

The Children's Healthy Living (CHL) Center of Excellence

Community Assessment Toolkit (CAT) STUDY DESIGN

**Vol. 3 Community-Level Data
for the CHL Community Randomized Trial
and FAS Prevalence Study**

**Developed by the CHL Data Work Group
for use in the CHL Pacific Region**

For further information, please contact:

CHL Data Center

Children's Healthy Living Center of Excellence

Ag Sciences 302, 1955 East West Road, Honolulu, HI 96822

Email: chldata@hawaii.edu

Website: www.chl-pacific.org

This project is supported by the Agriculture and Food Research Initiative Grant no. 2011-68001-30335 from the USDA National Institute of Food and Agricultural Science Enhancement Coordinated Agricultural Program.



United States Department of Agriculture
National Institute of Food and Agriculture

**CHL Study Design
Vol. 2 Community-Level Data
for the CHL Community Randomized Trial and FAS Prevalence Study**

Table of Contents

***The Children’s Healthy Living (CHL) Program*.....4**

***Community Assessment Toolkit (CAT) Measures Overview*.....4**

Figure 1. CHL Conceptual Model.....6

***CHL CAT Study Design and Methods*.....7**

***Physical Activity Environment Resources*.....7**

- Parks (Form 60-01) / Schools (Form 60-02) / Churches (Form 60-05).....7
- PA Facilities (Form 60-03)7
- Community Walkability (Form 60-08).....7

1. Park Observation – Form 60-01.....8

2. School Observation Form - Form 60-028

3. Church Observation - Form 60-059

4. Physical Activity Indoor Facilities Observation - Form 60-039

5. Walking Survey Form – Form 60-08..... 10

***Food Environment Resources*..... 10**

- Fast food (Form 60-04)..... 10
- CX3 Scores for Food outlet (Forms 60-06 and 60-07)..... 10
- CHL Food Cost Survey 10

1. Fast Food Observation – 60-04 Form..... 10

2. Food Availability and Marketing Form (CX3) – Form 60-06 11

3. Store Environment Walkability Survey – Form 60-07 12

4. Food Cost Survey (FCS) 12

***CAT Measures* 14**

Table 1: The Children’s Healthy Living (CHL) Program Community-level Measures..... 14

Frequency of measurements..... 15

Data Collection Visit Protocol..... 15

SITE SELECTION 15

***Study Sample* 17**

Table 2: Number of CAT Surveys at Time 1, Time 2, and Time 3 for CHL Community Randomized Trial and FAS Prevalence Study. 17

Table 3: CAT Survey Count at Time 1, Time 2, and Time 3 by Category..... 18

The Children's Healthy Living (CHL) Program

The Children's Healthy Living (CHL) Center of Excellence is a partnership among the remote Pacific jurisdictions of Alaska; American Samoa; Commonwealth of the Northern Mariana Islands (CNMI); the Freely Associated States of Micronesia (FAS) which includes the Republic of the Marshall Islands (RMI), Republic of Palau, Federated States of Micronesia (FSM); Guam; and Hawaii to study childhood obesity among Pacific children, ages 2 to 8 years. The program is sponsored by the United States Department of Agriculture (USDA), Agriculture and Food Research Initiative.

Figure 1 illustrates CHL's model to influence multiple aspects of the environment to promote healthy food intake and physical activity in young children ages two to eight years old. CHL aims to prevent early childhood obesity in the United States Affiliated Pacific.

For more information on the CHL Program's study design, objectives, and individual measures, please see "CHL Study Design" Volume 1 – Individual-level Data.

Community Assessment Toolkit (CAT) Measures Overview

The CHL study design was to collect data on body size, functional outcomes of obesity, food intake, physical activity, lifestyle behavior which includes screen time, and demographics. These were measured through anthropometry, food and activity logs, questionnaires, and visual inspection (of the neck). In addition to these individual level variables, a wide range of tools were used to survey and inventory food and physical activity resources in the community. The role of community environment and resources can be used to explore their relationship to individual health outcomes and obesity.

The community assessment measures in the CHL study include survey tools from:

- **Bridging the Gap Program (BTG):** According to the Bridging the Gap Research Program website, Bridging the Gap is "a nationally recognized research program with a mission to improve the understanding of how policies and environmental factors affect diet, physical activity and obesity among youth. Surveys are used to track trends and changes in these factors over time at the state, community, and school levels. In addition, BTG disseminates findings to help advance solutions for reversing the childhood obesity epidemic and preventing young people from smoking." (<http://www.bridgingthegapresearch.org/>)
- **California Department of Health Communities of Excellence in Nutrition, Physical Activity and Obesity Prevention (CX3):** The CX3 Assessment, as described on the California Department of Health website, "is a powerful tool that captures and communicates neighborhood-level data to promote healthier communities. The site provides tools for collecting and measuring food quality, availability and affordability in low-income communities. Armed with these data, health and nutrition advocates around the state are

engaging and inspiring community members and partners to pursue healthy food.”
(https://www.cdph.ca.gov/programs/cpns/Pages/CX3_Main_Navigation.aspx)

- **USDA Thrifty Food Plan:** As described on the United States Department of Agriculture website, “the Thrifty, Low-Cost, Moderate-Cost, and Liberal Food Plans each represent a nutritious diet at a different cost. The Thrifty Food Plan is the basis for SNAP (Supplemental Nutrition Assistance Program) allotments.” (<https://www.cnpp.usda.gov/projects>)
- **Safe Routes to School Walkability Checklist:** The National Center for Safe Routes to School states, “The Walkability Checklist helps give insight into the walkability of a neighborhood. It contains insightful questions, allowing the user to evaluate a neighborhood's walkability. In addition to the questions, the Checklist provides both immediate answers and long-term solutions to a neighborhood's potential problems.” (<http://www.saferoutesinfo.org/program-tools/education-walkability-checklist>)

Figure 1. CHL Conceptual Model

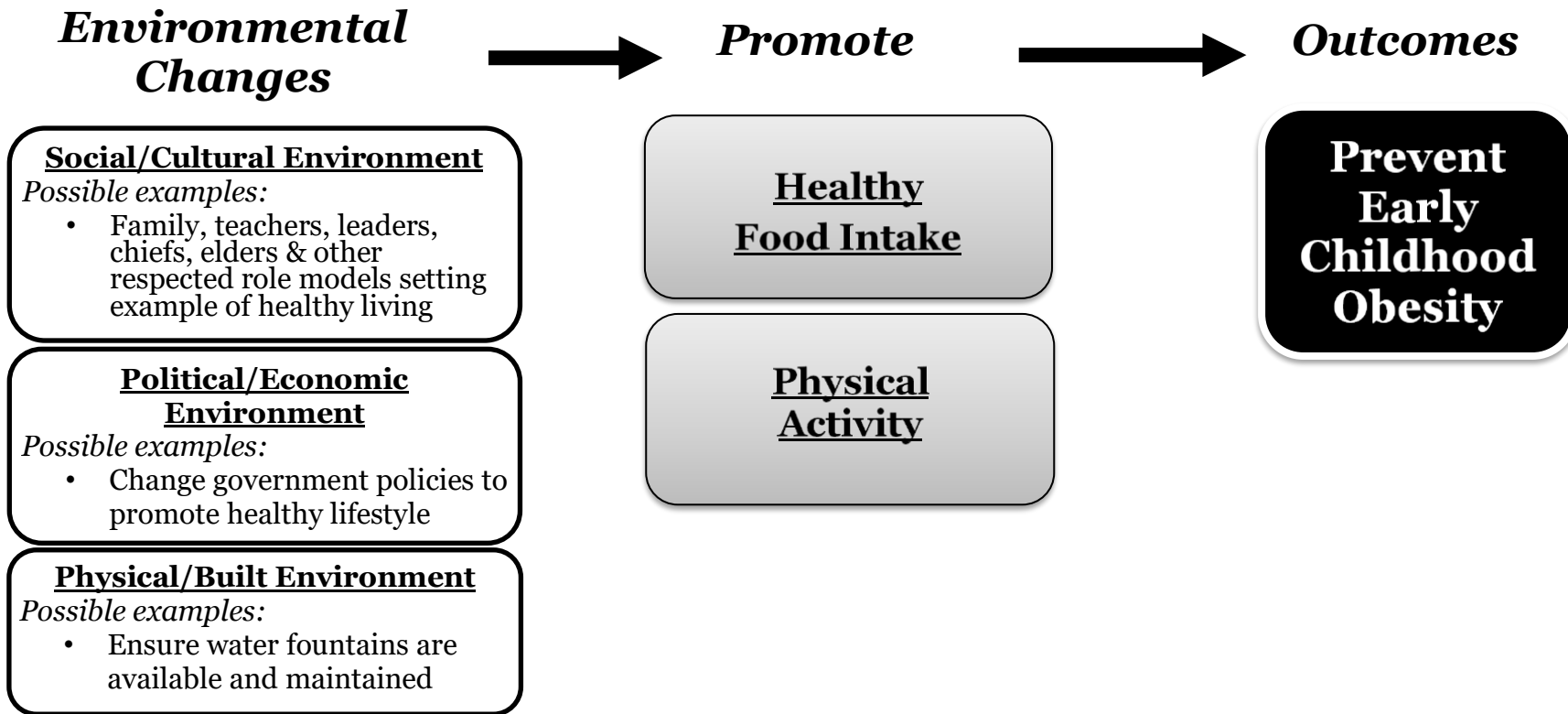


Figure 1. The Children's Healthy Living Program Model to Influence Multiple Aspects of the Environment to Promote Healthy Food Intake and Physical Activity in Young Children (2-8 years) as a Method to Prevent Early Childhood Obesity in the U.S. Affiliated Pacific

CHL CAT Study Design and Methods

The Children’s Healthy Living Program Community Randomized Trial was designed to test the intervention by comparing intervention with non-intervention communities on the prevalence of obesity in the U.S.-affiliated Pacific region collected at Time 1 (baseline), Time 2 (follow-up), and Time 3.

The collection forms described in this document can be found on the www.chl-pacific.org website called “CAT Collection Forms.”

For Time 3, CHL CAT data surveys were converted to electronic surveys using the Ninox application for tablets. All questions/assessments on the surveys remained the same.

Physical Activity Environment Resources

The assessment of the physical activity environment included inventories and surveys of parks, school grounds, church grounds, and physical activity facilities, with documents adapted from Bridging the Gap (BTG). The assessment of community walkability was assessed with documents adapted from the National Center for Safe Routes to School.

The following forms assess these features:

- **Parks (Form 60-01) / Schools (Form 60-02) / Churches (Form 60-05)**
 - a. Sports features
 - b. Park amenities
 - c. Settings
 - d. Accessibility and parking for drivers and bicyclists
 - e. Exterior incivilities

- **PA Facilities (Form 60-03)**
 - a. Indoor and/or outdoor sports features
 - b. Facility amenities
 - c. Childcare services and/or Teen Center
 - d. Sliding scale fees for low income and/or discounts for youth and students
 - e. Accessibility and parking for drivers and bicyclists
 - f. Exterior incivilities

- **Community Walkability (Form 60-08)**
 - a. Room to walk
 - b. Crossing of streets
 - c. Ease of following safety rules
 - d. Pleasantness
 - e. Drivers’ behaviors
 - f. Other features of the walk

1. Park Observation – Form 60-01

The Form used to assess parks is modified from the Bridging the Gap Program, University of Illinois at Chicago, Park Observation Form (See Appendix for form used). The purpose of this survey is to improve our understanding of accessibility of park settings and quality of opportunities for physical activity in these settings among CHL communities. A complete list of parks that were located within the community boundary, or on the periphery, and their locations was compiled for each community by local staff. Staff then assessed up to ten parks per community or all of them when there were less than ten parks in a community. Staff were instructed to spend about 30 minutes walking through each park to survey its accessibility, setting, amenities, sports fields (e.g., soccer, football, baseball), courts (e.g., tennis, basketball, volleyball), walking/running/biking trails, and incivilities.

Eligible parks: Local municipal or County Park that is open to the public

- Has equipment used for physical activity or play, including playing fields and courts AND/OR has green space or natural features, benches, walking paths, picnic tables, or other park features
- On-the-ground parks only. Must also have a sign designating it as a public park if no sports features are present

Exclusions: Campgrounds, golf courses, forest preserves, stadiums, zoos, state and national parks, private/resident-only (e.g., neighborhood association) parks, stand-alone fields/courts associated with a school.

2. School Observation Form - Form 60-02

Method: The tool used to assess schools is modified from the Bridging the Gap Program, University of Illinois at Chicago, School Observation Form (See APPENDIX for form used). The purpose of this survey is to improve our understanding of the availability and quality of physical activity features that are located on school grounds in CHL communities. A complete list of schools that were located within the community boundary, or on the periphery, and their locations was compiled for each community by local staff. Staff then assessed up to ten schools per community or assessed all of them when there were fewer than ten schools in a community. Staff were instructed to spend about 30 minutes walking through each school grounds to survey its accessibility, setting, amenities, sports fields (e.g., soccer, football, baseball), courts (e.g., tennis, basketball, volleyball), other features (e.g. track, pool, and playground) and incivilities.

Eligible schools: All school grounds were eligible for assessment. This includes schools sharing some sports features with an adjacent park.

3. Church Observation - Form 60-05

The tool used to assess churches is modified from the Bridging the Gap Program, University of Illinois at Chicago, Park Observation Form (See APPENDIX for form used). The purpose of this survey is to improve our understanding of the availability and quality of physical activity features that are located on church grounds in CHL communities. This assessment was only performed in jurisdictions where churches are commonly used as places for physical activity. A complete list of churches that had some outdoor physical activity features, such as fields, and that were located within the community boundary, or on the periphery, and their locations, was compiled for each community by local staff. Staff then assessed up to ten churches per community or assessed all of them when there were fewer than ten churches in a community. Staff were instructed to spend about 30 minutes walking through the grounds of each church to survey its accessibility, setting, amenities, sports fields (e.g., soccer, football, baseball), courts (e.g., tennis, basketball, volleyball), other features (e.g. track, pool, and playground) and incivilities.

Eligible churches: The grounds of any church that had outdoor physical activity features and was on the inventory list were eligible for assessment.

4. Physical Activity Indoor Facilities Observation - Form 60-03

The tool used to assess physical activity (PA) facilities is modified from the Bridging the Gap Program, University of Illinois at Chicago, PA Facility Observation Form. The purpose of this survey is to improve our understanding of the availability and quality of physical activity features that are located on PA facility grounds in CHL communities. A complete list of PA facilities that were located within the community boundary, or on the periphery, and their locations was compiled for each community by local staff. Staff then assessed up to ten PA facilities per community or assessed all of them when there were fewer than ten PA facilities in a community. Staff were instructed to spend about 30 minutes walking through each PA facility grounds to survey its setting, amenities, sports fields (e.g., soccer, football, baseball), courts (e.g., tennis, basketball, volleyball), other features (e.g. track, pool, and playground) and incivilities.

Eligible PA Facilities: Observations in PA facilities included for-profit and non-profit facilities. Examples of non-profit PA facilities are public community recreation centers, YMCA/YWCAs, and Boys and Girls Clubs (BGCs). For-profit PA facilities include gyms, health clubs, and other physical-activity related businesses that allow patrons to come in and use equipment or other facilities (e.g., courts, gymnasiums), usually for a recurring fee or membership schedule.

5. Walking Survey Form – Form 60-08

Two street segments per community were assessed for walkability using a tool developed by the U.S. Department of Transportation

Food Environment Resources

The assessment of the fast food environment included inventories and surveys of fast food restaurants and food outlets (stores), with documents adapted from Bridging the Gap (BTG); the California Department of Health Communities of Excellence in Nutrition, Physical Activity, and Obesity Prevention program (CX3); and the USDA Thrifty Food Plan (TFP).

The following forms assess these features:

- **Fast food (Form 60-04)**
 - a. Advertisements that promoted price
 - b. Advertisements that included sugar-sweetened beverages
 - c. Number of healthy food options on the menu
 - d. Number of healthy beverage options

- **CX3 Scores for Food outlet (Forms 60-06 and 60-07)**
 - a. Accepts WIC and Food stamps / SNAP/ EBT
 - b. Availability of fresh fruits and quality of fruits
 - c. Availability of fresh vegetables and quality of vegetables
 - d. Other healthful foods
 - e. Unhealthy products
 - f. Nutrition information
 - g. Number of healthy and unhealthy ads present inside and outside the food outlet
 - h. Walkability

- **CHL Food Cost Survey**
 - a. Cost of specific food items that are part of the USDA Thrifty Food Plan (TFP)
 - b. Weekly costs for meals based on the TFP for a family of 4 by community

1. Fast Food Observation – 60-04 Form

The tool used by CHL to assess fast food outlets (FFO) is modified from the Bridging the Gap Program (BTG), University of Illinois at Chicago. The BTG Fast Food Observation Form was designed to assess a variety of attributes in the fast food outlet environment, including advertising and marketing, availability of nutritional information and healthy options,

availability and pricing of specific food and beverage items, as well as other characteristics of the facility. The purpose of this data collection is to characterize the away-from-home food environment, with a focus on fast-food outlets and pizzerias, which are often popular destinations for youth.

Fast Food Outlet Exclusions: Fast food restaurants that have waiters/waitresses. Pizzerias that sell mixed drinks or liquor. Food trucks that sell specialty items such as ice cream.

2. Food Availability and Marketing Form (CX3) – Form 60-06

CHL's Food Availability Survey and Marketing Form is modified from the California Department of Health Communities of Excellence in Nutrition, Physical Activity, and Obesity Prevention program (CX3). The purpose of this survey is to assess the availability of healthy foods, price, nutrition information, and marketing of foods in stores. In addition to the food environment, we surveyed the safety and walkability around stores. A complete list of food stores, including their locations, was compiled for each community by local staff. Staff then assessed up to ten stores per community or all of them when there were less than ten stores in a community. The types of stores assessed include supermarket chain, large grocery store, small market, convenience store, and other community sources for food products.

- Supermarket Chain: a large store that sells food and other items, including canned and frozen foods, fresh fruits and vegetables, and fresh (raw) and prepared meats, fish, and poultry. It is owned by a company that has many stores such as Safeway, K-mart, Payless. (This type of store has twenty or more employees and at least 4 cash registers.)
- Large Grocery Store (not part of a large chain): a large store that sells food and other items, including canned and frozen foods, fresh fruits and vegetables, and fresh (raw) and prepared meats, fish, and poultry. It may be part of a small regional chain of fewer than 5 stores or may be independent. (This type of store also has twenty or more employees and at least 4 cash registers.)
- Small Market: usually an independent store that sells food including canned and frozen foods, fresh fruits and vegetables, and fresh (raw) and prepared meats, fish, and poultry as well as convenience items and alcohol. (This type of store has fewer than 20 employees and 3 or less cash registers.)
- Convenience: a store that sells convenience items only, including bread, milk, soda, snacks and may sell alcohol and gasoline. These stores do not sell fresh (raw) meat. These stores also are known as food marts.
- Other: a store that does not fit into supermarket chain, large grocery store, small market or convenience, but is seen by the community as a general source of food products. Examples would include farmers market, dollar stores or drug stores.

The CX3 and subscale calculation is based on the article “Reliability of a retail food store survey and development of an accompanying retail scoring system to communicate survey findings and identify vendors for healthful food and marketing initiatives by Alyssa Ghirardelli et al, 2011”.

3. Store Environment Walkability Survey – Form 60-07

One street segment immediately surrounding the store was evaluated in order to assess walkability of the external store environment.

CALCULATED VARIABLES: CX3 Food Availability and marketing Survey and Form: Store Environment Walkability Survey Form

The CX3 and subscale calculation is based on the article “Reliability of a retail food store survey and development of an accompanying retail scoring system to communicate survey findings and identify vendors for healthful food and marketing initiatives by Alyssa Ghirardelli et al, 2011”.

4. Food Cost Survey (FCS)

The CHL Food Cost Survey (FCS), adapted from the Alaska Food Cost Survey, was conducted in all of the CHL jurisdictions in March 2014. Given the link between childhood obesity and food security, particularly in low income households, CHL conducted this survey of communities in the CHL jurisdictions.

The FCS is based on a meal plan, in particular, the USDA Thrifty Food Plan (TFP). The Thrifty Food plan, based on a national survey of dietary habits, is designed to meet the nutritional needs at low cost for a family of four with school age children (The Thrifty Food Plan 1999 Administrative Report. 1999. By staff of the Center for Nutrition Policy and Promotion, U.S. Department of Agriculture. CNPP-7). The TFP assumes that the food items are bought at a store and are prepared at home. The foods are assigned to 10 food categories which are used to develop menus and recipes. The categories include fruits, vegetables, meats, legumes, dairy, egg, fats / oils, grain, sweets / beverages, and spices. Included in the report is the percent of each category towards the Thrifty Food Plan cost. The TFP is also used as the basis for determining food assistance levels provided in programs such as school lunch.

If a particular item was missing in a local area/ jurisdiction, we used the cost of a similar item as a substitute for the item that was on the national menu. However, in some cases, items were unavailable, and no obvious substitutes were available.

Portland, Oregon serves as a general indicator of and reference point for the price series in a somewhat comparable mainland/lower 48 city and its food costs have been collected using the same survey as that was used by CHL. The weekly food cost for a family of four with two adults and two young school- age children in Portland was \$142.37.

It is important to note that the TFP menus and recipes were developed based on diets and food availability in the contiguous U.S. Further work is necessary to document local diets and food availability in order to modify the Thrifty Food Plan menus and recipes for use in the populations represented in CHL jurisdictions, and its effect on community food costs.

CAT Measures

Table 1 displays an overview of all the measures used for CHL, and the frequency of their use. The community level measures are described in Volume 2 of the CHL Data Dictionary.

Table 1: The Children’s Healthy Living (CHL) Program Community-level Measures

Individual level measures				Assessed in matched-pair communities			Assessed in temporal communities			Assessed in FAS [†]
Category	Measurement	Measurement tools	completed by	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3	
Parks	Physical Activity	BTG survey	Staff	X	X	X		X	X	X
Schools	Physical Activity	BTG survey	Staff	X	X	X		X	X	X
Churches	Physical Activity	BTG survey	Staff	X	X	X		X	X	X
Indoor Physical Activity Facility	Physical Activity	BTG survey	Staff	X	X			X		X
Walkability	Physical Activity	BTG survey	Staff	X	X	X		X	X	X
Fast Food	Food Environment	BTG survey	Staff	X	X			X		X
Food Availability and Marketing	Food Environment	CX3 survey	Staff	X	X	X		X	X	X
Store Environment Walkability	Food Environment	CX3 survey	Staff	X	X	X		X	X	X
Food Cost	Food Environment	USDA Thrifty Food Plan Survey	Staff		X	X			X	X

†FAS = Freely Associates States of Micronesia.

X = indicates measurement completed.

Frequency of measurements

The initial Time 1 measurement period for **community** measures was between October 2012 through February 2014 to complete measurement in all five jurisdictions. The Time 2 measurement period was between January 2015 – October 2015. The Time 3 measurement period was between January 2019 – October 2020.

In FAS, for the prevalence study, measurement began in October 2013 and continued to early 2015.

Food Cost Survey: stores were assessed after Time 1 and completed relatively in a month's time (March 2014). The second collection period experienced delays due to the COVID-19 pandemic. However, the collection period will resume March 2021.

Note that temporal communities were not assessed at time 1.

Data Collection Visit Protocol

Measurement teams of two or more CHL members assessed sites and filled out surveys at each location. The locations were assessed during the day, after hours for schools and churches (after 4:30pm). Names or information regarding stores or surveys is confidential. All CHL members completed Human Subjects Research training, which instructs on human subject protections, ethical issues, and guidance information which includes maintaining confidentiality and integrity to all research activities.

SITE SELECTION

Parks, Schools, Churches, and Indoor PA Facilities

An inventory of parks, schools, churches, and indoor PA facilities within the perimeter of the community was largely completed in the office through phonebooks, Google Maps, and supplemented with driving tours within the community. Up to 10 parks, schools, churches, and indoor PA facilities were selected in each community.

Churches: Specific jurisdictions (CNMI, Guam, and American Samoa) where physical activity occurs at church facilities were assessed.

Neighborhood Walk

In a small community, one walk was performed and in a large community, two walks were performed to assess how easy and safe it is to walk in a community. The preference was the residence of a child enrolled in the Head Start Program being randomly selected as the

starting point. Facing the house, a random selection of direction to walk (right or left) by the CHL members was chosen for the 20-minute walk. If a child from the community was not recruited yet, a random walk in a residential area near the Head Start Program location was assessed for the walk. The address and GPS location were recorded at the beginning of the walk.

Fast Food Restaurants

An inventory of fast food restaurants within the perimeter of the community was largely completed in the office through a phone book directory and Google Maps. Restaurants without wait service were defined as fast food restaurants. However, all pizzerias were included, regardless of the wait service. Food trucks that serve meals were included. Up to 10 fast food restaurants were selected in each community. If a community had more than 10 restaurants, different types of restaurants were selected (e.g. food trucks, drive ins, mom-n-pop restaurants). If a community had two or more of the same restaurants, only one restaurant was assessed.

Food Outlets (Stores)

Store Availability: An inventory of food outlets (stores) within the perimeter of the community was largely completed in the office through a phone book directory and Google Maps. Up to 10 stores were selected in each community. If a community has more than 10 stores, different types of stores were selected (e.g., supermarkets, neighborhood markets, convenience stores, farmer's markets, in town and rural).

Note: Many of the CHL communities did not have traditional supermarkets or grocery stores.

Food Cost Survey: A total of 3 stores per community from the food outlet inventory were assessed. Different types of stores were selected (e.g., supermarkets, neighborhood markets, convenience stores, farmer's markets, in town and rural).

Study Sample

Table 2 shows the sample size for each jurisdiction.

Table 2: Number of CAT Surveys at Time 1, Time 2, and Time 3 for CHL Community Randomized Trial and FAS Prevalence Study.

Number of CAT surveys at Baseline for CHL Community Randomized Trial and FAS Prevalence Study			
	Time 1	Time 2	Time 3
	n	n	n
Alaska	204	154	154
American Samoa	65	109	95
CNMI	85	139	98
Guam	135	215	172
Hawaii	144	211	140
CHL Intervention Total	633	828	659
Pohnpei	77	0	0
RMI	124	0	0
Palau	78	0	0
Chuuk	28	0	0
Yap	33	0	0
Kosrae	96	0	0
FAS Prevalence Data (total)	436	0	0
CHL Total	1,069	828	659

Table 3: CAT Survey Count at Time 1, Time 2, and Time 3 by Category

Number of CAT surveys at Baseline for CHL Community Randomized Trial and FAS Prevalence Study by Category				
		Time 1	Time 2	Time 3
Category	Measurement	n	n	n
Parks	Physical Activity	131	144	132
Schools	Physical Activity	181	169	154
Churches	Physical Activity	137	66	65
Physical Activity Facility	Physical Activity	62	60	33
Walkability	Physical Activity	92	50	34
Fast Food	Food Environment	136	147	0
Food Availability and Marketing	Food Environment	302	253	240
Store Environment Walkability	Food Environment	302	253	240
Food Cost	Food Environment	0	66	79
CHL Total		1,343	1,208	898