* showed a 30% decrease in mean kilocalories/day from sugar-sweetened beverages from 1999-2000 to 2009-2010: 223 kcal/day to 155 kcal/day. This trend continued with an average of 143 kcal/day in 2011-2014.

Physical activity – *National YRBSS data* showed a decline in physical activity from 2011 to 2015: % meeting 60 minutes physical activity/day went from 28.7% to 25.5%

ADULTS

Fruit and vegetable – *California BRFSS data* showed a slight decline in fruit & vegetable consumption from 2007 to 2009: % eating 5+ fruits and vegetables/day went from 28.9% to 27.7%

Fast food – *California CHIS data* showed an increase in fast food consumption of 1+ times/week from 2007 to 2015: % who ate fast food 1+ times/week went from 61.3% to 63.9%

Sugar-sweetened beverages – *California CHIS data* showed a decrease in sugar-sweetened beverage consumption from 2011-2015: % drinking 1+ sodas/day went from 44.1% to 40.7% *NHANES data* showed a 23% decrease in mean kilocalories/day from sugar-sweetened beverages from 1999-2000 to 2009-2010: 196 kcal/day to 151 kcal/day. This reduction remained over the period 2011-2014 with an average of 143 kcal/day.

Physical Activity – *California BRFSS data* showed a slight decline in physical activity from 2007 to 2009: % meeting 20+ minutes of moderate to vigorous physical activity 3+ days/week went from 32.9% to 31.3%

Appendix H: CHI Accomplishments Voiced by Community Participants in Photovoice Projects

<p style="text-align: center;">Santa Rosa, CA</p> <ul style="list-style-type: none"> • Increased access to healthy food (gardens and healthy food in stores) • Increased access to physical activity (funds to improve the built environment around schools, new bike paths and murals) • Offered leadership development opportunities for youth and adults • Established BMI screening and referral to on-site classes in community clinics 	<p style="text-align: center;">West Modesto, CA</p> <ul style="list-style-type: none"> • Increased access to healthy food (farmers’ markets and corner stores) • Increased access to physical activity in the neighborhood and schools (new walking trail, walking school buses, and physical activities in after school) • Created youth development opportunities to grow and sell fresh produce in the community • Increased healthy messaging throughout community
<p style="text-align: center;">Richmond, CA</p> <ul style="list-style-type: none"> • Increased access to healthy food (neighborhood gardens, farm stands, produce boxes, and WIC corner stores) • Successfully advocated for adding health elements in city General Plans • Increased access to physical activity (before and after school activities, parent walking groups) • Improved school nutrition (implemented California nutrition standards and offered Universal Breakfast) • Improved neighborhood safety/violence prevention (safe places to play, demolition of a liquor store) • Sustained staffing for breastfeeding counseling in community clinics 	<p style="text-align: center;">Park Hill (Denver, CO)</p> <ul style="list-style-type: none"> • Remodeled Axum Park with new walking paths and playground equipment • Promoted healthy food retail • Promoted walking and biking through Safe Routes to School and street connectivity • Increased physical activity by creating the non-profit Bike Depot, which matches unused bikes with bike-less riders, providing transportation and exercise for residents • Improved infrastructure by influencing redevelopment plans in Holly Square and open space in senior housing • Overarching theme: Changing the social norms around physical activity and nutrition
<p style="text-align: center;">Commerce City, CO</p> <ul style="list-style-type: none"> • Improved physical infrastructure contributing to safer walking and biking • Adding a health element to the Comprehensive City Plan • Promoted an increase in physical activity through the Recreation Center and community events • Increased access to healthy foods in schools and the community • Created more appealing destinations through redevelopment to increase physical activity • Overarching theme: increasing community cohesion 	<p style="text-align: center;">Denver Urban Gardens (Denver, CO)</p> <ul style="list-style-type: none"> • Increased access to healthy food (neighborhood and school gardens, farmer’s markets) • Provided nutrition education to community members • Provided leadership development to a neighborhood coalition that promoted linking community health and nutrition resources • Offered support and assistance to community groups to start gardens • Worked with the city and country of Denver to change zoning codes for urban agriculture, stronger local food systems and increased access to healthy, fresh foods. • Developed community building and neighborhood safety through inclusion of diverse residents in community gardens and produce markets