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Development of the Community Healthy Living Index: A tool to foster healthy environments for the prevention of obesity and chronic disease

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ABSTRACT

Objectives. This paper presents a new, comprehensive tool for communities to assess opportunities for active living and healthy eating and to mobilize all sectors of society to conquer obesity and chronic disease.

Method. Relevant existing tools and input from an expert panel were considered to draft the Community Healthy Living Index (CHLI). CHLI covers five major sectors where people live, work, learn, and play: schools, afterschools, work sites, neighborhoods, and the community-at-large. CHLI and the accompanying procedures enable community teams to assess programs, the physical environment, and policies related to healthy living and to plan improvement strategies. In 2008, with local YMCAs acting as conveners, community assessment teams from six US communities pilot-tested CHLI for cognitive response testing, inter-rater reliability, and implementation feasibility. CHLI was revised to reflect the test results.

Results. Pilot analyses demonstrated that the process was feasible, with most questions being interpreted as intended and showing substantial to almost perfect agreement between raters. The final CHLI is being disseminated nationally.

Conclusions. Preliminary data illustrate CHLI obtains reliable results and is feasible to implement. CHLI is a promising tool for community-based prevention efforts to draw attention to opportunities for healthy living and create impetus for community changes.

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Introduction

Obesity is a major public health threat for present and future generations. The obesity epidemic is seen in virtually all age, gender, race, ethnicity, region, and socioeconomic groups, with some subgroups showing even greater susceptibility (Institute of Medicine, 2005; Ogden et al., 2006; Ogden et al., 2008).

Mounting evidence calls for action from all sectors of society to address the epidemic. Comprehensive efforts that encompass the entire environment including communities, schools, homes, work sites, public health, and media, rather than isolated endeavors in limited venues, have been recommended as a promising strategy to combat obesity (Cohen et al., 2006; Institute of Medicine, 2005; Institute of Medicine, 2006; Stafford et al., 2007; Stanford University School of Medicine, 2007). Changing the community environment has the potential to be an effective primary prevention strategy (Cohen

and Chehimi, 2007) as well as the means to reverse existing health consequences. Disparities in health due to different levels of environmental support for healthy living (Drewnowski et al., 2007; Dubowitz et al., 2008; Ford and Dzewaltowski, 2008; Gordon-Larsen et al., 2006; Institute of Medicine, 2006; Morland and Evenson, 2009; Stafford et al., 2007) also point to the need for an inclusive community effort to tackle obesity and related chronic diseases. To focus efforts across various sectors by catalyzing environmental and policy change, local-level data become vital (Brownson et al., 2006). Developing user-friendly community assessment tools that measure current opportunities for physical activity and healthy eating and stimulate future improvements has been suggested as a crucial step for this collaborative community approach (Institute of Medicine, 2005; Stanford University School of Medicine, 2007).

Several assessment tools currently audit or measure policies, programs, and practices in a community that affect physical activity or dietary intake of individuals (Brownson et al., 2009b; Lytle, 2009). Comprehensive efforts, however, to examine opportunities for healthy living across multiple venues, including lower-income sites, have been limited. In addition, many of these existing tools lack a

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process to facilitate community-led efforts to implement change. To provide communities with an assessment and improvement tool, an extensive yet user-friendly tool called the Community Healthy Living Index (CHLI) was created. This paper describes the development of the CHLI, the implementation and improvement process, pilot testing results, and the dissemination of CHLI.

Methods

As part of *Activate America®*, the YMCA of the USA (Y-USA)'s commitment to address our nation's growing health crisis, Y-USA convened a team of experts to create a tool to measure community-level environmental and policy supports for physical activity and healthy eating across multiple sectors. The Centers for Disease Control and Prevention (CDC) provided Y-USA with funding to develop this tool.

Development of items and structure of CHLI

CHLI is designed as a community assessment tool to measure support for physical activity and healthy eating. An extensive literature review was conducted through Internet searches, peer-reviewed literature searches, and informal means (e.g., personal experience and contacts) to develop a comprehensive catalog of existing assessment tools and resource documents with similar aims. Tools and documents ranged from those specific to one venue or individuals' health behaviors to those that assessed multiple settings and the overall environment (see <http://www.ymca.net/communityhealthylivingindex>). The review focused on identifying core elements of a supportive community environment for active living and healthy eating.

In addition, an Advisory Task Force was assembled, comprising 20 experts experienced in working with assessment tools focused on environmental and policy factors of obesity prevention. The members came from academic institutions, government offices, and non-profit organizations. The literature review and the task force's input provided a basis for the development of CHLI.

The initial effort to establish a basic structure and items of CHLI focused on defining a "community"; identifying venues within the community to be assessed; developing specific questions; designing meaningful response categories; creating a scoring system; and developing tailored feedback to communities, with online implementation capabilities for central data collection and an immediate feedback feature.

Whereas users of CHLI are encouraged to define their "community" in a way most practical to their situation, as a general guideline, "community" is roughly defined as an area within a 10-mile radius or a 20-minute drive from a central location, typically including many neighborhoods, schools, libraries, shopping destinations, parks, recreational facilities, and other community destinations.

CHLI measures a community's environmental support for healthy living by five sub-indices examining the following venues: schools, afterschool child care sites, work sites, neighborhoods, and community-at-large. Each sub-index assesses the venue's general characteristics, programs, physical environment, promotion efforts, and policies in the areas of physical activity and healthy eating. To allow CHLI to serve not only as an assessment tool but also as a catalyst for community education, each question is written to describe the most desirable condition of the environment. Each sub-index is divided into subscales, such as "Physical activity opportunities," "Healthy eating opportunities," and "General healthy living." At the end of each subscale, a question assessing respondents' level of confidence in the answers is included as an indicator of general validity.

Response categories for questions are structured to capture the gradient of programs, physical environment, promotions, and policies present within the venue. The majority of the questions have, with some variations, either five response categories with numeric descriptors indicating the quintile percentage ranges—for example, "Always/almost always (81%–100%)," "Usually (61%–80%)," "About half (41%–60%)," "Sometimes (21%–40)," or "Rarely/never (0%–20%)"—or three response categories showing the current status of an item—"Yes," "In development," or "No."

A scoring scheme summarizes overall support for healthy living. Each item within the tool is weighted equally, with 4 points being the highest score, with few exceptions. Sub-items following the main item are given half weight; policy and funding questions are weighted more heavily depending

on the number of aspects of policy and funding covered. For questions with five answer categories, 100%, 75%, 50%, 25%, and 0% of the full score is assigned from the highest to the lowest categories respectively (e.g., 4, 3, 2, 1, and 0 points respectively for a 4-point maximum question). For questions with three response categories of "Yes," "In development," and "No," 100%, 50%, and 0% of the full score is assigned, respectively. Total scores for each sub-index are calculated, with higher scores indicating greater environmental support for active living and healthy eating. The total possible score is balanced between measures related to active living and healthy eating.

Although a total numeric score is generated for each assessment, participants are not presented with a numeric scale result. Instead, upon entering data online, participants receive immediate feedback in terms of "a stage of development," using the metaphor of planting an orchard. Each community is encouraged to nourish the environment through the process of change until it becomes one that fully supports healthy living. For each sub-index, the total score is categorized into evenly divided quintiles based on the total possible score. Five stages of environmental support for healthy living are depicted: Planting the seeds (the lowest quintile), Nurturing for growth, Nourishing a root system, Cultivating healthy fruit, and Harvesting the rewards (the highest quintile). For each assessment, a screen describing the community's current stage and steps that can be taken to advance support for healthy living is presented (see "From Seeds to an Orchard" at <http://www.ymca.net/communityhealthylivingindex/learnmore.html>), including a link to a Discussion and Improvement Plan Guide that leads communities through the process of developing and implementing an action plan for change. These asset-based feedback messages encourage understanding of one's environment to foster sustainable change toward healthy living, as opposed to judging communities' shortcomings (Kretzmann and McKnight, 1993; Morgan and Ziglio, 2007; Napolitano and Marcus, 2002; Pan et al., 2005). Assessment results are not shared with other communities for comparison purposes.

CHLI implementation procedures

Because CHLI is designed for use by teams composed of key community stakeholders, user-friendly implementation procedures were also developed. We emphasized creating clear and easy-to-implement procedures that would facilitate participation by every sector of the community throughout the assessment process, from creating community teams to executing improvement plans.

Step-by-step implementation procedures are illustrated by accompanying support materials both in the CHLI workbook and online. The CHLI workbook, titled "Change Your Environment: Community Healthy Living Index," has the five measurement tools and describes the purpose, methods, process, and resources needed to implement CHLI. An accompanying training DVD illustrates the importance of CHLI and presents an overview of the CHLI process. Currently, the implementation procedures are built around the structure of the YMCAs, which are planned to function as conveners of the CHLI process in its initial form. In the future, the facilitator role is intended to be open to other community organizations and stakeholders. Discussion and Improvement Plan Guides that follow each assessment provide individual sites and the larger community with the process and strategies to foster environments rich in supports for physical activity and healthy eating. The guides describe "Core Elements" of a healthy community, and provide discussion questions around the community's current status and the likelihood of making improvements given current and future resources. The guides also facilitate developing practical improvement plans that consider realistic barriers. Consolidated Reporting Forms and Tracking Grids aid the reporting and tracking of the CHLI process.

The overall CHLI implementation process involves the following 10 steps:

1. The initial CHLI team is convened by a YMCA association (or, in the future, another convening organization) to review materials and create a strategy for implementation. Community-level leaders are recruited.
2. The CHLI team reviews, modifies, and approves a tentative implementation plan and identifies team members' responsibilities.
3. The team identifies YMCA branches (or, in the future, other partnering organizations) within the community to facilitate the assessment process locally. The team recruits local leaders and team members.
4. The local team reviews the process and identifies team members' responsibilities.

5. The local team facilitates site assessments and the improvement plan is developed by the stakeholders at each site. Each team is encouraged to assess 10 sites, including two schools, two afterschool child care sites, four neighborhoods, and two work sites, with at least one school, afterschool child care site, and neighborhood being a lower-income site.
6. Each site enters assessment results and improvement plans online.
7. The local team compiles individual site information.
8. The local team submits Consolidated Reporting Forms online that summarize assessments at the local level. The community-level team retrieves the forms.
9. The community-level CHLI team reviews the Consolidated Reporting Forms, conducts a Community-at-Large assessment, and develops a community-at-large improvement plan.
10. The community-level CHLI team executes the community improvement plan and supports improvements at the local level along with the local-level team. Successes are celebrated and a follow-up CHLI assessment is scheduled.

Pilot testing

After a reiterative process of revision, the set of questions and recommended implementation procedures were pilot-tested in six communities where local YMCAs agreed to convene the process. The Y-USA has been able to train and mobilize dozens of community leaders to advance policy and environmental change through Pioneering Healthier Communities (PHC). PHC is a community leadership initiative funded by CDC and corporate and foundation partners to encourage and support local communities in developing more effective strategies to promote healthy lifestyles (YMCA of the USA, 2009). YMCAs that had been or will be part of PHC were invited to be pilot sites. Pilot testing included two phases: (1) Cognitive response testing (CRT) and (2) Inter-rater reliability (IRR) testing. In both phases, feasibility of the overall CHLI implementation procedures, including ease of online data entry, also was assessed.

Cognitive response testing (CRT)

CRT was implemented to check the clarity and precision of the CHLI questions as well as the feasibility of participating sites being able to answer questions (Jobe and Mingay, 1989; Jobe and Mingay, 1990; Streiner and Norman, 2006; Willis, 2005). Teams from two communities, one rural (Bolivar, Missouri) and the other urban (Pittsburgh, Pennsylvania), participated in CRT. To encourage critical feedback of the tool, participants were informed that CHLI was not developed by the interviewer, who thus had no personal connection to the tool. When the interviewees expressed confusion about a question, interviewers were instructed to probe and record the reason for the ambiguity (e.g., do not understand the question; response categories do not fit; local situation is not captured by the question). Responses were reviewed by the CHLI development team and discussed with interviewers to ensure the correct interpretation of responses. Tools were revised based on interviewees' feedback.

Inter-rater reliability testing (IRR)

Using the revised tool, one YMCA branch in each of four additional communities from the following cities was charged with testing the extent to which two assessments conducted at the same site would result in consensus: Fort Worth, Texas; Battle Creek, Michigan; Charlotte, North Carolina; and Boise, Idaho. Answers from two assessments made in each site with different interviewees were analyzed to examine the degree of agreement for each question. Involving two sets of interviewees, unlike audit tools, was a unique challenge in this IRR testing. Questions with lower agreement between assessments were identified and further revised. A second YMCA branch from each community tested the standard implementation procedures, including the online data collection process.

Statistical analyses

In assessing the degree of agreement between assessments for IRR testing, response categories were grouped into a smaller number of meaningful categories. For questions with five response categories, the first two and the last two responses were grouped together, resulting in three categories. For

questions with three response categories, the last two categories were grouped together to result in two meaningful categories.

Given the relatively small sample size, we examined the degree of agreement by calculating percent agreement by pairs of assessments, although this method does not take into account level of agreement occurring by chance (Cohen, 1960). Descriptive information on the percent agreement is presented, illustrating mean and range, and the following five categories are used to describe the level of agreement: Poor (0% – <20%), Fair (≥20% – <40%), Moderate (≥40% – <60%), Substantial (≥60% – <80%), and Almost perfect (≥80% – 100%) (Landis and Koch, 1977).

Descriptive data from the second phase of the pilot testing are presented for the neighborhood tool, for a sample of questions. The data came from all the sites assessed using the standard procedure and the one IRR testing assessment per site that reported a higher level of confidence in the answers. These analyses were performed using SAS Enterprise Guide, version 4.1 (SAS Institute Inc., Cary, North Carolina).

Results

Cognitive response testing

The testing, conducted in multiple sites for each venue from two communities and following previously described procedures, indicated that most (>80%) of the questions were understood without confusion and respondents were able to provide answers with a reasonable amount of effort. Reasons given for difficulty answering included: ambiguity of terms in the question, more than one issue being asked in a question, or local situations not applicable to a question. These questions were improved by including a clear operational definition of terms, assessing only one issue per question, and including a "not applicable" option, respectively. For example, "neighborhood" was described differently depending on the setting (urban, suburban, or rural). For questions asking whether written guidelines, rules, or policies exist in school, a note was added to clarify that these written principles could originate at the school, district, or state level.

Inter-rater reliability testing

Four communities assessing multiple sites for each venue resulted in 31 pairs of assessments (Table 1); the three Community-at-Large

Table 1

Percent agreement between two separate assessments conducted at the same site during Community Healthy Living Index pilot testing in four communities (Fort Worth, Texas; Battle Creek, Michigan; Charlotte, North Carolina; and Boise, Idaho) in 2008, by sub-indices.

	School (n = 7 pairs)	Afterschool (n = 7 pairs)	Work site (n = 6 pairs)	Neighborhood (n = 8 pairs)
Number of total items	114	53	67	77
Percent agreement*				
Mean (SD)	89.1 (14.8)	82.2 (17.9)	76.8 (16.4)	73.2 (16.6)
Range	33.3 – 100	42.9 – 100	50 – 100	25 – 100
Categories of percent agreement [#]	Number of items (%)			
Almost perfect	92 (80.7)	32 (60.4)	37 (55.2)	26 (33.8)
Substantial	14 (12.3)	13 (24.5)	21 (31.4)	41 (53.2)
Moderate	7 (6.1)	8 (15.1)	9 (13.4)	7 (9.1)
Fair	1 (0.9)	0 (0.0)	0 (0.0)	3 (3.9)
Poor	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

* Degree of agreement between raters: for questions with five response categories (Always/Almost Always; Usually; About Half; Sometimes; Rarely/Never), the first two categories were grouped together and the last two categories were grouped together, to assess the degree of agreement. For questions with three categories of "Yes," "In development," and "No," the last two categories were grouped together to produce two categories of "Yes" or "No" before percent agreement was examined.

Percent agreement between raters across assessment sites for items was categorized into five groups in the following ways: almost perfect (≥80% – 100%); substantial (≥60% – <80%); moderate (≥40% – <60%); fair (≥20% – <40%); and poor (0% – <20%) (Landis and Koch, 1977).

Table 2

Descriptive information for selected items from the pilot neighborhood assessment in four communities (Fort Worth, Texas; Battle Creek, Michigan; Charlotte, North Carolina; and Boise, Idaho) in 2008 (N = 20)*.

Items	Response options	Frequency (%)
General Information		
Neighborhood setting	Urban Suburban Rural	10 (50) 9 (45) 1 (5)
Household income level	Low income Lower-middle income Middle income Upper-middle income High income	0 (0) 7 (35) 7 (35) 6 (30) 0 (0)
Median household income	\$0-\$25,000 \$25,001-\$40,000 \$40,001-\$60,000 \$60,001-\$75,000 \$75,001 or more	1 (5) 4 (20) 7 (35) 3 (15) 5 (25)
Approximate number of residents ¹	9862 ± 11901 (200–37000)	
% Spanish, Hispanic, or Latino (of any race) ¹	11.9 ± 17.0 (2–70) ²	
A. Neighborhood Design		
A network of walkable (unobstructed, well-maintained, and level) sidewalks	Everywhere/Almost everywhere Usually About half the places Some places Rarely/Nowhere	12 (60) 5 (25) 1 (5) 2 (10) 0 (0)
A network of biking routes (unobstructed, well-maintained, and easily identified)	Everywhere/Almost everywhere Usually About half the places Some places Rarely/Nowhere	3 (15) 6 (30) 2 (10) 4 (20) 5 (25)
Many destinations within easy walking distance from homes or public transportation stops	Everywhere/Almost everywhere Usually About half the places Some places Rarely/Nowhere	9 (45) 5 (25) 4 (20) 1 (5) 1 (5)
B. Physical Environment Related to Physical Activity		
Use of traffic calming measures to support walking and biking	Everywhere/Almost everywhere Usually About half the places Some places Rarely/Nowhere	3 (15) 3 (15) 5 (25) 3 (15) 6 (30)
Neighborhood's parks, roads, and trails free of significant air pollution, noise pollution, litter, and physical disorder	Everywhere/Almost everywhere Usually About half the places Some places Rarely/Nowhere	8 (40) 5 (25) 1 (5) 5 (25) 1 (5)
Playgrounds in neighborhood parks accessible by people using wheelchairs	Everywhere/Almost everywhere Usually About half the places Some places Rarely/Nowhere N/A (No parks or recreation facilities)	6 (30) 4 (20) 1 (5) 4 (20) 4 (20) 1 (5)
C. Physical Environment Related to Food/Nutrition		
A variety of fresh vegetables and fruits of acceptable quality readily available from local food stores	Always/Almost always Usually About half Sometimes Rarely/Never N/A (No local food stores)	14 (70) 2 (10) 1 (5) 2 (10) 0 (0) 1 (5)
Vegetables and fruits available from alternative sources in addition to food stores, such as farmers markets, road side vegetable and fruit stands	Yes, many alternate source Somewhat, some alternate sources No, no alternate sources	2 (10) 7 (35) 11 (55)

Table 2 (continued)

Items	Response options	Frequency (%)
D. Safety		
People who walk and bike during the day feeling safe and unlikely to become victims of crime	Everywhere/Almost everywhere Usually About half the places Some places Rarely/Nowhere	9 (45) 4 (20) 2 (10) 2 (10) 3 (15)
People who walk and bike at night feeling safe and unlikely to become victims of crime	Everywhere/Almost everywhere Usually About half the places Some places Rarely/Nowhere	7 (35) 5 (25) 2 (10) 2 (10) 4 (20)
E. Collaborative Capacity/Community Engagement		
Likelihood of neighborhood residents taking action in response to a local public service department being threatened with budget cuts	Very likely Likely Somewhat likely Unlikely Very unlikely	5 (25) 3 (15) 4 (20) 5 (25) 3 (15)
Presence of an organized neighborhood association or group that has the ability to influence healthy living	Yes In development No	15 (75) 0 (0) 5 (25)
Occurrence of action by the neighborhood in the past 12 months to improve health outcomes or public safety that was of concern to people in the neighborhood	Yes No	12 (60) 8 (40)

* Note: The table provides an abridged version of the selected questions used in pilot testing. Exact wording of the CHLI questions can be found at www.ymca.net/communityhealthylivingindex.

¹ Results presented as mean ± SD (range).

² Information is missing from five neighborhoods.

assessment pairs were not analyzed due to the small sample size. Answers reported by pairs of assessments on the four sub-indices indicated that 93.0% (school), 84.9% (afterschool child care site), 86.6% (work site), and 87.0% (neighborhood) of the questions showed substantial to almost perfect agreement. Administration time was reported to be approximately 30 to 45 minutes per assessment.

Summary description of pilot assessment data

During the second phase of pilot testing, 13 schools, 12 afterschool child care sites, 12 work sites, 20 neighborhoods, and 4 community-at-large sites were assessed. Descriptive information for selected items from the neighborhood assessments is presented here. The preliminary data from the pilot testing among 10 urban, nine suburban, and one rural neighborhood with varied income levels (35% lower-middle, 35% middle, and 30% upper-middle income) showed a range of environmental support for healthy living across neighborhoods (Table 2).

Whereas a network of walkable sidewalks was present in most neighborhoods, biking routes were less available. Most neighborhoods had access to a variety of fresh vegetables and fruits through food stores and supermarkets, but more locally sustainable support for these food items through farmers' markets, for example, was less frequent. Safety of neighborhoods varied greatly: responses from nine neighborhoods showed that residents felt safe walking and biking almost everywhere during the day, whereas those from five neighborhoods indicated that people felt safe only in some places or nowhere. Neighborhoods also showed varied levels of collaborative capacity, with some neighborhoods being likely to respond to a threat as a cohesive unit and other neighborhoods being less likely to collaborate. One out of the 20 neighborhoods was categorized as being at the final stage of development (Harvesting the Rewards), indicating the neighborhood's deep support for active living and

healthy eating almost everywhere. The majority of the neighborhoods were classified at the third stage (Nourishing a Root System) or the fourth stage (Cultivating Healthy Fruit), representing moderate existence of opportunities to be active and eat healthy, with more work ahead to be fully supportive of healthy living.

Dissemination of the final CHLI tools

The final assessment tools and the implementation procedures, revised on the basis of the pilot testing results, are available at <http://www.ymca.net/communityhealthylivingindex>. The number of questions in the final assessment tools (including some with multiple parts) is: schools (127), afterschool child care sites (58), work sites (66), neighborhoods (76), and community-at-large (131).

In October 2008, Y-USA announced the new tool, and CHLI became available nationwide to YMCAs participating in the Activate America® capacity-building process (430 YMCA associations and 1348 YMCA branches at that time). Y-USA hosts two CHLI calls each month, providing technical support and opportunities to share progress and challenges in implementing CHLI. As of February 2009, more than 150 communities had participated in training. Any progress made by participating communities is captured by the online system.

Discussion

Y-USA, through the PHC initiative launched in 2004, clearly witnessed communities' need for a tool to assess opportunities for active living and healthy eating, as well as to identify areas for change. Responding to this need, the Y-USA, with a broad reach of 21 million individuals and thousands of communities, facilitated the development of the CHLI. This cross-university collaboration supported by the CDC also fulfills a call by the Institute of Medicine for government to collaborate with a non-profit organization and universities to design a community assessment tool to measure opportunities for healthy living in support of youth obesity prevention ([Institute of Medicine, 2005](#)).

Specifically, CHLI identifies the degree to which a community supports active living and healthy eating across a variety of venues, in terms of the types of programs offered; the physical environment; and the formal and informal health-related policies in place. The CHLI process, which had YMCAs act as conveners to allow communities to assess themselves, was found to be feasible. Future plans call for other community organizations to facilitate the process. CHLI results will provide support for community groups seeking funds to improve opportunities for healthy living and will inform decision makers as they allocate funds, draft health-related policies, plan an environmental improvement project, and/or evaluate the results. A database of de-identified responses also can be analyzed by researchers and organizations with legitimate interest in studying the components of a healthy community.

Because policies directly affect the health of a community ([Brownson et al., 2009a](#); [Brownson et al., 2006](#)), an effective tool must be linked to a process through which communities bring about policy and environmental changes. The CHLI process developed along with the survey tools will assist in producing real impact, as the pilot communities illustrated. For example, one of the pilot sites identified a "food desert," with literally no supports for healthy eating opportunities; in response, an online farmers' market has been established for low-income individuals to purchase reduced-priced fresh fruits and vegetables through computers at the YMCA. Waivers from the state welfare agency may make it possible to use food stamps for these purchases. In another community, a student-run health and well-being council was established to determine the types of physical activity opportunities that would engage most students. Planning organizations are working with schools to prioritize sidewalks and bike lane development around school zones.

Several other issues deserve consideration in the implementation and dissemination of CHLI. CHLI pays close attention to communities whose financial resources for improving their environments are limited, by including lower-income sites in the assessment. Communities are encouraged to re-administer CHLI one year after improvement plans have been developed, to assess progress. Changes documented over time can be used to evaluate the impact of both community-wide and venue-specific health initiatives. In the spirit of participatory research ([Israel et al., 1998](#)), it is vital that communities be central to efforts directed at health improvement where their people live, work, learn, and play. Community ownership of CHLI, with communities working through challenges and developing solutions, is an essential element in building sustainable changes ([Morgan and Ziglio, 2007](#)). Pilot testing was conducted in a selection of communities that had been or will be part of PHC. With nationwide dissemination of CHLI, additional information collected will allow leaders to identify disparities in the support for healthy living and thus help focus national preventive efforts within higher-risk communities.

Study limitations and strengths

Pilot testing included CRT that ensured face validity; however, municipal or program record reviews or observations were not conducted to verify responses. Although some subjectivity is inevitable in an instrument of this type, the high inter-rater agreement statistics suggest a level of consistency that may reflect either fact or shared perceptions. Ideally, an objective truth is preferable but, in either case, the approaches used here would indicate that the instrument is successful in screening the community for areas that concern people and merit additional scrutiny. Because the reliability testing involved a relatively small number of communities, analyses could not take into account level of agreement occurring by chance. Our point-in-time testing does not account for potential time trends (or changes) in perception. Also, because CHLI is not an audit tool, variation in responses in the IRR testing could have come from various sources. Nevertheless, the high level of agreement between assessments is impressive.

CHLI is a unique and user-friendly tool that can guide efforts of communities, by communities, and for communities to improve opportunities for healthy living, including lower-income communities. It not only assesses the environment, but also provides mechanisms to implement community plans for sustainable changes. The CHLI process takes an asset-based approach in which communities are encouraged to place themselves in a continuum of growth toward a healthier community, rather than to see themselves as losers or winners in a static situation. Pilot testing was conducted in communities that already had established YMCA-based community teams. Through national dissemination, communities will assemble teams as the first step in the process.

Conclusions

At the community level, CHLI has the potential to draw attention to issues that contribute to obesity and chronic diseases while creating an impetus for change. Implementation of CHLI should enable communities to identify gaps and employ changes that can improve opportunities for active living and healthy eating. Once convened, community teams can use CHLI to help them effectively work together over time to increase environmental support for healthy living. Eventually, a national database of results should provide compelling support for efforts aimed at building community strategies to reduce obesity and chronic disease, including policy and environmental changes.

Conflict of interest statement

The authors declare that there are no conflicts of interest.

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