National Initiative Overview

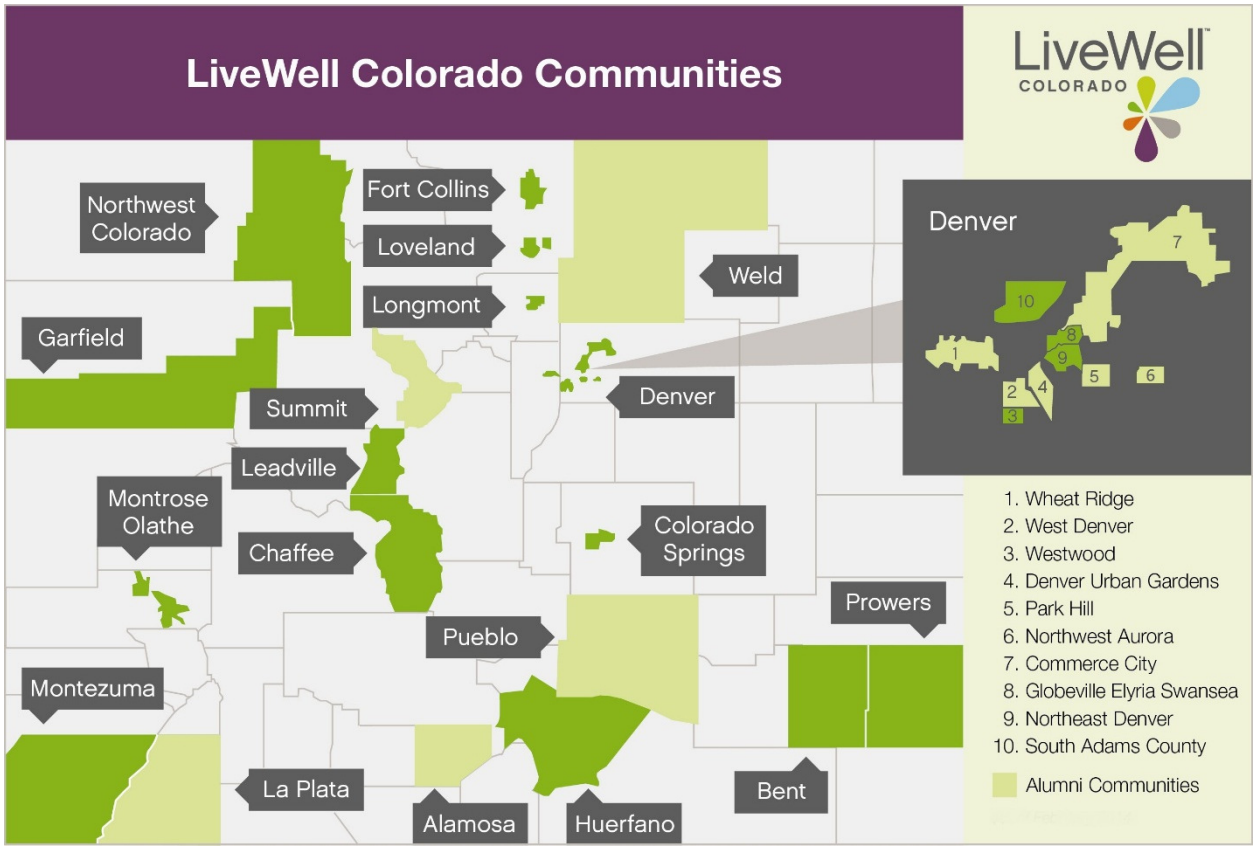
The Community Health Initiative (CHI) is a KP Community Benefit strategy for improving the health of communities served by KP. The CHI focus is on healthy eating and active living (HEAL) to improve nutrition and physical activity and reduce overweight/obesity. Core design principles include:

- A place-based focus
- An emphasis on change at multiple levels, particularly environmental and policy change
- A multi-sectoral collaboration that involves sectors such as health care, neighborhood, schools, and work sites
- Community engagement and community ownership

CHI implementation began in Colorado in 2005 and Northern California in 2006. A total of 50 communities in five KP regions (NCal, SoCal, Colorado, Georgia, Washington DC/Maryland) are now implementing the CHI model. In Colorado, communities are funded on 7-9 year cycles, with annual funding ranging from $75,000 - $250,000.

LWC – Community Investments Overview

In 2014, there were 17 communities funded by LiveWell Colorado (map below). The initiative began in 2005 with three communities in Metro Denver and has spread to become a statewide movement.



Measurement and Analysis Methods – Progress to Date

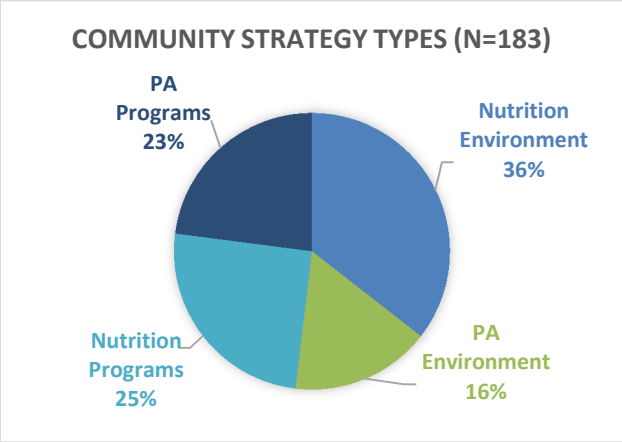
The CHI logic model includes intermediate outcomes (e.g. Environmental and policy changes implemented in communities) with long-term population-level aims of improvements in physical activity, nutrition, and weight status among youth and adults. The following table describes the systems by which we measure change in LWC communities:

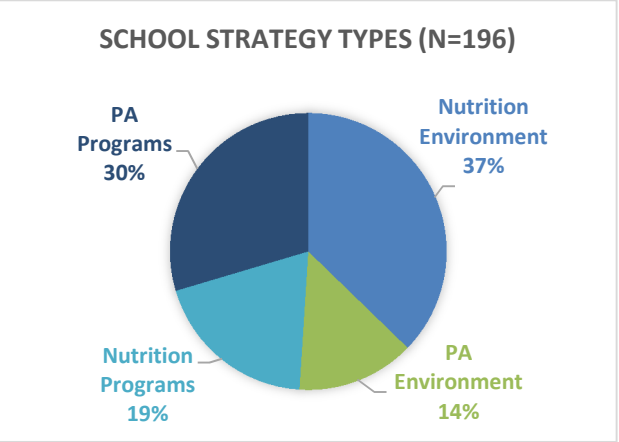
Evaluation Method	Purpose	Timeline	Findings to Date
Documentation of Community Change (DOCC) **All communities**	To comprehensively track LWC strategies, including status, reach, strength and sustainability	Annually	• Dose (reach X strength) matters for behavior change
Strategy – level Evaluation **All communities**	To measure behavioral impact of selected strategies with a focus on cross-cutting strategies (SRTS, CSH)	Ongoing	• 379 cross cutting strategies with a baseline measure
Adult Mailed Survey (Corona Insights) **All communities beginning 2012**	To assess adult population-level changes in physical activity and nutrition behaviors and BMI. Site specific questions added to monitor selected local strategies	Year 1 and final year of funding	• Replaced IVR measurement for improved sample representativeness and validity • 7 baseline assessments completed in 2012-2014
Youth Survey (Center for Weight and Health - CWH) **Sample communities**	To assess changes in students' attitudes and practices around physical activity and nutrition	Ongoing (3 year pre-post survey model)	• Positive results for healthy eating perceptions and behaviors where high dose strategies are implemented
KP Member Data **3 case communities with matched controls**	To track changes in longer-term outcomes (eg. BMI, diabetic control) using KP member EMR data from LWC and matched control communities	Annual data, collected retrospectively	• Re-analysis in progress in 3 LWC communities • 1 community showed BMI improved over time relative to control
CDPHE Existing Data **All communities**	Used for state level surveillance to detect population level changes. Surveys include: BRFSS, Healthy Kids Colorado, PRAMS, Child Health Survey)	Ongoing – as survey data are available	• LWC communities represent about 20% of the state. • Overweight and obesity rates continue to rise (56% in 2012), child obesity rate increase alarming

LWC Strategy Foci and Intermediate Outputs/Outcomes:

The number of people impacted by LWC initiatives continues to rise; strategies are getting stronger and more targeted. Sustainable changes are being realized by nearly every LWC community.

- Over 330,000 Coloradans, or 6% of Colorado's total population, reached by LWC community initiatives as of 2014.
- 183 community strategies, and 196 school strategies are reaching Coloradans in some way.
- As of 2014, 108 Policy strategies lead to 316 policies that have been revised or adopted[1], 191 Environment strategies lead to 632 Environmental changes that have been implemented[2], and 198 programs have impacted Colorado residents. 32 strong promotional strategies have also contributed to the impact of these strategies in LW Communities.





LWC Population Level Outcomes – Communities and Schools

We are seeing population level impact in LiveWell Colorado communities:

- Improvements in student perceptions of the healthfulness of school lunches where healthier cafeteria menus and salad bars were implemented (22% - 48% in middle school and 24% - 31% in high schools using Center for Weight and Health survey pre-post measures in Commerce City)
- Significant increase in the percentage of high school students eating 5+ fruits and vegetables per day (27% - 35% in high schools using CWH Survey pre-post measures in Commerce City)
- Significant sustained increase in the percentage of children walking to school from 2010-2013 from 24% to 30% after implementation of Safe Routes to School efforts that included safety enhancements and walk to school days (Loveland – hands up teacher tallies)
- Significant sustained increase in minutes per day of physical activity as a result of 5-2-1-0 campaign and implementation of action based learning initiatives, walk/bike to school and after school physical activity programs (NW Colorado and Prowers County)

[1] One strategy may contain several policies revised or adopted.
[2] One strategy may contain several environmental changes that are made.

- Between 2010 and 2013, Strawberry Milk was eliminated and chocolate milk was reduced from every day to 1 day a week with corresponding education and promotional work. Sales data indicate a significant corresponding increase in plain milk sales (Colorado Springs)
- An overhaul of the school food program in Salida School District eliminated all refined sugar, all fried foods , and incorporates 1000's of pounds of fresh produce from a district leased farm. The food service director allows unlimited access to the salad/fruit bar and saw a significant increase in lunch participation. These efforts catalyzed a local community wide food movement. (Chaffee County)
- Employees at Longmont United Hospital (LUH) and the City of Longmont (COL) are moving the needle on BMI through a variety of changes and programs being offered. Across both organizations, which employ 2,075 people combined, the number of overweight and obese employees decreased by 2.3% between 2009-2013. (Longmont)

Strategy-Level Behavioral Impact in Aggregate

The KP evaluation team is working with LWC communities to measure the actual impact of strategies on behavior – for example, what is the percent increase in physical activity minutes for people living near a new walking trail? Knowing the actual impact of strategies is essential for estimating the long-term effect we will have on obesity rates. Estimates of impact ("effect size" – the average percent change in an outcome across all of those reached) have been computed for 135 strategies. The results show:

- Most strategies fall in the range of a 1% to 5% effect size
- The highest strength strategies are often programmatic (Zumba classes, after school programs)
- Highest reach **and** strength strategies are primarily in schools –policy/environmental changes such as PE curriculum changes, classroom PA, and cafeteria changes

Note that a small effect size (e.g. 2%) can change population health if it is reaching a large segment of the population, and a 2% effect size on minutes of physical activity or calories that are sustained can have a significant impact on weight gain/loss in the population.

What Are We Learning? – Applying the "Dose" Concept

Evaluation of this work has evolved considerably over the last six years and is a classic example of practice based learning. What began with the RE-AIM (**R**each, **E**ffectiveness, **A**doption, **I**mplementation and **M**aintenance) framework, which focused mostly on qualitative assessment, now includes more quantitative measurement and the concept of "Dose". Dose is an estimate of the impact of community interventions on an average resident's behavior. The dose measure is a combination of: (1) the number of people **R**eached by the intervention, and (2) the strength (**E**ffectiveness) of the intervention to change the behavior of those reached.

Dose Calculation
Dose is calculated by multiplying together two elements:

- **Reach** = The percentage of people from your target population who are touched by (exposed to) an intervention strategy *(number of people exposed divided by number in the entire target population).*

- **Strength** = The degree to which people exposed to an intervention strategy change their behavior to make healthier choices as a result of being exposed *(the "effect size" or average percent change in behavior for each person exposed).*

The dose calculation is important because it takes into consideration those who don't change at all, and therefore provides a picture of impact across the entire community. It approximates the percent change for an "average resident," including those exposed and those not exposed.

LWC Strategies by Dose

Community strategies

The table shows LWC community strategies by reach and strength. Strength is based on frequency and intensity of people's exposure to the intervention. Most community strategies are relatively low reach (84% are reaching less than 10% of the population). Half are minimal strength (53%) and another 32% are low or medium strength.

	Strength			
	Minimal 0.5%	Low 2%	Medium 5%	High 10%
<10% Reach	42%	17%	11%	14%
10-50% Reach	10%	2%	1%	1%
>50% Reach	1%	1%	0%	0%

School-based strategies

The table shows LWC school-based strategies by reach and strength. School strategies are generally higher reach/strength than community – students are a captive population for making the healthy choice the easy (or only) choice and reaching a large number of students. Therefore even the 19% low/minimal strength strategies with >50% reach can have an important population level impact.

	Strength			
	Minimal 0.5%	Low 2%	Medium 5%	High 10%
<10% Reach	23%	12%	9%	4%
10-50% Reach	15%	8%	4%	2%
>50% Reach	7%	12%	3%	1%

High-Dose Strategy Clusters

Combining multiple overlapping strategies (strategy clusters) is a promising way of producing community-level behavior change. Applying the dose ratings and strategy-level evaluation results, the evaluation is identifying the highest dose clusters. Initial results show the highest dose clusters in schools – over 31% of the 77 school strategy clusters are rated high. Given the large community target area, we have no high dose clusters in the community– meaning no measurable change in population level health (though significant change has been achieved within subpopulations of the community.)

A high-dose cluster of **school strategies** targeting PA in Northwest Colorado is:

- Increasing the quality and quantity of PE through enforced policy and curriculum changes
- Offering afterschool and before school PE opportunities
- Promoting Safe Routes to School with environmental and programmatic strategies
- Advancing the inclusion of physical activity into the classroom

A low -dose cluster of **community strategies** targeting PA in Denver's Park Hill neighborhood is:

- Renovating a centrally located community park (Axum park) with significant resident input
- Advocating for increased bike lanes, sidewalks and public transportation to the park
- Partnering with the local police department to increase presence around the park
- Supporting community driven walking/biking programs utilizing the new path around Axum park
- Partnering with community organizations to co-sponsor community educational activities