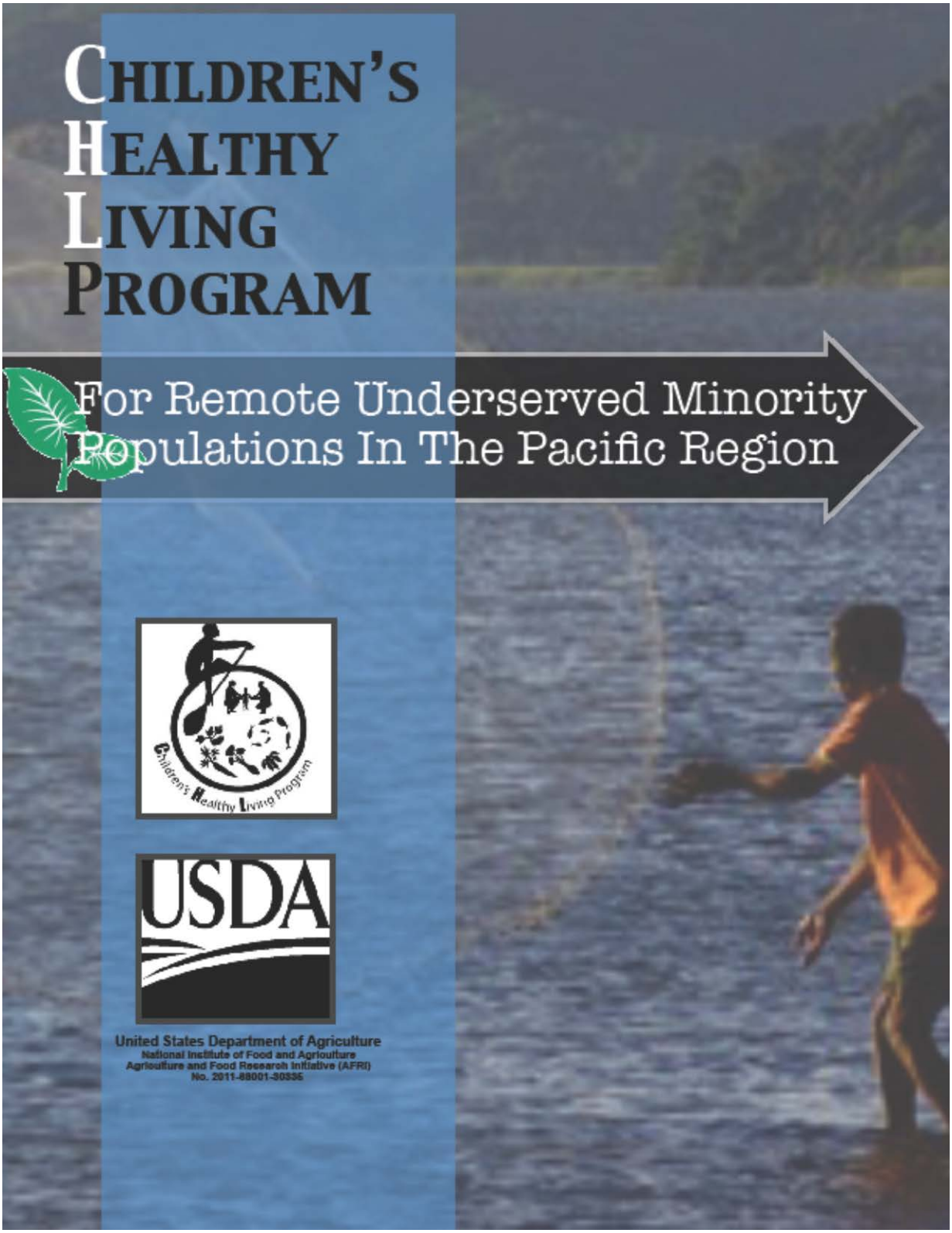
CHILDREN'S HEALTHY LIVING PROGRAM

For Remote Underserved Minority Populations In The Pacific Region



United States Department of Agriculture
National Institute of Food and Agriculture
Agriculture and Food Research Initiative (AFRI)
No. 2011-68001-30336

Children's Healthy Living Program For Remote Underserved Minority Populations in the Pacific Region

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Wailuku Prevalence Survey Results

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Executive Summary

I. Executive Summary

Introduction to the Report

The CHL program utilizes three major strategies towards its goals: 1) training, 2) extension – outreach, and 3) research - intervention. The purpose of this document is to report on the measures of these three strategies in your community. It includes information about CHL training, outreach and sustainability activities, and the research descriptive results of the Children's Healthy Living Program Survey at the individual and household level and the results of the community level assessment. The community level assessment utilizes the Community Assessment Toolkit (CAT) -- which comprises of assessments about the availability of food resources, parks, play spaces, and walkable streets – and a Food Cost Survey. Results of the intervention trial will be presented in a separate report following this one.

If you have any questions about this report, please contact *Rachel Novotny at novotny@hawaii.edu or 808-956-3848.*

Thank you for your interest and efforts for children's health!


Children's Healthy Living Program
Children's Healthy Living Program

II. Children's Healthy Living Program (CHL)

The Children's Healthy Living Program for Remote Underserved Minority Populations in the Pacific Region (CHL) is a partnership among the remote Pacific jurisdictions of Alaska; American Samoa; Commonwealth of the Northern Mariana Islands (CNMI); the Federated States of Micronesia (FSM), the Republic of the Marshall Islands (RMI), the Republic of Palau; Guam; and Hawaii to study childhood obesity among Pacific children, ages two to eight years old.

The program is funded by the United States Department of Agriculture (USDA), National Institute of Food and Agriculture, Agriculture and Food Research Initiative (Grant no. 2011-68001-30335). CHL is coordinated from the Department of Human Nutrition, Food and Animal Sciences in the College of Tropical Agriculture, at the University of Hawaii at Mānoa with contracts to the University of Guam, University of Alaska Fairbanks, American Samoa Community College, Northern Marianas College, and fees for nutrition analysis services conducted at the University of Hawaii Cancer Center.

The goal of CHL is to help to create a social, cultural, political, economic, and physical environment in the Pacific Region that supports active play, physical activity, and eating healthy food, in order to promote health. In partnership with participating communities, our mission is to elevate the capacity of the region to build and sustain a healthy food and physical environment to help maintain healthy weight and prevent obesity among young children in the Pacific region.

CHL strived for the following behavior targets:

1) Lower prevalence of excess weight and waist circumference for height

2) Increased sleep

3) Reduced consumption of sugar-sweetened beverages (SSB)

4) Higher fruit and vegetable intake

5) Higher water intake

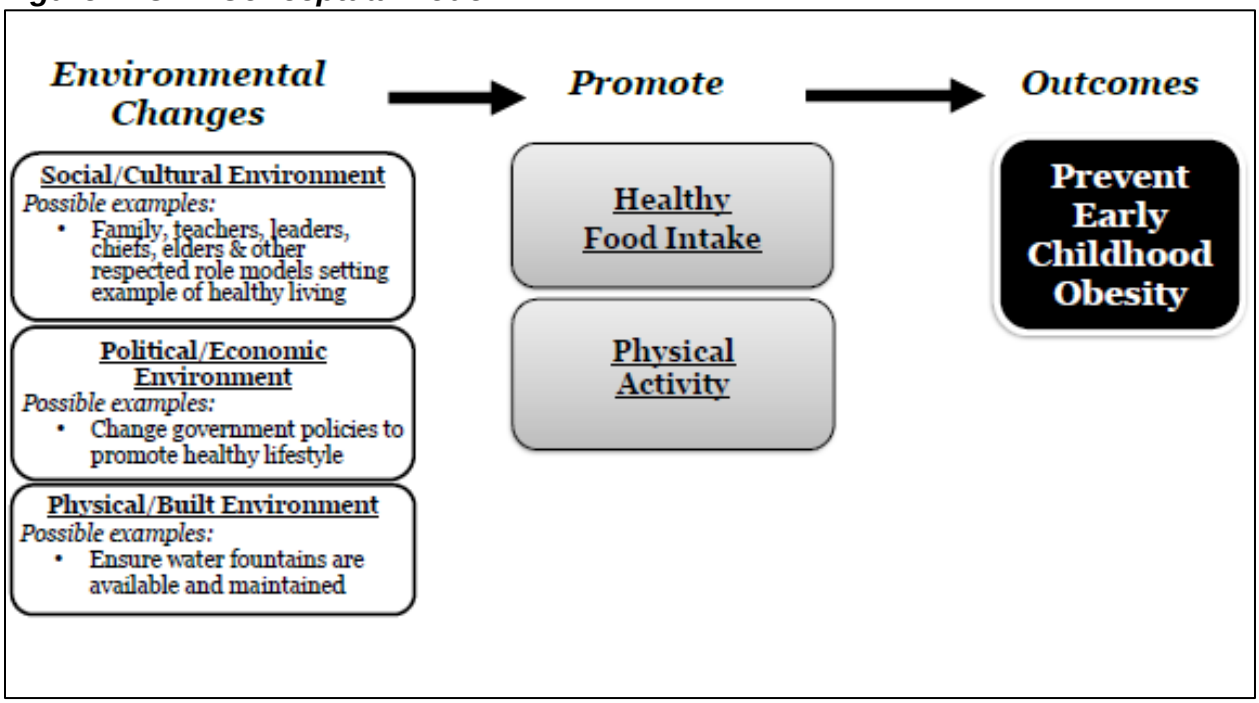
6) Reduced TV/video viewing

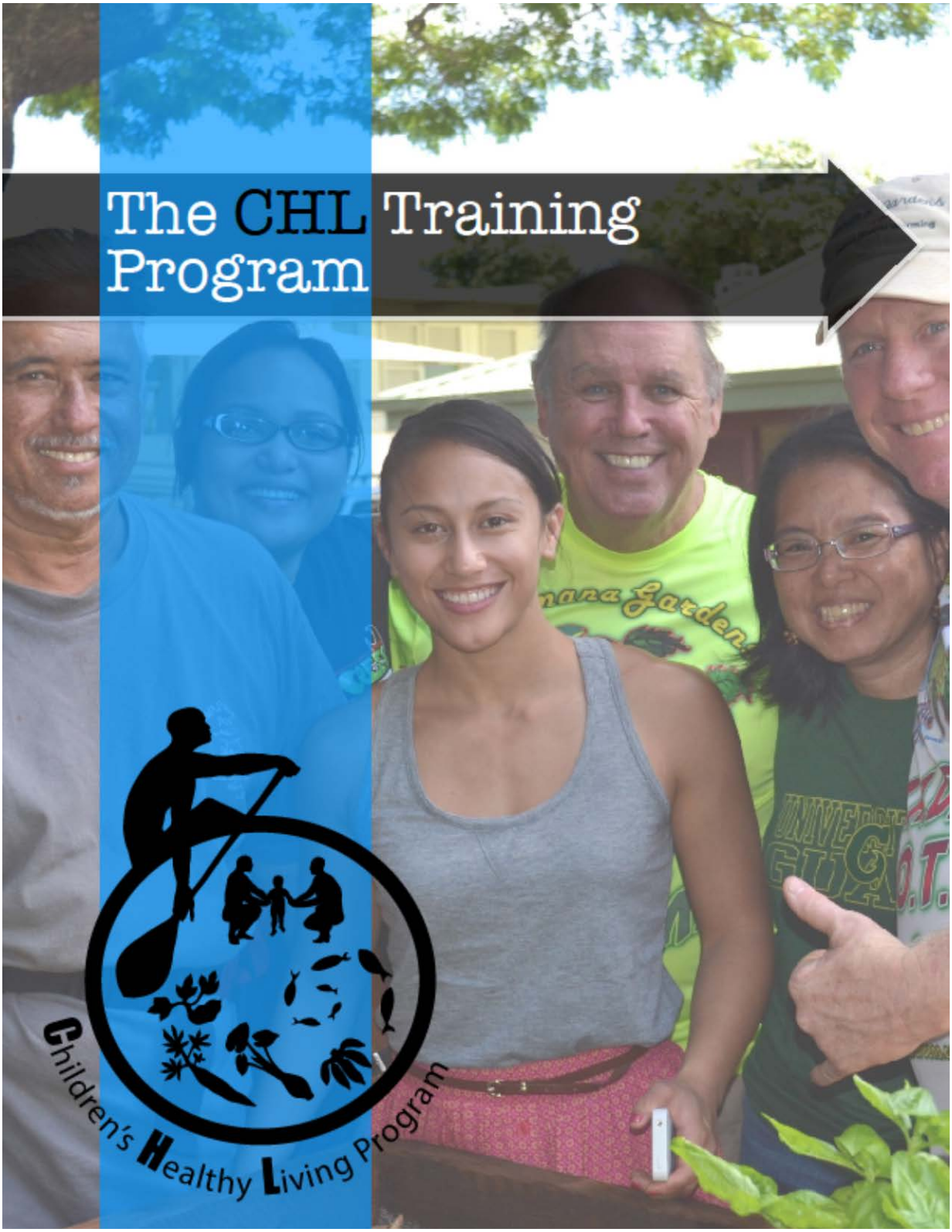
7) Increased physical activity

8) Lower prevalence of acanthosis nigricans (AN)

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 (Braun et al., 2014).

Figure 1. CHL Conceptual Model




The CHL Training Program
Children's Healthy Living Program

III. The CHL Training Program

Training Program Objectives

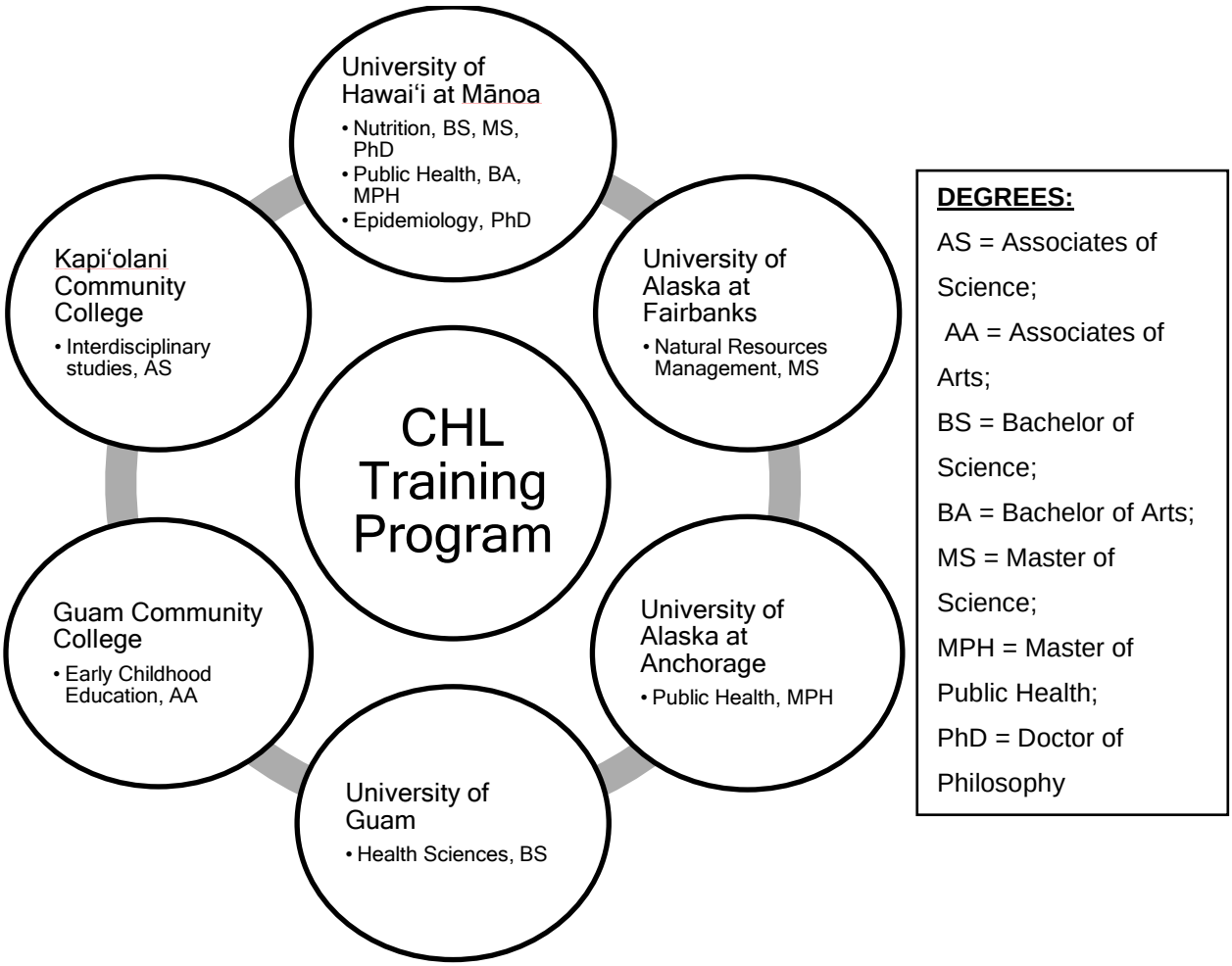
The development of the CHL Training Program (CHL-TP) was an essential component of CHL's multilevel approach to prevent childhood obesity. Approximately one third of the program's resources were invested in training. The CHL-TP's first objective was to train 22 United States Affiliated Pacific Region students in child obesity prevention through selected academic degree programs. A second objective was to enhance the students' academic education with training on childhood obesity prevention strategies and tools, through the offering of culturally appropriate and regionally relevant obesity prevention-related courses and programs.

Training Program Partnerships

The CHL-TP was a collaborative effort with institutions across the Pacific. Students selected for the program have attended courses at the University of Hawai‘i at Mānoa, the University of Guam, Guam Community College, Kapi‘olani Community College, and the University of Alaska at Fairbanks and Anchorage (Figure 2).

Partner jurisdictions created selection committees who screened and interviewed student applicants and identified the top candidates for the scholarship awards. Two students from each of Alaska, American Samoa, CNMI, Chuuk (FSM), Guam, Hawai‘i, Kosrae (FSM), Pohnpei (FSM), the Republic of the Marshall Islands, the Republic of Palau, and Yap (FSM) were selected for a scholarship to enroll in a degree program at one of the partner institutions .

Figure 2. Institutions, Academic Program Areas and Degrees in the Children's Healthy Living (CHL) Training Program



From: Fialkowski MK, et al. Indigenous Workforce Training by the Children's Healthy Living Program (CHL) to Prevent Childhood Obesity in the Underserved US Affiliated Pacific Region. J Health Care Poor Underserved. 2015; 26(2 Supplement): 83-95.

Training Program Accomplishments

The CHL-TP developed a series of six 1-2 credit seminars that addressed the multiple causes of obesity and provided evidenced-based strategies for childhood obesity prevention. Conducting seminars using an online collaborative approach provided an opportunity for all the CHL trainees to engage in distance learning together while strengthening their bond as a cohort and their ties to CHL and the region. The CHL-TP also partnered with the University of Hawai‘i at Mānoa Public Health Program to allow CHL Trainees to take an indigenous health seminar as a part of their CHL seminar experience.

In addition to the CHL-TP seminar curriculum, CHL modified curriculum for the Food Science and Nutrition (FSHN) course, The Science of Human Nutrition (FSHN 185), offered both through the University of Hawai‘i at Mānoa and the University of Hawai‘i Outreach College. FSHN 185 utilized an online platform, which allowed for flexible and adaptive nutrition education delivery across the vast region of the Pacific and beyond. The modifications broadened the curriculum to reflect the unique environment and cultural diversity of the Pacific region. New modifications incorporate nutrition education with aspects of commonly consumed food and their significance in societal structure. To further support this Pacific adapted introductory nutrition course, a Pacific Food Guide was developed to help students enrolled in FSHN 185, to better connect the traditional foods of the Pacific with concepts of nutrition.

Other curriculum and education materials developed by the CHL-TP included a comprehensive workshop to provide standardized measurement training to staff and field workers conducting measurements in anthropometry, dietary intake, physical activity, and acanthosis nigricans. The measurement training workshops conducted by CHL were successful in standardizing over 100 measurers in 5 years across the Pacific region from Alaska to Micronesia. Workshop materials will continue to be utilized for standardization of educators and staff conducting regional measurements such as Head Start staff and community workers and will be part of future curriculum being planned.

Students accepted into the CHL-TP conducted a CHL project in their home jurisdictions that supported childhood obesity prevention. Students at the graduate level blended these projects with their final theses and dissertations. All trainees presented their projects and budgets to a selected project committee for approval prior to implementation. Upon completion of their project all students submitted a formal write up and conducted an oral presentation. Examples of projects completed by graduates of the CHL-TP are outlined in Table 1.

Twenty-four students participated in the CHL-TP. Two Trainees dropped out of the program after their first year, due to personal reasons. The two vacant scholarship positions were offered to two other qualified Trainees from those respective jurisdictions. Two Trainees were released from the program due to poor performance. To date, 6 students (5 graduate and 1 undergraduate) have completed the CHL-TP and attained their degrees (Table 1). Two graduate-level Trainees from CNMI and Alaska are expected to complete their MPH degrees in the Spring of 2016 while 2 graduate level Trainees from American Samoa and CNMI, working towards a PhD in Epidemiology and an MPH, respectively, are expected to complete their degrees in Summer of 2016. Three undergraduate Trainees from American Samoa, Chuuk, and Kosrae are expected to graduate in Spring 2016 with Bachelor's degrees in Public Health (2) and Nutrition (1), respectively. One undergraduate Trainee from Yap is expected to graduate with a Bachelor's degree in Nutrition in Summer 2016. Four undergraduate Trainees from Pohnpei, Palau, Chuuk, and the Marshall Islands are expected to graduate in Fall 2017 with Bachelor's degrees in Health Science (3) and an Associate degree in Early Childhood Education (1), respectively.

Table 1. CHL Training Program Graduates by Jurisdiction, Degree Type, and Project Description

Student Name	Jurisdiction	Degree Name/Type	Project Description
Tanisha Aflague	Guam	PhD, Nutrition	To examine the willingness to try fruit and vegetables (F&V) and F&V intake among children, 3-12yrs, attending a cultural immersion camp compared to children from a camp without cultural immersion
Monica Esquivel	Hawaii	PhD, Nutrition	To build evidence on the effectiveness of Child Care Center wellness policies that promote intake of nutrient-dense food, healthy eating habits and nutrition education to improve child diet intake and prevent childhood obesity in Hawaii
Lenora Matanane	Guam	MS, Nutrition	To test whether access and availability to fruits and vegetables in food stores is associated with childhood overweight/obesity prevalence in selected Guam communities
Ashley Morisako	Hawaii	MPH, Native Hawaiian and Indigenous health	To outline the community engagement process instilled to effectively implement and evaluate a garden-based learning curriculum targeted for preschoolers in Hawaii in order to reduce and prevent childhood obesity
Ron Standlee-Strom	Alaska	MS, Natural Resource Management	To determine factors mediating the delivery of effective nutrition education as perceived by educators and Alaskan program participants
Trisha Johnson	Pohnpei	BS, Food Science and Human Nutrition	To determine traditional fruits and vegetables consumed by young children in Pohnpei, Federated States of Micronesia

PhD = Doctor of Philosophy; MS = Master of Science; MPH = Masters of Public Health; BS = Bachelor of Science

Long-term Plans

The CHL program provided guidance in identifying other funding to Trainees who did not complete their degree programs within the life of the CHL grant. The CHL-TP also continues to serve as a source of professional collaboration and career networking for the Trainees. The CHL-TP plans to do long-term follow-up of the Trainees to gather information on the career trajectory of graduates.

Curriculum developed by the CHL-TP will continue to be adapted for offering through multiple venues. The Pacific adapted online FSHN 185 has been included as one of the options offered to students at the University of Hawai‘i at Mānoa in the Fall, Spring, and Summer semesters. This class has also been designated as meeting the Hawaiian, Asian, and Pacific Issues General Education Focus area for the University of Hawai‘i system, including the University of Hawai‘i Outreach College. The nutrition education resource, the Pacific Food Guide, has also been developed into a web resource available for free at www.manoa.hawaii.edu/ctahr/pacificfoodguide

The series of seminars developed for the CHL Trainees on the causes of childhood obesity and evidenced-based strategies for childhood obesity prevention are currently being adapted into a comprehensive distance-learning platform for offering through a CHL Summer Institute. The online platform of the CHL Summer Institute will allow for a wider audience to benefit from its unique and important content. The CHL Summer Institute will offer various courses and modules for credit and non-credit though the University of Hawai‘i Outreach College. The University of Hawai‘i Outreach College allows for non-University of Hawai‘i students to access this unique training opportunity at in-state tuition rates. For further information on the CHL Training Program please see the following resources:

- Fialkowski MK, et al. Indigenous Workforce Training by the Children’s Healthy Living Program (CHL) to Prevent Childhood Obesity in the Underserved US Affiliated Pacific Region. J Health Care Poor Underserved. 2015; 26(2 Supplement): 83-95.
- CHL Training Program available at:
  http://www.chl-pacific.org/trainingeducation/program-overview


CHL Research Activities
Children's Healthy Living Program

IV. Research Activities

CHL Research Aims and Design

CHL measured two to eight year-old children to identify young child overweight and obesity, acanthosis nigricans, and health behavior information about sleep, physical activity, screen time, eating of fruits and vegetables, and consumption of sugar-sweetened beverages and water.

Research Methods

Study Design

The cross-sectional CHL study design collected data on body size, functional outcomes of obesity (acanthosis nigricans), food intake, physical activity, lifestyle behavior which included screen time, and demographics (baseline or prevalence). These were measured through anthropometry (height, weight, and waist circumference), Food and Activity Logs, questionnaires, accelerometry, and visual inspection (of the neck).

Data were collected between October 2012 and September 2013 in American Samoa, Alaska, Commonwealth of the Northern Mariana Islands (CNMI, Guam and Hawaii, and between October 2013 and June 2015 in FAS.

CHL research included data from the Federated States of Micronesia (Yap, Chuuk, Kosrae, and Pohnpei), the Republic of the Marshall Islands, and the Republic of Palau; referred to collectively in CHL as the Freely Associated States (FAS), and all other CHL jurisdictions -- Alaska, American Samoa, CNMI, Guam, and Hawaii.

Selection of Communities

Communities were identified in Alaska, American Samoa, CNMI, Guam and Hawaii using the 2000 U.S. Census tract data (U.S. Census Bureau). In the FAS, 2010 country census data were used to inform selection of sites. The community eligibility criteria included population size of >1000 (except for FAS), >25% of the population of indigenous/native descent (except 15% in Alaska due to no targeted census tract within

the CHL catchment area with a population of more than 1000), having more than 25% indigenous /native ethnic groups, and >10% of the population under age 10 years. Additional selection criteria included adequate settings for measuring children (e.g., schools), reasonable accessibility for the CHL team, and geographic representation for FAS.

For the study of the effectiveness of the CHL intervention in American Samoa, CNMI, Guam and Hawaii, communities were selected as matched pairs. Four communities were selected (two matched-pairs). Two communities were selected (1 matched-pair) in Alaska. The matching included similar criteria as above, as well as community characteristics such as access to food stores and ethnic distribution. In each pair, one community was randomly assigned to intervention and the other to a delayed optimized intervention (community will receive intervention at the end of the main study). Two additional non-matched communities (third and fourth for Alaska and fifth and sixth for other jurisdictions) were selected from the eligible list of communities to serve as temporal indicators.

A second round of measurement occurred around 24-months from the baseline in Alaska, American Samoa, and Commonwealth of the Northern Mariana Islands (CNMI), Guam, and Hawaii to examine if CHL intervention activities in those jurisdictions were effective.

Smaller amounts of data were collected from the “temporal” communities. The temporal communities served to show changes in BMI over time, in communities that did not have any CHL activities.

This report includes only the baseline data. The results of the CHL-wide intervention study examining changes between baseline and 24-month data will be available later in a separate report.

Selection of Participants

Recruitment activities involved schools and other community venues and activities. Recruitment took place at Head Start sites, preschools, day care centers, kindergartens, WIC sites, community health centers and other appropriate venues (e.g., parks and community recreation centers). Recruitment efforts, led by CHL staff in each jurisdiction, involved close collaboration with community liaisons (e.g., teachers, school staff, program directors, matai, mayors) to enhance participation. The teams in all jurisdictions tailored the recruitment strategies to work effectively with the stakeholder organizations while meeting recruitment goals of CHL.

*NOTE: The following numbers are based on those who consented, rather than those who completed the measures. ***

Table 1: Number of Participants Consented in each Jurisdiction for CHL Research

Number of Participants Consented in each Jurisdiction for CHL Research	
Jurisdiction Communities	Number Consented
Alaska *Anchorage, Fairbanks, Kenai, Mat-Su Valley*	713
American Samoa *Fagaitua/Pagai/Amaua/Auto/Utusia, Leloaloa/Aua, Onenoa/Tula/Alao, Aoloau/Aasu*	978
CNMI *Koblerville/San Antonio, Oleai, Kagman, San Roque, Saipan*	924
Guam *Yigo, Yona, Agat, Sinajana*	885
Hawaii *Nanakuli, Waimanalo, Hilo, Wailuku, Kauai, Molokai*	988
CHL Intervention Study Data (total)	4,488

Freely Associated States	
Jurisdiction Communities	**Number Consented**
Pohnpei *Nett, Mand, Sekere, Wenik*	**212**
Republic of the Marshall Islands *Majuro, Ebeye (Kwajalein atoll), Ailinglaplap*	**218**
Palau *Koror, Ngaraard, Melekeok, Airai*	**214**
Yap *Rull, Tomil, Weloy, Ulithi*	**205**
Kosrae *Tafunsak, Lelu, Sansrik, Malem, Utwe/Walung*	**207**
Chuuk *Weno (Sapuk, Iras), Tol, Tonoas, Uman*	**231**
FAS Prevalence Data (total)	**1,287**
CHL Total (CHL Intervention + FAS Prevalence)	**5,775**


Community Report
Children's Healthy Living Program

V. Wailuku Community Report

The total number of responses for each question may not match the total number of consented participants. Parents identified their children as eligible (including age eligible) and consented, upon which children participated in the study. In data analysis, upon calculation of age by study metrics, some children were outside the defined age range and were excluded from the analysis. In addition, not all who consented to participate in the study completed all parts or all items of all the questionnaires, so the results for each item reflect only those who answered that question or whose data were available at the time of this report. Potential outliers with extreme values (defined as those with a value of 3 standard deviations (SD) above or below the mean) were also excluded from this report. The total percentage may not add up to 100 because of rounding.

Child Demographics

Children's Healthy Living Program

Section 1. Child Demographics

A total of 157 children participated from Wailuku. Parents / caregivers answered multiple questions about each of their children participating in the CHL research program. The following section reports some of that information collected, including child's sex, age, race and ethnicity.

Sex: A total of 156 out of 157 children participated had data on sex.

Table S.1.1. Number and Percent of Participants by Sex

Sex	Number	Percent
Boys	67	43.0%
Girls	89	57.0%
Total	156	100%

Age: Child's age was calculated between age in years elapsed between child's date of birth and the date when anthropometry was measured. The distribution of age of the children is shown below.

Table S.1.2. Number and Percent of Participants by Age

Age in Years	Number	Percent
Age 2	27	17.2%
Age 3	31	19.8%
Age 4	30	19.1%
Age 5	21	13.4%
Age 6	18	11.5%
Age 7	12	7.6%
Age 8	18	11.5%
Total	157	100%

Table S.1.3. Number and Percent of Participants by Age Group

Age in Years	Number	Percent
2-5 years old	109	69.4%
6-8 years old	48	30.6%
Total	157	100%

Racial and Ethnic Heritage

The data used in this section and for the household demographics came from various sources. Some items were generated by CHL staff; some came from The Center for Alaska Native Health Research Demographic and Medical Screening Questionnaire, the Behavioral Risk Factor Surveillance System 2011 survey, and the 2011 Middle School Youth Risk Behavior Survey.

Table S.1.4. The Distribution of Race of the Children Using the U.S. Office of Management and Budget (OMB) Definition

Race of child of OMB definition	Number	Percent
More than one race	83	53.6%
Native Hawaiian or other Pacific Islander	31	20.0%
Asian	27	17.4%
White	13	8.4%
American Indian/Alaskan Native	1	0.7%
Total	155	100%

Table S.1.5. The Distribution of Race/Ethnicity of the Children Using the CHL Pacific Definition which Prioritize the Indigenous Ethnic Groups in the Jurisdiction (CHL Pacific)

Race of child of Pacific definition	Number	Percent
Native Hawaiian mixed with other race group	68	43.9%
Filipino	19	12.3%
Native Hawaiian	17	11.0%
White	13	8.4%
Asian-East	8	5.2%
Mixed Filipino	6	3.9%
Mixed Native Hawaiian/Pacific Islander with other groups	5	3.2%
Native Hawaiian/ Pacific Islanders	5	3.2%
Mixed Asian	4	2.6%
Chuukese	3	1.9%
Marshallese	2	1.3%
Other (including American Indian/Alaskan Native, Samoan, and more than one race group)	5	3.2%
Total	155	100%

Child's Birth Place

Parents or caregivers responded to the question: "In what city or country was your child born?"

Table S.1.6. Child's Place of Birth

Birth Place	Number	Percent
Hawaii	140	89.7%
USA (other than Hawaii)	15	9.7%
Philippines	1	0.6%
Total	156	100%

Parents responded to the question about residence: "How many years has your child lived here?"

Among the 156 children, 151 had information on this question. Among them, **139 (92.1%) lived their whole life in Wailuku** and the rest, 7.9%, spent one fifth to three quarters of their life in Wailuku.

Language Child Speaks

The language distribution of the children in the survey is listed in the following table.

Note: Language responses may total over 157 and 100% because some respondents could speak more than one language.

Table S.1.7. Top Languages Child Speaks

Top languages child speaks	Number	Percent
English	128	81.5%
English and Hawaiian	10	6.4%
English and Chuukese	3	1.9%
English and Spanish	3	1.9%
English and German	2	1.3%
English and Marshallese	2	1.3%
English and Portuguese	2	1.3%
Other	7	4.5%
Total	157	100%

English was the top language spoken at home (94.3%). Other languages children in Wailuku spoke at home included Chuukese, Hawaiian, Ilocano, Filipino, Japanese, and Swiss. Eighty-one percent of children only spoke English at home. Nineteen percent of the children spoke English and at least one other language.

Summary

Among the 157 children, a total of 156 had information on child's sex, of which 89 (57%) were girls and 67 (43%) were boys. All 157 children had information on child's age, of which 109 (69%) were of age group 2-5 years and 48 (31%) were of age group 6-8 years. All 157 children had information on race, of which 83 (53%) were of more than one racial group, 31 (20%) were Native Hawaiian/Pacific Islander (NHPI), 27 (17%) were Asian, 13 (8%) were White, 2 (1%) were some other racial group, and 1 (1%) was American Indian/Alaska Native (AIAN).

Child Anthropometric Measurement Results

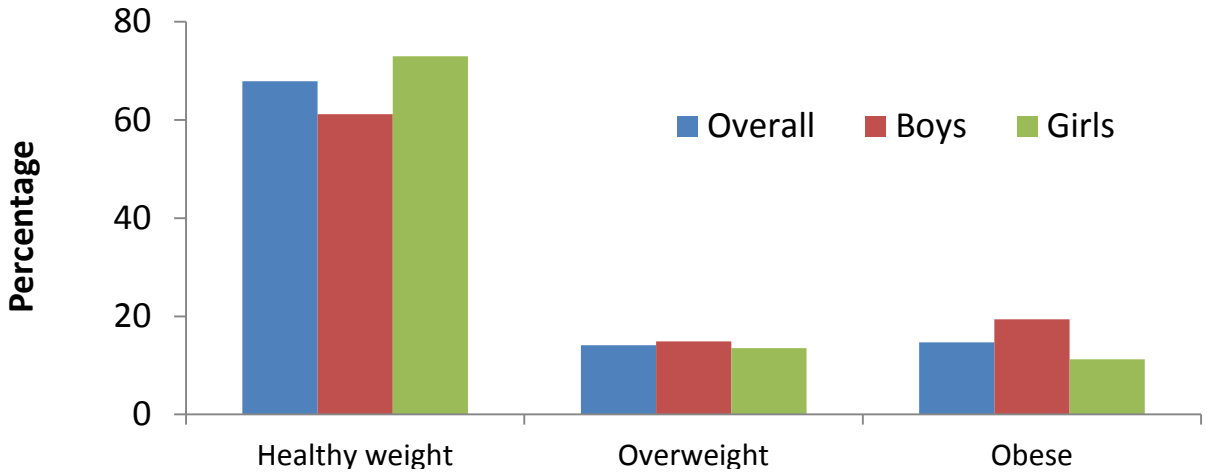
Section 2. Child Anthropometric Measurement Results

Body Mass Index

Among the 157 children who participated in Wailuku, 156 had valid measurements of Body Mass Index (BMI).

Overweight was defined as the 85th - 94th percentile for BMI (weight, kg/(height, m^2)) and obesity was defined as greater than or equal to the 95th percentile for BMI (Centers for Disease Control and Prevention, 2000).

Prevalence of Overweight and Obesity of Study Children in Wailuku



A total of 156 children were included for this analysis. Among them, 68% were healthy weight, 14% were overweight, 15% were obese, and 3% were underweight.

Abdominal Obesity

The International Diabetes Federation (IDF) suggests that children 6 years or older with a waist circumference equal or greater than the 90th percentile be considered as having abdominal obesity (Zimmet, et al., 2007). For children younger than 6 years of age, currently there is insufficient information for such classification. Using children ages 6-8 years in the CHL data set as the reference data, the 90th percentile cutoff value is 71.47cm. The 90th percentile cutoff value reported from the IDF, which uses "a nationally representative sample" of boys and girls, is 67.65 cm for 7-year olds.

Among the 48 participants in Wailuku between the ages 6-8 years, using either the CHL cutoff 11 (22.9%) of 6-8 year olds were considered as having abdominal obesity. Using the IDF cutoff value, 15 (31.3%) of 6-8 year olds were considered as having abdominal obesity.

Acanthosis Nigricans (AN)

Acanthosis nigricans is an indicator of high insulin levels, which can lead to insulin resistance and Type 2 diabetes. Acanthosis nigricans presents as a light brown, black velvety, rough, or a thickened lesion on the surface of the skin. These features are usually seen in body folds and creases, on the nape of the neck, armpits, and over the knuckles. This screening suggests a problem with handling the body's insulin, and the possibility of having pre-diabetes or diabetes. CHL staff encouraged the parents/caregivers of these children to make an appointment for these children to see a doctor for further information and care.

Burke's (1999) quantitative scale was utilized, with scores given for the severity of AN. Among the 156 children who participated, 156 had data on AN, of which 1 (0.6%) screened positive for AN.

Summary

A total of 156 children were included for this analysis. Among them, 68% were healthy weight, 14% were overweight, 15% were obese, and 3% were underweight. No difference was observed between boys and girls. The distribution of BMI was different between those ages 2-5 and those 6-8 years old. The percentage of obese was higher among those ages 6-8 (28%) than those ages 2-5 years old (9%).


Child Nutrition
And Diet Reports

Section 3. Child Nutrition and Diet Reports

Parents and caregivers completed logs of everything their children ate and drank for two assigned days. The design of the logs was based on previous research conducted by the principal investigator as well as other team members.

For Wailuku, 102 Food and Activity Logs were reviewed by CHL staff and are included in this report.

The top five foods, beverages or condiments reported that children ate are shown in the table below.

Table S.3.1. Top 5 Foods, Beverages, or Condiments Most Commonly Reported

Food description	Wailuku	
	Number of times reported	% of all foods reported
#1 Milk, 2%	138	4.7%
#2 White rice	129	4.4%
#3 Milk, 1%	62	2.1%
#4 White bread	45	1.5%
#5 Low fat yogurt	45	1.5%

Fruit and Vegetable Intake

The United States Department of Agriculture (USDA) daily recommended amounts of fruits and vegetables for children 2-8 years of age are shown in the table below.

United States Department of Agriculture's My Daily Food Plan		
Daily recommended amount of fruits and vegetables		
2 years	1 cup	1 cup
3 years	1 ½ cup	1 cup – 1 ½ cup
4-5 years	1 ½ cup – 2 cups	1 cup – 1 ½ cup
6-8 years	1 ½ cup – 2 ½ cups	1 cup – 2 cups

Children should consume at least 1 cup of fruit and 1 cup of vegetables daily, with these recommendations (as shown in the table) increasing as children age. This aligns with the CHL behavioral intervention target or goal: to eat more fruits and vegetables daily.

In Wailuku, children ate 1.9 servings of fruits and vegetables per day on average as recorded by parents/caregivers on the two-day food log. The average servings of fruit was 1.2 per day and the average servings of vegetables was 0.7 per day.

58 children (56.9%) in Wailuku met the U.S. national recommendations for daily fruit consumption.

6 children (5.9%) in Wailuku met the U.S. national recommendations for daily vegetable consumption.

Note that the percentages meeting the fruit and vegetable recommendations may be underestimated as two days of food records may not reflect the true long-term diets of the children. However, a low proportion of children meeting the recommendation even using two days of records can be used as an indication that the population should increase intake.

Water

Children should consume at least 32 - 40 fluid ounces (4 - 5 cups) of water from all beverages (milk, juice, drinking water) daily. CHL behavioral intervention target or goals were to encourage children to drink more water.

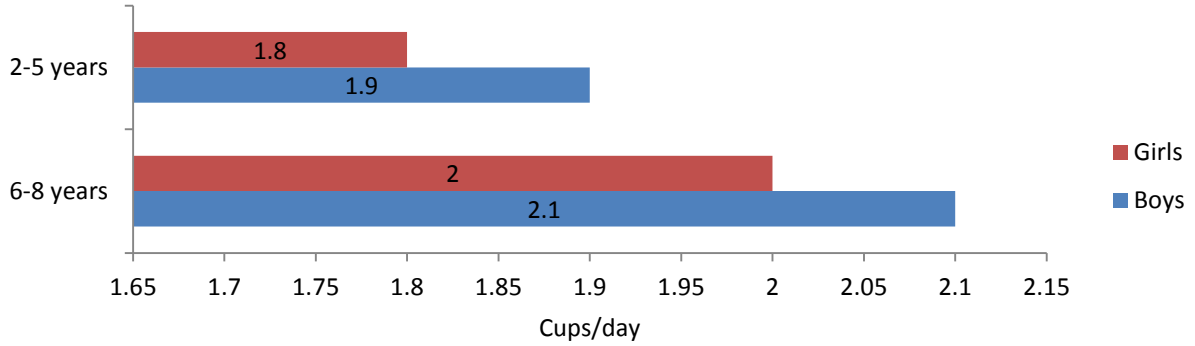
94.1% of parents / caregivers reported on the two-day Food and Activity Log that their child drank water over these two days.

On average, children in Wailuku drank 2 cups of water daily.

Table S.3.3. Intake of Daily Drinking Water by Age Group and Sex

Drinking water intake (cups / day) by sex	Wailuku	
	Number	**Average**
Boys		
2 – 5 years	21	1.9
6 – 8 years	29	2.1
All	50	2.0
Girls		
2 – 5 years	16	1.8
6 – 8 years	36	2.0
All	52	1.9

Recorded Intake of Daily Drinking Water (cups / day) by Sex and Age for all Children



Sugar-Sweetened Beverages (SSB)

CHL behavioral intervention targets or goals are to limit (or avoid) the consumption of Sugar-Sweetened Beverages (SSB).

From the two-day food record, 67 (65.7%) of parents/caregivers in Wailuku reported that their child consumed SSBs.

Children drank 0.7 cups of sugar-sweetened beverages on average daily.

For Wailuku, the most frequently consumed SSB included canned orange-apricot drink, canned sweetened tea, Gatorade, and canned fruit punch.

Children's intake of Sugar-Sweetened Beverages (cups/day) for Wailuku

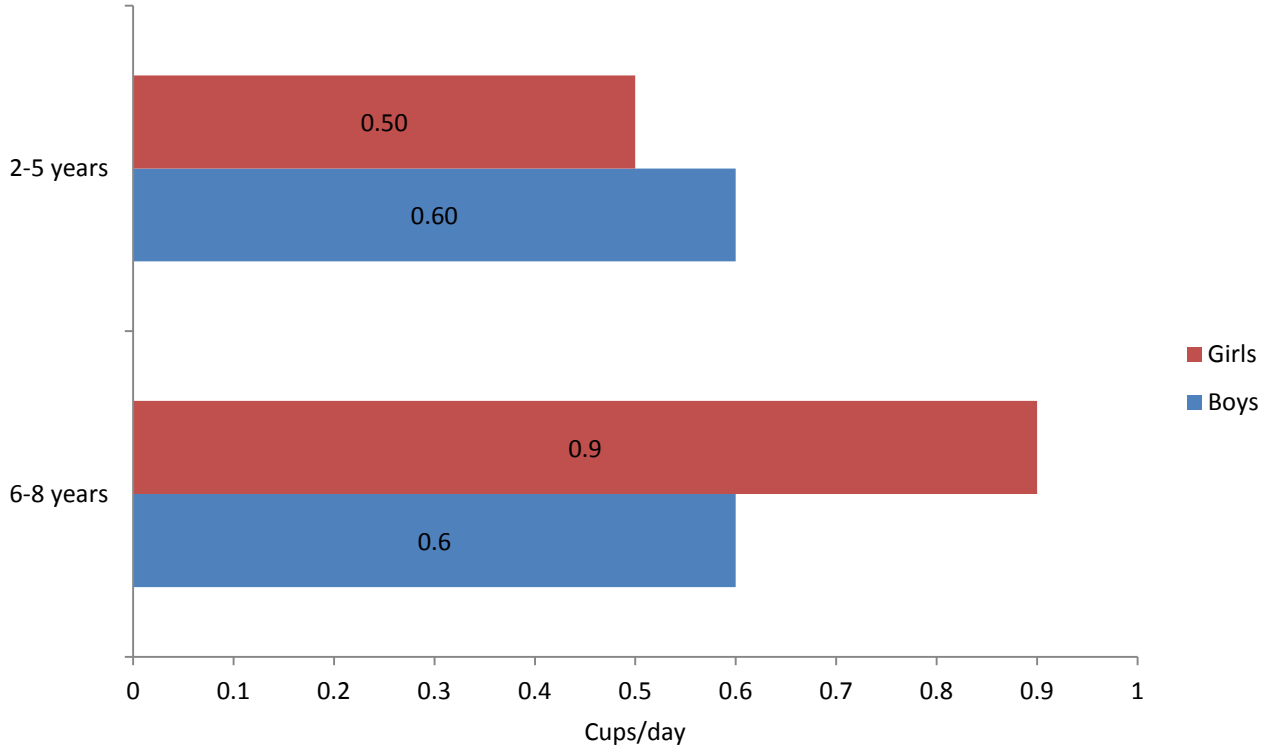


Table S.3.4. Mean SSB Intake (cups/day) for all Children and Those with SSB's Recorded for Wailuku

Mean SSB intake (cups/day)	All children		SSB Recorded	
	Number	Mean (SD)	Number	Mean (SD)
Boys				
2 – 5 years	21	0.6	14	0.9
6 – 8 years	29	0.6	18	0.9
All	50	0.6	32	0.9
Girls				
2 – 5 years	16	0.5	8	1.0
6 – 8 years	36	0.9	27	1.1
All	52	0.8	35	1.1

Table S.3.5. Proportion of SSB Consumption Greater than 2 cups per day Among all Children and Only Children with SSB Recorded for Wailuku

Proportion of children with SSB consumption greater than 2 cups per day	All children, number (%)		SSB Recorded, number (%)	
	0-2 cups	Greater than 2 cups	0-2 cups	Greater than 2 cups
Boys				
2 – 5 years	20 (95.2%)	1 (4.8%)	13 (92.9%)	1 (7.1%)
6 – 8 years	28 (96.6%)	1 (3.5)	17 (94.4%)	1 (5.6%)
All	48 (96.0%)	2 (4.0%)	30 (93.8%)	2 (6.3%)
Girls				
2 – 5 years	15 (93.8%)	1 (6.3%)	7 (87.5%)	1 (12.5%)
6 – 8 years	34 (94.4%)	2 (5.6%)	25 (92.6%)	2 (7.4%)
All	49 (94.2%)	3 (5.8%)	32 (91.4%)	3 (8.6%)

Physical Activity From Accelerometers

Section 4. Physical Activity from Accelerometers

To provide data on their physical activity levels, about 100 children in each community were fitted with Actical accelerometers on the first day of measurement. Accelerometers are objective tools for measuring physical activity. Children were instructed to wear the accelerometers for 6 days without removal. Accelerometers were set to record children's movements at each second. Recorded movements are known as counts. The accelerometer counts were summed to derive the number of counts per minute (CPM). These CPMs were then used to derive activity levels based on the following criteria:

- Sedentary, if CPM ≤40
- Light, if 41≤ CPM ≤ 2295
- Moderate, if 2296 ≤ CPM ≤ 6815
- Vigorous, if CPM ≥ 6816

Sedentary (physical inactivity) behaviors includes excessive sitting, lying, as well as screen time. In this study, time spent on sleeping was not excluded from the sedentary results and was also considered as sedentary. **Light** activities include things such as walking at a slow pace or cleaning. **Moderate** types of activities include brisk walking, dancing and some active play, while **vigorous** activities include running, fast cycling and fast swimming.

Potential outliers with extreme values (defined as those with a value of 3 standard deviations (SD) above or below the mean) were excluded from this report. In Wailuku, Actical accelerometers from 92 children provided valid data on their physical activity levels. After excluding outliers, on average children spent 11 hours 29 minutes sedentary activities (SD=1.5 hours).

On average, children Wailuku spent 11 hours 30 minutes on light activities.

On average, children in Wailuku engaged 1 hour and 5 minutes on moderate or vigorous activities.

Of the 92 children with accelerometer data, 40 (43.5%) of children in Wailuku met the U.S. national recommendations for achieving at least 60 minutes of moderate or vigorous activity daily, which is also a CHL behavioral intervention target or goal.

This information can be found in the following table.

Table S.4.1. Hours of Physical Activity by Type

Physical activity from accelerometer	Mean hour (*SD*)	
Sedentary activities (weighted) per day	11.5 (SD=1.5)	
Light activities (weighted) per day	11.4 (SD=1.2)	
Moderate activities (weighted) per day	1.0 (SD=0.5)	
Vigorous activities (weighted) per day	0.1 (SD=0.2)	
Moderate and vigorous activities (weighted) per day	1.1 (SD=0.7)	
	Number	**%**
Met national recommendation of >=60 minutes of moderate or vigorous physical activity daily	40	43.5%

Summary

In Wailuku, a total of 92 children had valid accelerometer data. Among those 92 children, daily average minutes of moderate and vigorous physical activity (MVPA) were 64.5. Forty-three percent of those 91 children met the national recommendation of 60 minutes a day of MVPA.

Screen Time

Section 5. Screen Time

The following set of questions was adapted from Buckworth, J., & Nigg, C. (2004); Nigg, C. R. (2005); Haas, S., & Nigg, C. R. (2009).

Parents were asked, "On usual weekdays (Monday to Friday), how many hours a day does your child spend watching Television and/or videos/ DVD?" They were asked the same question about the weekend days.

Among the 157 children participated in Wailuku, **time spent on TV watching per day was 2.5 hours/day** overall, 2.5 hours on weekdays, and 2.5 hours on weekends. The following table summarizes the distribution of duration of TV watching.

Table S.5. 1. Hours per day of TV Watching

Hours per day child watches TV (n=156)	Percent of children		
	Per Day (adjusted for weekday and weekend)	Per Weekday	Per Weekend day
1/2 hour or less	4.5%	9.6%	7.0%
More than ½ hour up to 2 hours	42.7%	46.5%	49.7%
More than 2 hours up to 4 hours	38.2%	31.2%	31.9%
More than 4 hours up to 6 hours	11.5%	7.0%	8.3%
More than 6 hours up to 7 hours	3.2%	5.7%	3.2%
Total	100%	100%	100%

INACTIVE Video Games (Per day, Per Weekday, and Per Weekend day)

Parents were asked, "On a usual weekdays (Monday to Friday), how long on average a day does your child spend playing INACTIVE video games (DS, Play station, XBOX, Wii computer games, etc.)?" They were asked the same question about the weekend days.

Among the 157 children participated in Wailuku, a total of 156 had data on the overall time spent on inactive video games. The overall average among those 156 children was

0.76 hours/day. A total of 154 children had data on weekday or weekend inactive video time. Average inactive video time on weekdays was 0.7 and on weekends is 0.7. The following table summarizes the distribution of duration of inactive video playing time.

Table S.5.2. Hours per day of Inactive Video Games

Hours per day child spent on inactive video games	Percent of children		
	Per Day (adjusted for weekday and weekend)	Per Weekday	Per Weekend day
1/2 hour or less	57.7%	63.6%	66.0%
More than ½ hour up to 2 hours	33.3%	29.9%	25.6%
More than 2 hours up to 4 hours	7.1%	5.8%	8.3%
More than 4 hours up to 6 hours	1.9%	0.7%	0.0%
More than 6 hours up to 7 hours	0.0%	0.0%	0.0%
Total	100%	100%	100%

ACTIVE Video Games (Per day, Per Weekday, and Per Weekend day)

Parents were asked, “On a usual weekdays (Monday to Friday), how long on average a day does your child spend playing ACTIVE video games (DS, Play station, XBOX, Wii computer games, etc.)?” They were asked the same question about the weekend days.

Among the 157 children participated in Wailuku, a total of 156 had data on the overall time spent on active video games. The **overall average among those 156 children was 0.58 hours/day**. A total of 156 children had data on weekday active video time. Average active video time on weekdays was 0.56. A total of 156 children had data on weekend active video time. Average active video time on weekend was 0.63. The following table summarizes the distribution of duration of active video playing time.

Table S.5.3. Hours per day of Active Video Games

Hours per day child spent on active video games	Percent of children		
	Per Day (adjusted for weekday and weekend)	Per Weekday	Per Weekend day
1/2 hour or less	72.4%	74.4%	73.1%
More than ½ hour up to 2 hours	19.2%	18.6%	16.7%
More than 2 hours up to 4 hours	6.4%	5.1%	9.0%
More than 4 hours up to 6 hours	1.9%	1.9%	1.3%
More than 6 hours up to 7 hours	0.0%	0.0%	0.0%
Total	100%	100%	100%

Screen Time - Overall

This variable was created by adding the hours for watching TV and DVDs, the hours playing active video games, and the hours playing inactive video games. The overall mean is a weighted average of weekday and weekend hours.

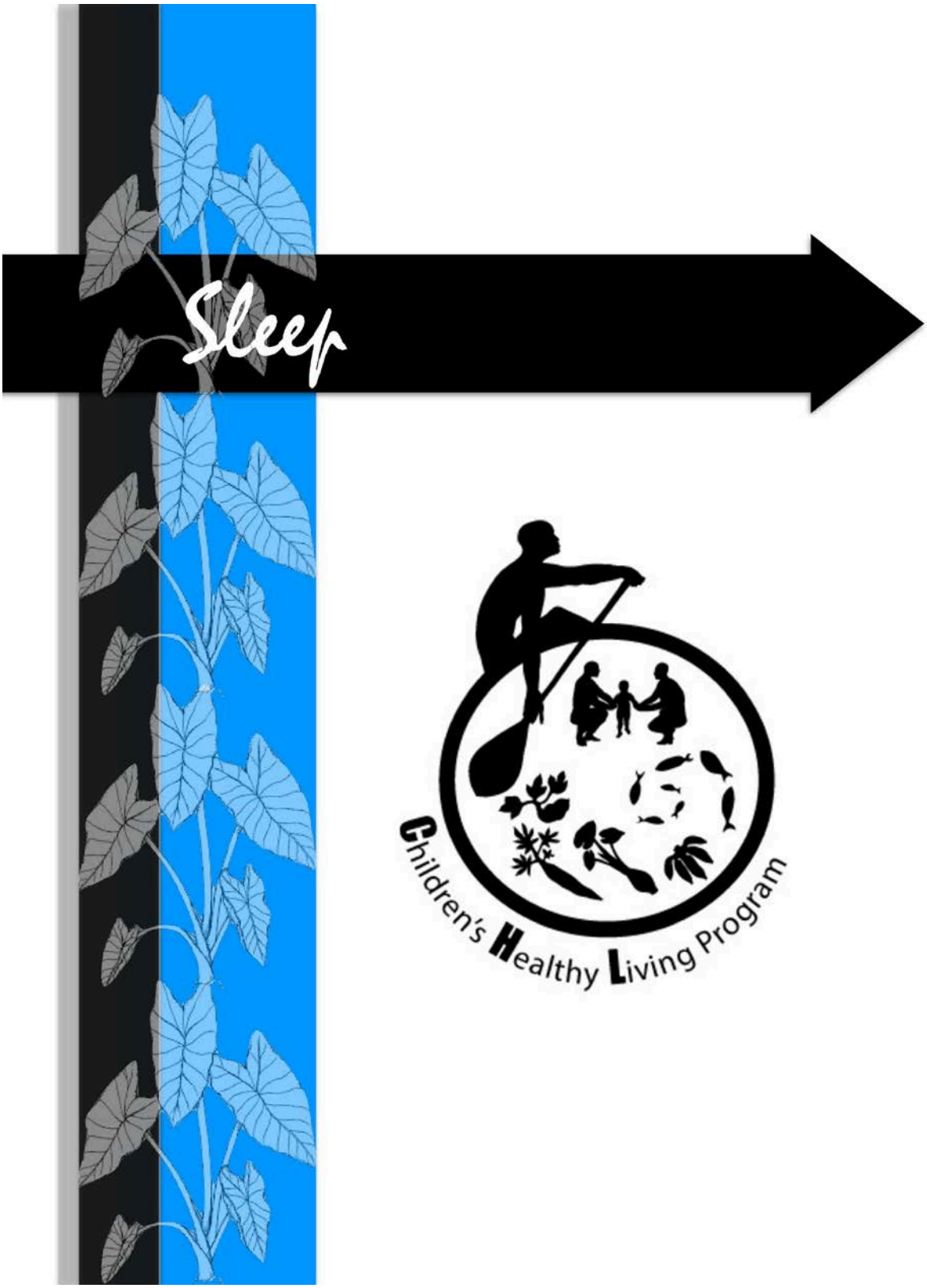
A total of 156 children who participated in Wailuku had data on the overall screen time, which averaged 3.8 hours. A total of 155 had data on weekday screen time, which averaged 3.7 hours. A total of 156 had data on weekend screen time, which averaged 3.8 hours. The following table summarizes the distribution of duration of screen time.

Table S.5.4. Hours per day of Screen Time

Hours per day child spent on screen time	Percent of children		
	Per Day (adjusted for weekday and weekend)	Per Weekday	Per Weekend day
1/2 hour or less	2.6%	7.1%	2.6%
More than ½ hour up to 2 hours	26.9%	28.4%	34.6%
More than 2 hours up to 4 hours	35.3%	33.6%	26.9%
More than 4 hours up to 6 hours	14.7%	13.6%	18.6%
More than 6 hours	20.5%	17.4%	17.3%
Total	100%	100%	100%

Summary

A total of 154 children were included in the analysis of screen time. Among them, average screen time per day, such as watching TV, video games, or DVD, or playing active or inactive video games was 3.8 hours. No difference was observed between the averages of boys and girls. Average screen time was higher among those ages 6-8 years (4.4; SD=2.8) than those ages 2-5 years old. While the national recommendation is for each child to spend 2 or less hours of screen time every day, only 30% (n=46) of our study children met this recommendation. A higher percentage of those ages 2-5 (36%) than ages 6-8 (17%) met the national recommendation. A vast majority (70%) of all children appear to be spending too much time watching screens. This is an opportunity for both parents and educators to intervene to help children spend less screen time.



Children's Healthy Living Program

Section 6. Sleep

The National Sleep Foundation recommends for 2 year olds: 11-14 hours of sleep/night; for 3 to 5 year olds: 10-13 hours/night; and for 6 to 8 year olds: 9-11 hours/night. The National Sleep Foundation also gives a range that may be appropriate for an individual child which is a bit wider with 9-16 hours for 2 year olds; 8-14 hours for 3 to 5 year olds; and 7-12 hours for 6 to 8 year olds.

Parents were asked, "How many hours of sleep on average does your child get in a 24-hour period (at night and in naps)?" The respondents were asked to choose from 0 hours to over 13 hours in half hour increments. For those who chose over 13 hours, 13.5 hours was assigned instead; hence, the maximum hours are at 13.5 hours.

Some participants misunderstood the question but put down child's nap time or hours sleep on the previous night instead of average sleep duration. Therefore, observations where sleep duration was less than 3.5 hours were removed from this report as those values are more or less considered as biologically implausible values.

Table S.6.1. Number and Percent of Children's Average Hours of Sleep per day by Age

Hours of sleep in 24 hours at night and in naps (on average and from parent / caregiver report)	Number	%
2 year olds	25	100%
Less than 9 hours	1	4.0%
9 hours to less than 11 hours	6	24.0%
11 hours or more (to 13.5 hours)	18	72.0%
3 – 5 year olds	79	100%
Less than 8 hours	2	2.5%
From 8 hours to less than 10 hours	32	40.5%
From 10 hours to 13.5 hours	45	57.0%
6 – 8 year olds	48	100%

Hours of sleep in 24 hours at night and in naps (on average and from parent / caregiver report)	Number	%
Less than 7 hours	0	0.0%
From 7 hours to less than 9 hours	17	35.4%
From 9 hours to 13.5	31	64.6%

Table S.6.2. Number and Percent of Children Meeting Recommended Hours of Sleep

Met recommended hours of sleep	Number	%
Two year olds met recommendation of 11 – 14 hours of sleep	18	72.0%
Three to five year olds met recommendation of 10 – 13 hours of sleep	45	57.0%
Six to eight year olds met recommendation of 9 – 11 hours of sleep	31	64.6%

The following questions were modified from The Tayside children's sleep questionnaire (McGreavey, Donnan, Pagliari, & Sullivan, 2005)

Table S.6.3. Number and Percent of Minutes to Fall Asleep

How long after going to bed does your child usually fall asleep?	Number	%
0 to less than 15 minutes	66	42.0%
15 to less than 30 minutes	62	39.5%
30 to less than 45 minutes	19	12.1%
45 to less than 60 minutes	3	1.9%
60 minutes and more	7	4.5%
Total	157	100%

Table S.6.4. Number and Percent of Children Reluctant to go to Sleep

The child is reluctant to go to sleep	Number	%
This sleep behavior never occurs	51	32.5%
The behavior occurs once or twice a month	39	24.8%
Occurs one to two times a week	39	24.8%
Occurs between three and five nights a week	17	10.8%
The sleep behavior happens every night	11	7.1%
Total	157	100%

Table S.6.5. Number and Percent of Children Having Difficulty Falling Asleep

The child has difficulty getting to sleep at night (and may require a parent to be present)	Number	%
This sleep behavior never occurs	77	49.0%
The behavior occurs once or twice a month	29	18.5%
Occurs one to two times a week	16	10.2%
Occurs between three and five nights a week	16	10.2%
The sleep behavior happens every night	19	12.1%
Total	157	100%

Table S.6.6. Number and Percent of Children Not Falling Asleep in Own Bed

Child does not fall asleep in his or her own bed.	Number	%
This sleep behavior never occurs	91	58.0%
The behavior occurs once or twice a month	17	10.8%
Occurs one to two times a week	15	9.6%
Occurs between three and five nights a week	8	5.1%
The sleep behavior happens every night	26	16.6%
Total	157	100%

Table S.6.7. Number and Percent of Children Waking Up at Night

Child wakes up during the night	Number	%
This sleep behavior never occurs	90	57.7%
The behavior occurs once or twice a month	43	27.6%
Occurs one to two times a week	11	7.1%
Occurs between three and five nights a week	6	3.9%
The sleep behavior happens every night	6	3.9%
Total	156	100%

Table S.6.8. Number and Percent of Children Difficulty Falling Asleep After Wakening

After waking up in the night, child has difficulty falling asleep again by him or herself.	Number	%
This sleep behavior never occurs	116	74.4%
The behavior occurs once or twice a month	25	16.0%
Occurs one to two times a week	10	6.4%
Occurs between three and five nights a week	2	1.3%
The sleep behavior happens every night	3	1.9%
Total	156	100%

Table S.6.9. Number and Percent of Children Sleeps Some of the Night in Parent's Bed

Child sleeps in the parent's bed at some time during the night	Number	%
This sleep behavior never occurs	68	43.6%
The behavior occurs once or twice a month	39	25.0%
Occurs one to two times a week	15	9.6%
Occurs between three and five nights a week	6	3.9%
The sleep behavior happens every night	28	18.0%
Total	156	100%

Table S.6.10. Number and Percent of Children Needing Parent to Replace a Comforter After Waking in Night

If child wakes, he or she uses a comforter (e.g. pacifier or binky) and requires a parent to replace it.	Number	%
This sleep behavior never occurs	135	86.5%
The behavior occurs once or twice a month	2	1.3%
Occurs one to two times a week	3	1.9%
Occurs between three and five nights a week	5	3.2%
The sleep behavior happens every night	11	7.1%
Total	156	100%

Table S.6.11. Number and Percent of Children Wanting a Drink During the Night

Child wants a drink during night (including breast or bottle-feed)	Number	%
This sleep behavior never occurs	115	73.7%
The behavior occurs once or twice a month	23	14.7%
Occurs one to two times a week	4	2.6%
Occurs between three and five nights a week	7	4.5%
The sleep behavior happens every night	7	4.5%
Total	156	100%

Table S.6.12. Number and Percent of Children with Sleeping Difficulties

Do you think your child has sleeping difficulties?	Number	%
No	137	88.4%
Yes	18	11.6%
Total	155	100%

Summary

A total of 155 children were included in the analysis of sleep duration. The average number of hours of sleep per day among those 155 children were 9.8. No difference was found between the averages of boys and girls. However, the average sleep time was higher among those ages 2-5 than ages 6-8 years. Among the 108 two to five year olds, 40% met the national recommendation of sleep of between 11-13 hours daily. Another 53% of children slept more than 8 hours but less than 11 hours daily, and 7% slept less than 8 hours. Over half (60%) of our younger children (2-5 years old) did not meet the national recommendation of 11-13 hours daily of sleep. This is an opportunity for both parents and educators to intervene to help children get more sleep.

Medical

Section 7. Medical

Parents answered the question: Does your child have any current medical conditions diagnosed by a doctor? Among the 157 children, 60 (38.2%) reported that their children had a medical conditions diagnosed by a doctor. The top medical condition was asthma (51, 33.8%).

Early Life & Feeding Of A Child

Section 8. Early Life and Feeding of Child

Birth Weight

Among the 157 children participated from Wailuku, a total of 129 had information on birth weight. The distribution of birth weight into three groups is summarized in the following table.

Table S.8.1. Number and Percent of Children by Birth Weight

Birth Size	Number	%
Low birth weight < 2500 g	12	9.3%
Healthy birth weight (2500 – 4000 g)	112	86.8%
High birth weight > 4000 g	5	3.9%

Among the 157 children participated in Wailuku, a total of 113 had information on birth length. Among the 113 children, 4 (3.5%) had birth length below the 5th percentile using the CDC 2000 reference data, which is at 45.57 cm.

Early Feeding Pattern

Among the 157 children participated in Wailuku, a total of 152 had information on breastfeeding. Among the 152 children, 125 (82.2%) of children were reported to ever have breastfed.

Table S.8.2. Number and Percent of Children Ever Breastfed or Fed Breast Milk

Child ever Breastfed or fed Breastmilk	Number	%
Yes	125	82.2%
No	27	17.8%
Total	152	100%
If Yes, (about children who were ever breastfed)		
Mean age child stopped breastfeeding or being fed breast milk (months) (n=119)	9.2 months	

Among the 157 children participated in Wailuku, a total of 154 had information on formula feeding. Among those 154 children, 129 (83.8%) of children were reported to have ever formula fed. Mean age of children started formula feeding or stopped formula feeding is reported in the following table.

Table S.8.3. Number and Percent of Children Ever Fed Formula

Child ever fed formula	Number	%
Yes	129	83.8%
No	25	16.2%
Total	154	100%
If Yes, (about children who were fed formula)		
Mean age (SD) child first fed formula (months) (n=112)	2.6 months	
Mean age (SD) child completely stopped drinking formula (months) (n=105)	13.0 months	

A total of 134 out of the 157 children had information on age when the child was fed anything other than breast milk or formula (juice, cow's milk, sugar water, baby food, or anything else, even water). The mean age of this was 7.2 months.

Household Demographics & Measures

Section 9. Household Demographics and Measures

Parents and other caregivers brought their children to participate in the CHL measurement study. The following section summarizes the participant's relationship to the child, the parent or caregiver's marital status, educational achievement, employment status, family income, and family structure.

Relationship

Relationship of the caregiver participant to the child is summarized in the following table.

Table S.9.1. Number and Percent of Caregiver's Relationship to Child

Relationship	Number	Percent
Biological mom	119	76.3%
Biological dad	20	12.8%
Legal guardian, other	9	5.8%
Grandmother	4	2.6%
Adoptive mom	2	1.3%
Step dad and adoptive dad	1	0.6%
Step mom	1	0.6%

Marital Status

All 157 participants had marital status information of the respondent (see the following table).

Table S.9.2. Frequency and Percent of Caregiver's Marital Status

Marital Status	Number	Percent
Married	82	52.2%
Single and living with boyfriend, girlfriend, or partner	39	24.8%
Single and not living with boyfriend, girlfriend, or partner	24	15.3%
Separated	6	3.8%
Widowed	4	2.6%
Divorced	2	1.3%

Household Size and Multi-generation Households

All 157 children had information on the number of people lived in the same household and their relationship to the child. Among them, 34 (21.7%) were from multi-generation households. Mean size of household was 4.2 (SD 2.2), with the minimum of 2 and maximum of 20.

Education

The education levels of the caregivers – (the parents or guardians) are shown below

Table S.9.3. Number and Percent of Caregiver's Education Level

Education	Number	Percent
Never attended school or only kindergarten	4	2.6%
Grades 1 up to 8 (elementary to middle)	2	1.3%
Grades 9 to 11(some high school)	10	6.4%
Grades 12 or GED (high school graduate)	51	32.5%
College or technical school 1 to 3 years	49	31.2%
College 4 years or more	41	26.1%
Total	157	100%

Employment Status of the Caregiver Participants

Among the 157 children participated in Wailuku, all had information on whether the respondent was employed for wages/salary, whether he/she was self-employed, whether he/she was out of work for more than a year or less than a year, whether the respondent was a homemaker, a student, or unable to work. All of the 157 had information on whether the caregiver had more than one job.

Table S.9.4. Number and Percent of Caregiver's Employment Status

Employment	Number	%
Employed for wages / salary	91	58.0%
Self-employed	14	8.9%
Out of work (less than 1 year)	11	7.0%
Out of work (more than 1 year)	3	1.9%
Homemaker	36	22.9%
Student	10	6.4%
Retired	2	1.3%
Unable to work	6	3.8%
More than one job	18	11.5%

*Note: responses may total over 100% because respondents could select more than one category.

Household Income Level

Among the 157 children participated in Wailuku, 134 had information on annual Household income from all sources over the past 12 months. The following table summarizes this information.

Table S.9.5. Number and Percent of Caregiver's Household Income Level

Annual household income in the past 12 months	Number	Percent
Under $10,000	16	11.9
From $10,000 to less than $20,000	22	16.4
From $20,000 to less than $35,000	26	19.4
From $35,000 to less than $60,0000	27	20.2
From $60,000 to less than $75,000	7	5.2
$75,000 or more	36	26.9
Total	134	100%

Religion

Among the 157 children, a total of 141 had information on family's religious affiliation. Out of the 141, 40 (28.4%) reported no religious affiliation. Among the 101 with any type of religious affiliation, the distribution of different religious affiliations is presented in the following table. A total of 69 had information on how often they engage in religious activities. The mean number of times per month attending religious activities was 5.8 (sd= 5.1) among those participants.

Table S.9.6. Number and Percent of Respondents' Religious Affiliation

Religion Affiliation	Frequency	Percent
Catholic	35	34.7
Christian denomination not specified	21	20.8
Protestant	15	14.9
Mormon/Latter-day Saints	12	11.9
Other	11	10.9
Pentecostal	4	4.0
Baptist	3	3.0
Total	101	100%

*Other including Jehovah's Witness, Jewish, Non-denominational and none.

Food Security / Resource Availability

Food security and availability was included in the demographic questionnaire, to help understand the support services used by participants in our geographically varied jurisdictions. The food security questions were adapted from questions used by USDA to Assess Household Food Security (USDA, 2008). NHANES (cdc.gov/nchs/data/nhanes/nhanes_11_12/fsq_family.pdf).

Participants were asked, in the past 12 months, how often money for food or money for utilities runs out before the end of the month. Among the 157 children that participated in Wailuku, a total of 147 had information on whether money for food runs out or not and a total of 142 had information on whether money for utility runs out or not. The following table presents the answers.

Table S.9.7. Number and Percent of Caregiver's Money for Food and Utilities

Food Insecurity and Utilities in past 12 months	Number	%
Money runs out for food before the end of the month.		
Never	59	40.1%
Seldom	36	24.5%
Sometimes	27	18.4%
Most times	12	8.2%
Always	13	8.8%
Money for household utilities (water, fuel, etc.) runs out before the end of the month.		
Never	69	48.6%
Seldom	24	16.9%
Sometimes	23	16.2%
Most times	14	9.9%
Always	12	8.5%

A total of 152 children had information on whether they received assistance to pay food. Among those 152 children, 78 (51.3%) reported they received assistance. The following table summarizes different types of benefits their households received.

Table S.9.8. Number and Percent of Caregiver's Who Receive Food Assistance

Food Assistance Benefits received for those who obtained food assistance	Number	%
EBT/ SNAP / NAP (formerly called Food Stamps)	55	71.4%
Food Assistance (Food Bank / Food Pantries or Commodity foods)	6	7.8%
WIC benefits	47	61.0%
Free or reduced cost breakfast or lunch at school	17	22.1%

*Note: responses may total over 100% because respondents could select more than one category.

Culture

The degree of participants' own group's cultural and U.S. mainland cultural identifications were assessed using an acculturation questionnaire originally designed for use with Native Hawaiians (Kaholokula, Grandinetti, Nacapoy and Chang, 2008). The following tables summarize responses to those questions.

Table S.9.9. Number and Percent of Caregiver's Knowledge of Traditional Culture and Lifestyle

Knowledge of traditional culture & lifestyle	Number	Percent
Very knowledgeable	41	26.1%
Somewhat knowledgeable	84	53.5%
Neutral or no response	22	14.0%
Somewhat not knowledgeable	2	1.3%
Not at all knowledgeable	8	5.1%

Table S.9.10. Number and Percent of Caregiver' Involvement with Traditional Culture and Lifestyle

Involved with traditional culture & lifestyle	Number	Percent
Very involved	27	17.7%
Somewhat involved	71	46.4%
Neutral or no response	41	26.8%
Somewhat not involved	4	2.6%
Not at all involved	10	6.5%

Table S.9.11. Number and Percent of Caregiver's Feelings Towards Traditional Culture and Lifestyle

Feel towards traditional culture & lifestyle	Number	Percent
Very positive	68	43.6%
Somewhat positive	60	38.5%
Neutral or no response	27	17.3%
Somewhat negative	1	0.6%
Very negative	0	0.0%

Table S.9.12. Number and Percent of Caregiver's Association with Traditional Culture and Lifestyle

How often associate with people of your traditional culture & lifestyle	Number	Percent
Most of the time	45	29.0%
Somewhat often	68	43.9%
Neutral or no response	30	19.4%
Very little of the time	7	4.5%
Not at all	5	3.2%

Table S.9.13. Number and Percent of Respondents' Knowledge of U.S. Mainland/Lower 48 Culture and Lifestyle

Knowledge of U.S. Mainland / Lower 48 culture and lifestyle	Number	Percent
Very knowledgeable	42	26.8%
Somewhat knowledgeable	67	42.7%
Neutral or no response	24	15.3%
Somewhat not knowledgeable	8	5.1%
Not at all knowledgeable	16	10.2%

Table S.9.14. Number and Percent of Caregiver's Involvement in U.S. Mainland/Lower 48 Culture and Lifestyle

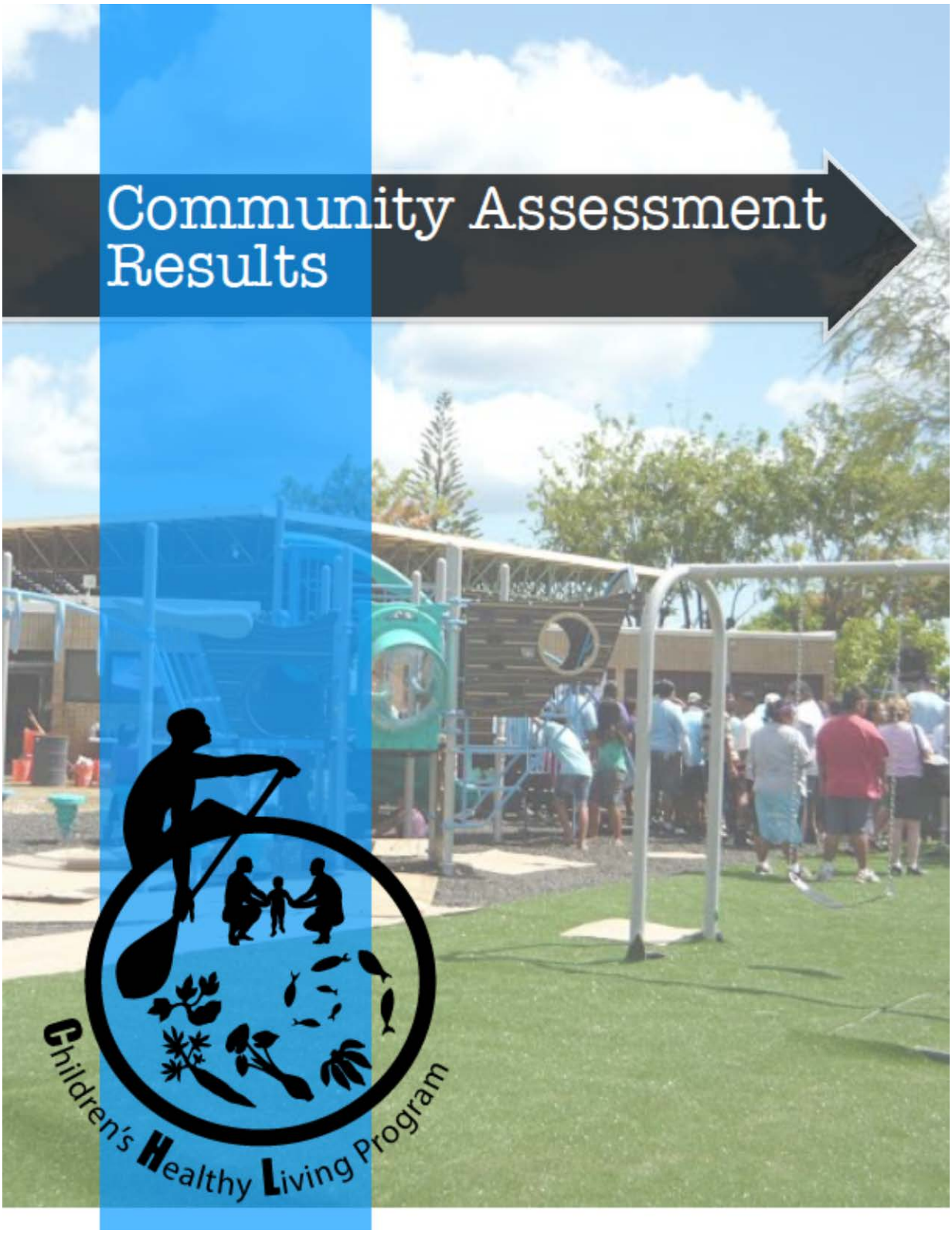
Involvement with U.S. Mainland / Lower 48 culture and lifestyle	Number	Percent
Very involved	21	13.5%
Somewhat involved	56	35.9%
Neutral or no response	49	31.4%
Somewhat not involved	7	4.5%
Not at all involved	23	14.7%

Table S.9.15. Number and Percent of Caregiver's Feelings Toward U.S. Mainland/Lower 48 Culture and Lifestyle

Feeling towards U.S. Mainland / Lower 48 culture and lifestyle	Number	Percent
Very positive	24	15.3%
Somewhat positive	62	39.5%
Neutral or no response	62	39.5%
Somewhat negative	4	2.5%
Very negative	5	3.2%

Table S.9.15. Number and Percent of Caregiver's Association with U.S. Mainland/Lower 48 Culture and Lifestyle

How often associate with U.S. Mainland / Lower 48 culture and lifestyle	Number	Percent
Most of the time	26	16.6%
Somewhat often	70	44.6%
Neutral or no response	39	24.8%
Very little of the time	11	7.0%
Not at all	11	7.0%


Community Assessment Results
Children's Healthy Living Program

VI. Community Assessment Results

The Community Assessment Toolkit or CAT is a collection of data-recording forms to evaluate the food and physical activity environments of communities. These enabled us to study determinants of healthy eating, physical activity, and obesity among youth.

Section 1. Food Resources and Physical Activity Environment

The assessment of the food environment included inventories and surveys of fast food restaurants, and food outlets, with documents adapted from other surveys (Bridging the Gap (BTG) and Community of Excellence (CX3)

- **CX3 Scores for Food outlet**
  a. Accepts WIC and Food stamps / SNAP/ EBT
  b. Availability of fresh fruit and quality of fruit
  c. Availability of fresh vegetable and quality of vegetable
  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
- **Fast food**
  i. Advertisements that promoted price
  j. Advertisements that included sugar-sweetened beverages
  k. Number of healthy food options on the menu
  l. Number healthy beverage options

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. Original forms can be found in Appendix A. CHL adapted forms can be found in Appendix B.

Section 2. Assessment of Parks

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 where 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 <u>if no sports features are present</u>

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.

Park Setting, Parking, Sidewalks, and Amenities

Upon entering the park staff assessed the presence of certain park settings, parking and sidewalk features, and certain park amenities.

Observations on park setting included whether it was a public park, whether it was adjacent to a school, and whether it shared sports features with a school. In Wailuku there were 8 parks with this information. Among the 8 parks, all (100%) were a public park, 2 (25%) were adjacent to a school, and 0 (0.0%) shared sports features with an adjacent school.

A total of 5 (62.5%) of parks had on-site parking, while 3 (37.5%) of parks had an on-site parking with overhead lighting, and 0 (0%) had bicycle parking. Eight out of the eight parks surveyed had information on sidewalks, of which three (37.5%) park had sidewalks leading up to the entrance of the park and only one (12.5%) of the eight parks had sidewalks with overhead lighting.

Observation on park amenities included whether it had closing time signage, restrooms, showers, and beverage vending machine. Among the 8 parks with such information, 4 (50.0%) had closing time signage, 7 (87.5%) had restrooms, 1 (12.5%) had showers, and 0 (0%) had beverage vending machines.

Table S.2.1. Park Setting (N=8)

Park Setting	Number	Percent
Setting (n=8)		
Public Park	8	100.0%
Adjacent to a school	2	25.0%
Shares sports features with a school	0	0.0%
Parking (n=8)		
Parking on-site available (not including street parking)	5	62.5%
Parking has lights	3	37.5%
Bicycle parking racks or cages available	0	0.0%
Sidewalk (n=5)		
Sidewalks on street lead up to the entrance*	3	37.5.0%
Sidewalks have lighting	1	12.5%
Amenities (n=6)		
Park has closing time signage	4	50.0%
Restrooms present	7	87.50%
Showers present	1	12.5%
Beverage vending machines present	0	0.0%

Park Access and Barriers to Entry

Staff assessed each park for an entrance fee, signage limiting entry and any physical barriers around the perimeter of the park. Among the eight parks surveyed in Wailuku, eight had responses on the question of whether there was an entrance fee. Since all 8 parks surveyed are public parks, there is no entrance fee for each one of them. For the other items, all had information. Among these parks, 6 (75%) had signage indicating the

park name, 3 (37.5%) had signage stating that public use of the park was limited to specific times, none of the parks had signage indicating that the park was private or has restricted access at all times, and none of the parks had a locked fence or other physical barrier around the perimeter.

Table S.2.2. Park Access and Barriers (N=8)

Access and Barriers		
Signage indicates park name	6	75.0%
Signage states public use of area is limited to specific times	3	37.5%
Signage states area is private or restricted access at all times	0	0.0%
Locked fence or other physical barrier around the perimeter prevents public access	0	0.0%

Sports Features

Staff assessed each park for a specific list of sports features to determine the number of each feature present and whether such a feature had lighting or not. Staff also rated the condition of each feature.

Feature Descriptions

- **Field, Multi-use:** A multi-use field is a large, flat, open space usable as an athletic field for more than one sport.
- **Field, Football:** A field should have the appropriate layout, markings, and/or equipment in order to be identified as a football field.
- **Field, Baseball:** A field should have the appropriate layout, markings, and/or equipment in order to be identified as a baseball field.
- **Field, Soccer:** A field should have the appropriate layout, markings, and/or equipment in order to be identified as a soccer field.

- **Court, Basketball:** A court should have the appropriate layout, markings, and/or equipment in order to be identified as a basketball court.
- **Court, Tennis:** A court should have the appropriate layout, markings, and/or equipment in order to be identified as a tennis court.
- **Court, Volleyball:** A court should have the appropriate layout, markings, and/or equipment in order to be identified as a volleyball court.
- **Court, Multi-use:** This includes large courts that contain equipment or the capability of holding equipment for different sports such as both basketball and volleyball.
- **Running/Walking Track:** A running/walking track may be located on the perimeter of a field or as part of a track and field stadium. Most tracks will have lane and/or distance markings.
- **Pool:** This includes–
    - a pool that is at least 3 feet deep at the deepest end.
    - a wading pool that is less than 3 feet deep at the deepest end and intended for use by small children.
- **Playground Area:** A playground area includes swings, monkey bars, climbing apparatuses, slides, see-saws, spring features, and other items meant for children's play. In CHL survey, staff was trained to count only the number of areas, not the specific equipment or apparatuses.
- **Skateboarding Facilities:** Skateboarding facilities include ramps, tracks, and other apparatuses meant for use by skateboarders or in-line skaters. In CHL survey, staff was trained to count only the number of rooms or areas, not the specific equipment or apparatuses.
- **Exercise Stations with or without Signage**: Exercise stations are designated activity points. Exercise stations may also be called FitnessTrails or FitTrails.
- **Rock Climbing Wall**: A rock climbing wall is a natural or artificially constructed outdoor wall with grips for hands and feet, used for climbing.

Condition of the Feature

Staff rated the condition and the presence of lighting for each feature item. The condition of a feature could be recorded as “poor”, “okay/good”, or “not rated”. When there was more than one item per feature, each item was evaluated for condition while the presence of lighting was assessed across all items in a feature. For example, if a park had 3 basketball courts and 2 were in okay condition, 1 was in poor condition, and 1 of them had lighting, then the staff would record the number of basketball courts as 3, 2 of which are rated okay/good, 1 rated as poor, and one basketball courts had lighting.

Feature condition was rated based on the feature’s surface and related equipment, if any was available for the feature. Ultimately the feature condition rating was related to whether or not players could safely play or engage in physical activity on a feature without risking injury or falling. Staff took into consideration the type of activities that would take place on or within a particular feature as well as the material comprising the surface when considering its condition. When assessing the condition of equipment used for physical activity, staff took into consideration age, functionality, wear and tear, damage such as dents or sharp edges, missing pieces, and rust. For example, if a playing surface was composed of concrete, staff assessed whether smooth concrete covered the entire surface and looked for cracks or uneven slabs in the concrete surface.

Survey Results for Sports Features

Across the eight parks surveyed in Wailuku, there were a total of 24 features, of which all were rated as ok/good, 0 were rated as poor, and 0 were not rated. Among those 24 rated features, all (100%) were rated as ok/good.

Baseball fields were the most frequent features (8), followed by basketball courts (6), tennis courts (6), and multiuse fields (4). The following table (Table S.2.3) summarizes the number of each sports feature, the conditions of the feature, and whether lighting was present for the feature across all 8 parks in Wailuku.

Table S.2.3. Sports Features Across all 8 parks in Wailuku

Feature	Total number of the feature	Condition of the Feature			Number of features w/ Lighting
		OK/Good	Poor	Not rated	
Field multiuse	4	4	0	0	0
Field football	0	0	0	0	0
Field baseball	8	8	0	0	0
Field soccer	0	0	0	0	0
Court basketball	6	6	0	0	1
Court tennis	6	6	0	0	1
Court volleyball	0	0	0	0	0
Court multiuse	0	0	0	0	0
Track	0	0	0	0	0
Pool	0	0	0	0	0
Playground	0	0	0	0	0
Skateboarding	0	0	0	0	0
Exercise Stations	0	0	0	0	0
Rock Climbing	0	0	0	0	0

Park Features and Amenities

Staff assessed each park for a specific list of features and amenities to determine if the feature or amenity was present and to rate the condition of the surface or feature.

When staff were unable to determine the condition of one or more features of a specific type (if more than one present), they rated the features of that type that were able to be

rated. When any features of a specific type could not be rated due to construction/ repairs or seasonal closure staff selected not rated.

Feature or Amenity Descriptions

- **Green Space**: This includes natural or landscaped space not specifically designated for physical activity
- **Beaches:** This includes natural or man-made beaches on the edge of water features such as lakes, rivers, and lagoons, as well as beaches at coastal parks.
- **Beaches Swimmable:** This includes any beach area with minimal shore break for a 3-5 year old to swim in.
- **Beaches Recreational:** This includes any beach with facilities for family picnics, barbecues, sports, water-sports, etc.
- **Beaches with Lifeguard:** This may be a swimmable beach, recreational beach, or both wherein lifeguards are present to monitor activities and to alert families of changing currents.
- **Other Water Features:** This includes natural or man-made bodies of water that may be present, including streams, creeks, rivers, ponds, lakes, lagoons, and in case of coastal parks, ocean.
- **Shelters:** This refers to a permanent structure with a roof to protect users from rain or sun. Walls are not required. Cloth or lattice canopies over picnic tables or exercise equipment and pergolas are not included.
- **Picnic Tables, Shaded:** This refers to a table top with benches, including outdoor lunch tables. Shade can be provided by tree or a structure.
- **Picnic Tables, not Shaded:** This refers to a table top with benches including outdoor lunch tables. These include tables without trees or a structure.
- **Benches:** Benches are structures designed to function as seating. These do not include picnic tables or retaining/supporting/landscaped walls whose primary function is not seating.
- **Drinking Fountains:** These include freestanding or attached water dispensers intended for drinking.

- **Decorative Water Fountains:** These include ornamental structures from which jet(s) or stream(s) of water is issued and reflecting pools. Decorative fountains are not used for drinking or swimming.
- **Trash Containers:** These are receptacles for litter and refuse that can be made of metal, plastic, or paper/plastic bags. They may be stand-alone or attached to a building.
- **Grills/Fire Pits:** These are structures designed for cooking meats or other foods over open fire. A fire pit may be built directly into the ground or may be a wide and low metal container that holds coals or wood.
- **Fence:** Large areas of the park are enclosed by a fence.
- **Trails:** These include paved or unpaved pathways or footpaths for walking, biking, roller-skating, etc. Trails are distinct from running/walking tracks in that they tend not follow a strict oval shape, but will usually follow an irregular direction and cover a greater distance than a track.

Survey Results of Park Features and Amenities

Among the 8 parks in Wailuku there were a total of 42 features and amenities, of which 40 were rated as ok/good, 1 was rated as poor, and 1 was not rated. Among rated features and amenities, all (98.0%) were rated as ok/good. The most common features and amenities present were trash bins, green space, fences, and benches. Table S.2.4. summarizes the total number and condition of each individual feature/amenities which was assessed.

Table S.2.4. Park Features and Amenities Across all 8 Parks in Wailuku

Feature	Total Number of the Feature	Condition of the Feature		
		OK/Good	Poor	Not rated
Green Space	7	7	0	0
Beach swim	1	1	0	0
Beach recreational	1	1	0	0
Beach lifeguard	0	0	0	0
Waterpark	0	0	0	0
Shelters	4	4	0	0
Picnic Tables w/Shade	3	3	0	0
Picnic Tables w/o Shade	4	4	0	0
Benches	5	5	0	0
Drinking fountain	2	2	0	0
Décor fountain	0	0	0	0
Trash bins	8	7	0	1
Grills	1	1	0	0
Fence	6	5	1	0
Trails	0	0	0	0

Incivilities

Staff assessed each park for a list of incivilities and how much each was present. The term incivility is used to describe items in the environment that might discourage physical activity. These items are often signs of area deprivation. The following items in this section were used to assess the physical disorder of the park grounds environment.

- **Garbage/Litter:** Includes paper, packaging, and other items of refuse not included in other categories below.

- **Broken Glass:** Includes any types of broken glass, such as bottles, etc.

- **Graffiti/Tagging:** Refers to “unapproved” writing such as painted or drawn signs or symbols (e.g., gang insignia) on the building and/or exterior property. Do not include painted murals or public art.
- **Evidence of Alcohol Use:** This includes beer or other alcohol-related bottles, cans or caps littering the ground or in/around overflowing trash cans. You do not need to check inside the trash cans for evidence of alcohol use.
- **Evidence of Substance Abuse:** This includes syringes, baggies, rolling papers, etc.
- **Sex Paraphernalia:** This includes condoms, condom wrappers, or other contraceptive device/material, or visible pornographic reading material.
- **Dog Refuse:** There is dog refuse visible.
- **Dogs Unattended:** There are dogs who wander the facility not under advice or leash.
- **Vandalism:** There are evidences of broken windows or other broken features.

Staff looked for incivilities throughout the park and assigned a score for each incivility type based upon the amount that was present across the park settings. The possible ratings were: none (0), a little (1), some (2), and a lot (3). For the community, average rating for each of the item was used. Mean rating across all 9 items were then used as an overall rating of incivilities across all parks surveyed in that community.

Among the eight parks in Wailuku, there was a little bit of incivilities (mean= 0.1; sd=0.1). Across the eight parks in Wailuku, there was no broken glass, no evidence of substance abuse, no evidence of alcohol use, no sex paraphernalia, no dogs left unattended, no dog refuse, no graffiti/tagging, and no vandalism. There was, however, on average, only a little bit of garbage. (Table S.2.5).

Table S.2.5. Average Amount of Each Incivility Across 8 Parks in Wailuku

Incivility Type	Amount
Garbage	A little
Broken glass	None
Graffiti/Tagging	None
Evidence of Alcohol use	None
Evidence of Substance Abuse	None
Sex Paraphernalia	None
Dog Refuse	None
Dogs Unattended	None
Vandalism	None

Section 3. School Observations

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.

School Setting, Parking, Sidewalks, and Amenities

Method: Upon entering the school, staff assessed the presence of certain school settings, parking and sidewalk features, and certain school amenities.

Observations on school setting included whether it was adjacent to a park. In Wailuku, there were 6 schools with this information. Among the 6 schools, all had information on whether the school was adjacent to a park. Out of those 6 schools, 1 (16.7%) were adjacent to a park, and 1 (16.7%) shared sports features with an adjacent park.

All schools had on-site parking, while 4 (80%) of schools had on-site parking with overhead lighting, and 2 (33.3%) had bicycle parking. Five (83.33%) of schools had a sidewalk leading up to the entrance of the school, while 3 (60.0%) schools had sidewalks with overhead lighting.

Observations on school amenities included whether it had closing time signage, restrooms, showers, and beverage vending machines. Among the 6 schools with such information, none (0.0%) had closing time signage, all 6 (100%) had restrooms, 1 (16.7%) had showers, and 1 (16.7%) had beverage vending machines.

Table S.3.1. School Setting (N=6)

School Setting	Number	Percent
Setting (n=6)		
Adjacent to a park	1	16.7%
Shares sports features with a park	1	16.7%
Parking (n=6)		
Parking on-site available (not including street parking)	6	100.0%
Parking has lights	4	80.0%
Bicycle parking racks or cages available	2	33.3%
Sidewalk (n=6)		
Sidewalks on street lead up to the entrance	5	83.3%
Sidewalks have lighting	3	60.0%
Amenities (n=6)		

School has closing time signage	0	0.0%
Restrooms present	6	100.0%
Showers present	1	16.7%
Beverage vending machines present	1	16.7%

School Access and Barriers to Entry

Staff assessed each school for signage limiting entry and any physical barriers around the perimeter of the school. Among the eight schools surveyed in Wailuku, 6 (100%) had signage indicating the school name, 1 (16.7%) had signage stating that public use of the school was limited to specific times (e.g., after school), 2 (33.3%) of the schools had signage indicating that the school was private or had restricted access at all times (e.g. no trespassing, school use only), and 1 (16.7%) of the schools had a locked fence or other physical barrier around the perimeter.

Table S.3.2. School Access and Barriers (N=8)

Access and Barriers		
Signage indicates school name	6	100.0%
Signage states public use of area is limited to specific times	1	16.7%
Signage states area is private or restricted access at all times	2	33.3%
Locked fence or other physical barrier around the perimeter prevents public access	1	16.7%

Sports Features

Staff assessed each school for a specific list of sports features to determine the number of each feature present and whether such a feature had lighting or not. Staff also rated the condition of each feature. These features are the same as those included in the assessment of parks.

Condition of the Feature

Staff rated the condition and the presence of lighting for each feature item. The condition of a feature could be recorded as “poor”, “okay/good”, or “not rated”. When there was more than one of a particular feature, each was evaluated for condition while the presence of lighting was assessed across all features. For example, if a school had 3 basketball courts and 2 were in okay condition, 1 was in poor condition, and 1 of them had lighting, then the staff would record the number of basketball courts as 3, 2 of which were rated okay/good, 1 was rated as poor, and that this school had lighting for this feature.

Feature condition was rated based on the feature’s surface and related equipment, if any was available for the feature. Ultimately the feature condition rating was related to whether or not players could safely play or engage in physical activity on a feature without risking injury or falling. Staff took into consideration the type of activities that would take place on or within a particular feature as well as the material comprising the surface when considering its condition. When assessing the condition of equipment used for physical activity, staff took into consideration age, functionality, wear and tear, damage such as dents or sharp edges, missing pieces, and rust. For example, if a playing surface was composed of concrete, staff assessed whether smooth concrete covered the entire surface and looked for cracks or uneven slabs in the concrete surface. See APPENDIX C for a detailed protocol on how each sports feature was rated for condition.

Survey Results for Sports Features

Across the six schools surveyed in Wailuku, there were a total of 30 sports features, of which 28 were rated as ok/good, 2 were rated as poor, and 0 were not rated. Among the 30 rated features, 93.3% were rated as ok/good.

Baseball fields were the most frequent features (8), followed by playground (7), and tennis courts (3). Playgrounds may be of particular interest to families with young children. Among the 7 playgrounds in Wailuku, all were rated ok/good, and none of the schools had a playground area with lighting. The following table (Table S.3.3) summarizes the number of each sports feature, the conditions of the feature, and whether lighting was present for the feature across all 6 schools in Wailuku.

Table S.3.3. Sports Features Across all 6 schools in Wailuku

Feature	Total number of the feature	Condition of the Feature			Number of schools w/ Lighting
		OK/Good	Poor	Not rated	
Field multiuse	2	2	0	0	0
Field football	1	1	0	0	1
Field baseball	8	6	2	0	1
Field soccer	1	1	0	0	0
Court basketball	2	2	0	0	0
Court tennis	3	3	0	0	1
Court volleyball	0	0	0	0	0
Court multiuse	2	2	0	0	1
Track	2	2	0	0	1
Pool	1	1	0	0	1
Playground	7	7	0	0	0
Skateboarding	0	0	0	0	0
Exercise Stations	1	1	0	0	1
Rock Climbing	0	0	0	0	0

School Features and Amenities

Method: Staff assessed each school for a specific list of features and amenities to determine if the feature or amenity was present and to rate the condition of the surface or feature. These features are the same as those included in the assessment of parks.

When staff were unable to determine the condition of one or more features of a specific type (if more than one present), they rated the features of that type that were able to be rated. When any features of a specific type could not be rated due to construction/ repairs or seasonal closure, staff selected not rated.

Survey Results of School Features and Amenities

Among the 6 schools in Wailuku, there were a total of 38 features and amenities, of which all 38 were rated as ok/good, 0 were rated as poor, and 0 were not rated. Among rated features and amenities, 100% were rated as ok/good. The most common features and amenities present were trash bins (6), picnic tables (5), drinking fountains (5), benches (5), and fences (5). Table S.3.4. summarizes the total number and condition of each individual feature/amenity which was assessed.

Table S.3.4. Features and Amenities Across all 6 Schools in Wailuku

Feature	Total Number of the feature	Condition of the Feature		
		OK/Good	Poor	Not rated
Green Space	4	4	0	0
Beach for swimming	0	0	0	0
Beach, recreational	0	0	0	0
Beach with lifeguard	0	0	0	0
Waterpark	1	1	0	0
Shelters	4	4	0	0

Picnic Tables w/ Shade	5	5	0	0
Picnic Tables w/o Shade	3	3	0	0
Benches	5	5	0	0
Drinking fountain	5	5	0	0
Decorative fountain	0	0	0	0
Trash bins	6	6	0	0
Grills	0	0	0	0
Fence	5	5	0	0
Trails	0	0	0	0

Incivilities

Method: Staff assessed each school for a list of incivilities and how much each was present. The term incivility is used to describe items in the environment that might discourage physical activity. These items are often signs of area deprivation or markers of blight. The following items in this section were used to assess the physical disorder of the school grounds environment. These incivilities are the same as those included in the assessment of parks.

Amount of Incivilities

Staff looked for incivilities throughout the school and assigned a score for each of 9 incivility types based upon the amount that was present across the school settings. The possible ratings were: none (0), a little (1), some (2), and 3 (a lot). For the community, average rating for each of the item was used.

Among the six schools in Wailuku, there was none in each type of incivility (Table S.3.5).

Table S.3.5. Average Amount of Each Incivility Across 6 Schools in Wailuku

Incivility Type	Amount
Garbage	None
Broken glass	None
Graffiti/Tagging	None
Evidence of Alcohol use	None
Evidence of Substance Abuse	None
Sex Paraphernalia	None
Dog Refuse	None
Dogs Unattended	None
Vandalism	None

Section 4. Assessment of Physical Activity Facilities

Method: 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 (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 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.

For Wailuku, 3 facilities were listed on the inventory and 3 were assessed.

PA Facility Setting and Fees

Upon entering the PA facility, staff assessed the presence of certain PA facility settings and fees.

Observations on PA facility setting included facility type, the presence of indoor and outdoor sports features, childcare and teen services, and types of fees. In Wailuku, all 3 PA facilities that were assessed had this information. Among the 3 PA facilities, all had information on setting. Out of those 3 PA facilities, all (100%) were a for-profit PA facility. Among the 3 PA facilities, all (100.0%) had only indoor features. None (0.0%) of the three PA facilities were found to offer child care. None (0.0%) offered teen services. All three facilities had information on fees for entrance and three facilities offered a daily fee, 2 (66.7%) offered discount for low-income, and 1 (33.3%) offered a discount for youth. Table S.4.1 summarizes this information.

Table S.4.1. PA Facility Setting (N=3 unless otherwise noted)

PA Facility Setting	Number	Percent
Setting		
Community Recreation Center	0	0.0%
Boys and Girls Club	0	5.0%
Church Community Center	0	0.0%

YMCA/YWCA	0	0.0%
For-Profit PA Facility	3	100%
Other	0	0.0%
Sport feature location		
Indoor	3	100%
Outdoor	0	0.0%
Both Indoor and Outdoor	0	0.0%
Services		
Childcare	0	0%
Teen activities	0	0%
Fees		
Daily Fees	3	100.0%
Fee discount for low-income	2	66.7%
Fee discount for youth	1	33.3%

PA Facility Parking, Sidewalks and Amenities

Staff assessed each PA facility for on-site parking, parking overhead lighting, bicycle parking, a sidewalk leading up to the entrance, and sidewalk overhead lighting. Among the three PA facilities surveyed in Wailuku, 3 (100%) had on-site parking, none (0%) had parking overhead lighting, and none (0%) had bicycle parking. Only two facilities had information on whether there was sidewalk leading up to the entrance and a total of 2 (100%) was present. All three facilities had information on whether there was sidewalk overhead lighting and no sidewalk overhead lighting was present.

Observations on PA facility amenities included whether it had restrooms, showers, and beverage vending machines both inside and outside. Among the 3 PA facilities, all (100%) had restrooms inside. 1 (33.3%) had showers and 2 (66.7%) had a beverage

vending machine present inside. On the outside, only 1 PA facility had information on restrooms and showers, and neither was present. Table S.4.2 summarizes this information.

Table S.4.2. PA Facility Amenities (N=3 unless otherwise noted)

Access and Barriers		
Parking		
Parking on-site available (not including street parking)	3	100%
Parking has lights	0	0%
Bicycle parking racks or cages available	0	0%
Sidewalk		
Sidewalks on street lead up to the entrance (n=2)	2	100%
Sidewalks have lighting	0	0.0%
Amenities		
Restrooms present inside	3	100%
Showers present inside	1	33.3%
Beverage vending machines present inside (n=3)	2	66.7%
Restrooms present outside (n=1)	0	0.0%
Showers present outside (n=1)	0	0.0%
Beverage vending machines present outside (n=1)	0	0.0%
Restrooms present inside or outside	3	100%
Showers present inside or outside (n=3)	1	100 %
Beverage vending machines present inside or outside (n=2)	2	100%

Sports Features

Staff assessed each PA facility for a specific list of sports features indoors and outdoors to determine the number of each feature present, the condition of each feature, and, for outdoor features, whether lighting was present. Staff also rated the condition of each feature.

Condition of the Feature

Staff rated the condition for each feature item and, for outside features, the presence of lighting. The condition of a feature could be recorded as “poor”, “okay/good”, or “not rated”. When there was more than one of a particular feature, each was evaluated for condition while the presence of lighting was assessed across all features. For example, if a PA facility had 3 basketball courts and 2 were in okay condition, 1 was in poor condition, and 1 of them had lighting, then the staff would record the number of basketball courts as 3, 2 of which were rated okay/good, 1 was rated as poor, and that this PA facility had lighting for this feature.

Feature condition was rated based on the feature’s surface and related equipment, if any was available for the feature. Ultimately the feature condition rating was related to whether or not players could safely play or engage in physical activity on a feature without risking injury or falling. Staff took into consideration the type of activities that would take place on or within a particular feature as well as the material comprising the surface when considering its condition. When assessing the condition of equipment used for physical activity, staff took into consideration age, functionality, wear and tear, damage such as dents or sharp edges, missing pieces, and rust. For example, if a playing surface was composed of concrete, staff assessed whether smooth concrete covered the entire surface and looked for cracks or uneven slabs in the concrete surface.

Survey Results for Indoor Sports Features

Across the three PA facilities surveyed in Wailuku, there were a total of 6 indoor sports features, of which all 6 (100%) were rated as ok/good.

Multipurpose rooms and exercise machine areas were the most common feature (3). Among the 3 multipurpose rooms In Wailuku, all 3 were rated ok/good. The following table (Table S.4.3) summarizes the number of each sports feature and the conditions of the feature across all 3 PA facilities in Wailuku.

Table S.4.3. Indoor Sports Features Across all 3 PA Facilities in Wailuku

Feature	Total number of the feature	Condition of the Feature		
		OK/Good	Poor	Not rated
Field soccer	0	0	0	0
Court basketball	0	0	0	0
Court tennis	0	0	0	0
Court volleyball	0	0	0	0
Court racquetball	0	0	0	0
Court multiuse	0	0	0	0
Multipurpose room	3	3	0	0
Exercise machine area	3	3	0	0
Gymnastics facilities	0	0	0	0
Running/ Walking track	0	0	0	0
Pool >3 feet deep	0	0	0	0
Skateboarding	0	0	0	0
Rock Climbing	0	0	0	0

Survey Results for Outdoor Sports Features

Across the three PA facilities surveyed in Wailuku, there were no outdoor sports features present.

PA Facility Amenities

Method: Staff assessed each PA facility for a specific list of amenities to determine if the amenity was present and to rate the condition of the item.

When staff were unable to determine the condition of one or more features of a specific type (if more than one present), they rated the features of that type that were able to be rated. When any features of a specific type could not be rated due to construction/ repairs or seasonal closure, staff selected not rated.

Among the 3 PA facilities in Wailuku, there were a total of 6 amenities, of which 4 were rated as ok/good, 0 was rated as poor, and 2 were not rated. The amenities present were benches (13), trash containers (2), indoor drinking fountains (3), and an outdoor drinking fountain (0). Table S.4.5 summarizes the total number and condition of each individual feature/amenity which was assessed.

Table S.4.5. Amenities Across all 3 PA Facilities in Wailuku

Feature	Total Number of the feature	Condition of the Feature		
		OK/Good	Poor	Not rated
Drinking fountain indoor	3	2	0	1
Drinking fountain outdoor	0	0	0	0
Trash container	2	1	0	1
Benches	13	13	0	0

Incivilities

Method: Staff assessed each PA facility for a list of incivilities and how much each was present. The term incivility is used to describe items in the environment that might discourage physical activity. These items are often signs of area deprivation or markers of blight.

These incivilities are the same as those included in the assessment of parks. Staff looked for incivilities throughout the PA facility and assigned a score for each of 9 incivility types based upon the amount that was present across the PA facility ground. The possible ratings were: none (0), a little (1), some (2), and 3 (a lot). For the community, an average rating for each item was used.

Among the three PA facilities in Wailuku, the mean rating across all the incivility types was 0.07. There was only a little bit of garbage (Table S.4.6). However, there was no evidence of alcohol use, evidence of substance abuse, broken glass, graffiti/tagging, sex paraphernalia, dogs unattended, dog refuse, or vandalism.

Table S.4.6. Average Amount of Each Incivility Across 3 PA Facilities in Wailuku

Incivility Type	Amount
Garbage	A little
Broken glass	None
Graffiti/Tagging	None
Evidence of Alcohol use	None
Evidence of Substance Abuse	None
Sex Paraphernalia	None
Dog Refuse	None
Dogs Unattended	None
Vandalism	None

Section 5. Assessment of Fast Food Outlets

Method: 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-COMP 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. (See APPENDIX for CHL form used.) 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.

Eligible Fast Food Outlets:

Any national and regional fast food chains or franchises and independent fast food outlets that were located within Wailuku were eligible. Fast food outlets are most often characterized by the fact that customers order and pay at the counter prior to eating. Data collection was also conducted in pizzerias, which may have table service. Specialty snack/drink shops where 50% or more of the menu items are a snack or drink item (e.g. Dunkin' Donuts, Starbucks, Baskin Robbins, Auntie Anne's Pretzels, Tropical Smoothie Café), buffets, and "take & bake" pizza places (e.g. Papa Murphy's, Homemade Pizza Co.) were excluded.

For Wailuku, 10 outlets were listed on the original inventory, 10 were visited, and 10 had a complete assessment and were included in this analysis.

Outlet Type and Shared Space

Upon entering the outlet, staff assessed the outlet type according to the main cuisine or type of food/beverages on the menu board and whether it shared space with another business. The outlet type was selected from a list, or other could be selected. All 10 fast food outlets in Wailuku had information on the outlet type. Among them, 4 (40.0%) were a Chinese/Pan-Asian outlet, 2 (20.0%) were a Mexican/Latin American outlet, 2 (20.0%) were a Plate Lunch/Lunch Truck outlet, 1 (10.0%) was a Pizzeria/Italian outlet, and 1

(10.0%) was in the other category and described as having multiple cuisine types including Burger and Fries, Mexican/Latin American, American Diner, Fried Chicken/Fried Fish, Sandwich or Sub Shop, and Plate Lunch/Lunch Truck options.

Each outlet was assessed for whether it had its own building /exterior or whether it shared spaced with a food court, grocery store, gas station, or other restaurant. All 10 fast food outlets in Wailuku had information on shared space. Among them, none shared space with a food court, a grocery store, a gas station, or with another restaurant. Table S.5.1 summarizes this information.

Table S.5.1. Outlet Type and Shared Space (N=10)

Outlet Setting	Number	Percent
Outlet Type		
Burger and Fries	0	0.0%
Mexican/Latin American	2	20.0%
Fried Chicken/Fried Fish	0	0.0%
Sandwich or Sub Shop	0	0.0%
Sandwich/Pastry	0	0.0%
Pizzeria/Italian	1	10.0%
Plate Lunch/Lunch Truck	2	20.0%
Chinese/Pan-Asian	4	40.0%
Other, *SPECIFY: American Diner*	1	10.0%
Shared Space		
Food Court	0	0.0%
Grocery Store	0	0.0%
Gas Station	0	0.0%
Other Restaurant	0	0.0%

Outlet Parking, Sidewalks, and Exterior Amenities

Staff assessed each outlet for certain amenities such as on-site parking, bicycle parking, parking overhead lighting, sidewalks, and sidewalk overhead lighting.

Among the 10 fast food outlets surveyed in Wailuku, 9 (90.0%) had on-site parking, none had bicycle parking, and 5 (50.0%) had parking overhead lighting. A total of 8 (80%) had a sidewalk leading up to the entrance and 4 (40%) had sidewalk lighting.

Observations on outlet amenities included whether it had outdoor seating, bars on the windows, an exterior play area, an indoor play area visible from the outside, and a drive-thru window. Among the 10 fast food outlets in Wailuku, only 8 have information on outdoor seating and bars on windows. Among the 8 fast food outlets, 1 (12.5%) had outdoor seating, 1 (12.5%) had bars on the windows. None had an exterior play area, none had an indoor play area that was visible from the outside, and none had a drive-thru window. This information is summarized in Table S.5.2.

Table S.5.2. Parking, Sidewalks, and Exterior Amenities (N=10 unless otherwise noted)

Exterior Feature	Number	Percent
Parking		
Parking on-site available (not including street parking)	9	90.0%
Parking has lights	5	50.0%
Bicycle parking racks or cages available (n=8)	0	0.0%
Sidewalk		
Sidewalks on street lead up to the entrance	8	80.0%
Sidewalks have lighting	4	40.0%
Outdoor seating (n=8)	1	12.5%
Bars on windows (n=8)	1	12.5%
Exterior play area	0	0.0%
Indoor play area visible from outside	0	0.0%
Drive thru window	0	0.0%

Staff also assessed the number of external walls visible from the street and the level of graffiti and garbage that was present. Among the 10 fast food restaurants in Wailuku, 4 (40%) had one visible wall, 1 (10%) had two visible walls, 3 (30%) had three visible walls, and 2 (20%) had all four walls visible. This question was intended to give a sense of the size/layout of the restaurant property and the number of sides on which advertisements can be placed.

Staff rated each fast food outlet as having none, a little, some, or a lot of graffiti and garbage. All 10 fast food outlets in Wailuku had information on the level of graffiti and garbage that was present. Among them, all 10 outlets (100%) had no graffiti or garbage present. This information is summarized in Table S.5.3.

Table S.5.3. Exterior (N=10 unless otherwise noted)

Exterior Feature	Number	Percent
Walls visible from street		
0	0	0%
1	4	40.0%
2	1	10.0%
3	3	30.0%
4	2	20.0%
Graffiti		
None	10	100%
A little	0	0.0%
Some	0	0.0%
A lot	0	0.0%
Garbage		
None	10	100.0%
A little	0	0.0%
Some	0	0.0%
A lot	0	0.0%

Exterior Marketing

Staff assessed food and beverage advertisements on the building exterior and property, child-targeted marketing on the exterior, and other ad themes.

Ads on the Building Exterior or Property

The number of advertisements at least 8½ x 11 inches in size that were posted on the building exterior and restaurant property was recorded. To be counted, ads must have been visible from the parking lot(s) and/or from the street(s) bordering the restaurant. (See APPENDIX B for a detailed description of what was included and excluded as advertisements). Ads which could be considered a price promotion, food ad, beverage ad, or soda ad were separately tallied.

- **Exterior ads:** included those that are on the walls, doors, windows or roof of the building and visible from the parking lot(s) or street(s) bordering the restaurant.
- **Property ads:** include those that are not posted on the building, but are in some other place on the restaurant property such as on a fence, light post, pole, garbage can, parking barrier, play area, or other place. Again, these must be visible from the parking lot(s) or street(s) bordering the restaurant.
- **Price promotion ads** have a price specified or the presence of any of the following word(s): “price,” “sale,” “deal,” “save,” “discount,” or “value.” It also includes any ad promoting a multi-item discount like “Buy one, get one free,” “free with purchase,” “try one free” or related language. It may or may not also have included a food or beverage.
- **Food ads** have an image of and/or a name/description for a food item(s). It may or may not also have included a beverage.
- **Beverage ads** have an image of and/or a name/description for a beverage item(s). This could include, for example, soda, coffee drinks, tea, milkshakes, smoothies, juice, water and other beverages.
- **Soda ads** have an image of and/or a name/description for a soda. This can include bottled or canned soft drinks, as well as fountain drinks.

Among the 10 fast food outlets in Wailuku, 10 were assessed for ads on the building exterior. Among these 10 outlets, there were a total of 30 ads, 9 ads for price promotion, 23 food ads, 8 beverage ads, and 2 soda ads. The mean and standard deviation (sd) for the number of ads on the building exterior of fast food outlets in Wailuku is 3.0 (sd=3.0, min=0, max=8). The mean number of ads for a price promotion was 0.9 (sd=2.5, min=0, max=8). The mean number of ads for food was 2.3 (sd=3.0, min=0, max=8). The mean number of ads for beverages was 0.8 (sd=1.9, min=0, max=6). Among the 10 fast food outlets in Wailuku, 2 of the outlets had ads on the property. Table S.5.4 summarizes this information. The presence of specific types of ads at each outlet is presented in table S.5.5. The type of ad most commonly observed at FFOs in Wailuku was a food ad (n=5, 50%), followed by a beverage ad (n=3, 30%), price promo ad (n=2, 20%), and a soda ad (n=2, 20%).

Ten of the fast food outlets in Wailuku were assessed for ads on the property.

Table S.5.4. Summary of Price Promotion, Food, Beverage, or Soda Ads on the Building Exterior or Property across Fast Food Outlets in Wailuku

		Type of Ad				
Location	**# surveyed**	**Total**	**Price Promo**	**Food Ad**	**Beverage Ad**	**Soda Ad**
Exterior	10	30	9	23	8	2
Property	10	2	0	0	2	2

Other Ads on the Exterior

Staff also assessed the presence of ads on the outlet's exterior that included a dollar menu promotion, health claim, cartoon character(s), a celebrity, kids' meal toy, or other child-directed marketing. Any one ad can be coded as having one or more of the characteristics described above. For example, the same ad could feature both cartoon characters and the kids' meal toy.

All 10 fast food restaurants in Wailuku had this information. Among them, none (0.0%) had a dollar menu ad, a cartoon ad, a celebrity ad, a kids' meal toy ad, or health ads and other child-directed marketing. Table S.5.5 summarizes this information.

Table S.5.5. Presence of Ads by Type (N=10 unless otherwise noted)

Type of Ad	Number	Percent
External		
Price Promo	2	20.0%
Food Ad	5	50.0%
Beverage Ad	3	30.0%
Soda Ad	2	20.0%
Property		
Price Promo	0	0.0%
Food Ad	0	0.0%
Beverage Ad	2	20.0%
Soda Ad	2	20.0%
Dollar menu	0	0.0%
Health claim	0	0.0%
Cartoon character(s)	0	0.0%
TV/ movie star/sports start/youth celebrity	0	0.0%
Kids' meal toy	0	0.0%
Other child-targeted marketing	0	0.0%

Counter Service and Restaurant Interior

Staff assessed items describing the type of service offered within the establishment, characteristics of the checkout area, characteristics of the restaurant interior, and availability of self-service beverages and a salad bar.

None of the fast food outlets in Wailuku were a drive-in only restaurant, and so they were all assessed for restaurant interior characteristics. Among the 10 outlets in Wailuku, food was ordered at the counter in 9 (90.0%) of the outlets. Six (60%) of outlets had food pick up and 9 (90%) of the outlets had payment at the counter. Staff counted the number of cash registers inside of the restaurant and found that 8 (80.0%) of the outlets had one register and 2 (20.0%) of the outlets had two registers. Two (20.0%) of the outlets had a glass or Plexiglas divider between customers.

Regarding other interior characteristics, 8 (80.0%) of the fast food outlets had indoor seating, 6 (66.7%) had bathrooms available to customers, 0 (0.0%) had a toy display and this was recorded at being less than 3 and a half feet or less from the ground (at eye level of children). Regarding specific food and beverage items, 2 (20.0%) outlets had sweets–such as cookies and candy–near the cash register, 3 (30.0%) outlets had self-serve fountain drinks, 3 (30.0%) had free water, and none had self-serve salads.

Table S.5.6. Counter Service and Restaurant Interior (N=10 unless otherwise noted)

Restaurant Feature	Number	Percent
Drive-in only	0	0.0%
Counter Service		
Ordering food	9	90.0%
Picking up food	6	60.0%
Paying for food	9	90.0%
Interior Register Count		
1 register	8	80.0%
2 registers	2	20.0%
3 registers	0	0.0%
Divider between customer and cash register	2	20.0%
Indoor Seats	8	80.0%
Restrooms	6	66.7%
Indoor displays for kids' meal toys		
Any ad or display	0	0.0%
Toy display 3½ feet or less from the ground	0	0.0%
Sweet snacks near counter	2	20.0%
Self-serve fountain drinks	3	30.0%
Free water	3	30.0%
Self-serve salad	0	0.0%

General Menu: Dollar Menu Items, Combo Meals, Salad, Fruits and Vegetables, and Signs for Health Options

Staff assessed the availability of a dollar menu and specific items on it, combo meals, salads and other fruit and vegetable sides. Signage for "healthy" items on the menu was also assessed.

Among the 10 fast food outlets in Wailuku, none (0.0%) had a dollar menu, with fruit, dessert, a drink, fries, and entrée each on the dollar menu. Four (40.0%) of the outlets

had a combo meal, 5 (50.0%) of the outlets had a salad as an entree, and 2 (20.0%) of the outlets had low-fat dressing.

Staff tallied the number of side items on the menu that were vegetables, fresh fruit, or other fruit besides fresh fruit. Staff looked for the availability of any side salad(s) or other vegetable(s) listed on the menu as a “side” or “extra” and assessed whether it met the criteria of being non-fried and not having added fat. Vegetables that were part of a main dish were also not counted. Staffed looked for the availability of any fresh fruit listed on the menu as a “side” or “extra.” Beverages such as juice or smoothies were not counted. Staff also looked for the availability canned, dried, or other processed (not fresh) fruit options listed on the menu as a “side” or “extra.”

Ten outlets in Wailuku were assessed for vegetables and fruit. Across the menus of these 10 outlets, there were a total of 3 vegetables, 1 fresh fruit, and zero other fruit options. Across these 10 outlets, 7 (70.0%) had zero vegetables items, and 3 (30.0%) had 1-2 vegetables items. Nine (90.0%) outlets had zero fruit items, and 1 (10.0%) outlet had 1-2 fruit items, and all 10 (100%) outlets had no other fruit items.

Staff looked for signage indicating food as low calorie, low fat, low sodium, or healthy. Among the 10 fast food outlets in Wailuku, none of the outlets had signage for low fat, signage for low sodium food, signage for low calorie or healthy food items. One (10.0%) of the fast food outlets had liquor on the menu. This information is summarized in Table S.5.7.

Table S.5.7. General Menu Items (N=10 unless otherwise noted)

Menu Feature	Number	Percent
Dollar Menu	0	0.0%
Fruit on Dollar Menu	0	0.0%
Dessert on Dollar Menu	0	0.0%
Drink on Dollar Menu	0	0.0%
Fries on Dollar Menu	0	0.0%
Entrée on Dollar Menu	0	0.0%
Combo meal	4	40.0%
Salad as an entrée	5	50.%
Low-fat salad dressing	2	20.0%
Vegetable Items Count		
none	7	70.0%
1-2	3	30.0%
2-4	0	0.0%
5 or more	0	0.0%
Fruit Items Count		
none	9	90.0%
1-2	1	10.0%
2-4	0	0.0%
5 or more	0	0.0%
Signage on the menu		
Low calorie	0	0.0%
Low fat	0	0.0%
Low sodium	0	0.0%
Healthy	0	0.0%
Liquor	1	10.0%

Beverage Item Assessment

Staff assessed the posted menu board for the availability and price of specific beverage items–such as soda, juice, milk, water, coffee, and shakes–commonly found in fast food establishments. A total of 10 fast food outlets in Wailuku had information on beverage items. The most commonly available drinks were fountain drink (n=9, 90.0%) and bottled water (n=7, 70%). This information is presented in Table S.5.8.

Table S.5.8. Beverage Items (N=10 unless otherwise noted)

Beverage	Number	Percent
Fountain drink	9	90.0%
Packaged soda	4	40.0%
100% Juice	2	20.0%
Milk, skim or 1% fat (unflavored)	1	10.0%
Milk, whole/Vit D or 2% fat (unflavored)	1	10.0%
Bottled Water	7	70.0%
Flavored Coffee Drinks (hot or iced)	3	30.0%
Shakes or Malts	1	10.0%
Flavored Milk (e.g., chocolate, strawberry)	1	10.0%

Food Item Assessment

Staff assessed the posted menu board for the availability and price for specific food items commonly found in fast food establishments and pizzerias. Among the 10 fast food outlets in Wailuku, the most commonly available food item from the list of specific foods was french fries (n=7, 70.0%) and chicken sandwich (n=7, 70.0%) followed by

cheeseburger, entrée salad, and fried chicken which were each available in 6 (60.0%) of the outlets in Wailuku. This information is presented in Table S.5.9.

Table S.5.9. Food Items (N=10 unless otherwise noted)

Food	Number	Percent
French fries	7	70.0%
Cheeseburger	6	60.0%
Chicken Sandwich, with roasted or grilled chicken	7	70.0%
Entrée salad, with roasted or grilled chicken	6	60.0%
Fried chicken – legs, drumstick, and thigh	6	60.0%
Cheese pizza, thin crust	1	10.0%
Taco with ground beef	2	20.0%
Sub sandwich, with turkey and cheese	0	0.0%

Children's Menu Assessment

Staff assessed each outlet for items that were available and promoted to children (usually ages 12 and under), via the establishment's kids' meal or kids' menu. Staff looked for healthy beverage and food options and asked for these items when they were not posted on the menu board. Staff also assessed the availability of toys.

Among the 10 fast food outlets in Wailuku, 1 (10.0%) had a kids' menu or meal available. None of the outlets had an unflavored skim/1% milk, 100% juice, or bottled water option on the board and when asked. None of the outlets had a fruit, vegetable (only non-fried vegetables w/o added fat), salad or yogurt option on the board and when

asked. No outlets offered a free toy with the kids' meal and a toy for an additional charge. This information is summarized in Table S.5.10.

Table S.5.10. Children's Menu (N=6 unless otherwise noted)

Menu Feature	Number	Percent
Kids' menu or meal	1	10.0%
Unflavored skim/1% milk, 100% juice, or bottled water (listed or shown on board)	0	0.0%
Unflavored skim/1% milk, 100% juice, or bottled water (available when asked)	0	0.0%
Fruit, vegetable (only non-fried vegetables w/o added fat), salad or yogurt (listed or shown on board)	0	0.0%
Fruit, vegetable (only non-fried vegetables w/o added fat), salad or yogurt (available when asked)	0	0.0%
Free toy with kids' meal	0	0.0%
Toy for additional charge	0	0.0%

Section 6. Food Availability and Marketing Form

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 access 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 road side stands, farmers markets, dollar stores or drug stores.

The following table is a breakdown of the store types surveyed in Wailuku. Among the 8 stores assessed, the most common store type in Wailuku was convenience stores (6).

Table S.6.1. Type of Store (N=8)

Type of Store	Number	Percent
Supermarket chain	1	12.5%
Large grocery store	0	0%
Small market	1	12.5%
Convenience	6	75.0%
Other	0	0%

Federal Food Assistance Acceptance at Store (WIC and Food Stamps/SNAP)

Stores were assessed for whether or not they accept Federal Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and Food Stamps/SNAP benefits. WIC provides Federal grants to States to provide supplemental foods to low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk (USDA, 2015). The Supplemental Nutrition Assistance Program (SNAP) offers nutrition assistance to eligible, low-income individuals and families.

Stores were also assessed on whether or not they display signage saying “We Accept WIC” and “We Accept Food Stamps/EBT” (electronic benefit transfer). Among the 8 stores surveyed, all stores had information on participating in WIC or Food Stamps/EBT. Among the 8 stores, 1 (12.5%) accept WIC and 5 (62.5%) accept Food Stamps/EBT. Among the 8 stores with information on signage, 0 (0%) display signage for WIC being accepted and 3 (37.5%) display signage for Food Stamps/EBT being accepted.

Table S.6.2. Benefits (N=8)

Federal Benefits	Number	Percent
Accepts WIC	1	12.5%
Accepts Food Stamps or a SNAP vendor	5	62.5%
"We Accept WIC" signage displayed	0	0%
"We Accept Food Stamps/EBT" signage displayed	3	37.5%

Variety, Quality, and Availability of Fruits and Vegetables and Other Healthy Foods

Staff looked at the overall variety, quality, and availability of specific fruits and vegetables in stores. Stores were assessed for whether they had a wide variety (7 or more types), moderate variety (4-6 types), limited variety (1-3 types) or none of fruits and vegetables, separately. Of the 8 stores with this data in Wailuku, 2 (25.0%) had a wide variety of fruit and 2 (25.0%) had a wide variety of vegetables.

Table S.6.3. Variety of Fruits and Vegetables (N=8)

Variety	Number	Percent
Fruits		
None	3	37.5%
Limited	3	37.5%
Moderate variety	0	0%
Wide variety	2	25.0%
Vegetables		
None	4	50.0%
Limited	1	12.5%
Moderate variety	1	12.5%
Wide variety	2	25.0%

Stores were also assessed on the quality of their fruits and vegetables. Staff looked for signs of quality in the produce such as the lack of wilting, decay, shriveling, brown stems, and color changes.

- **Wilting -** leaves or stems are limp
- **Decay** - mold or blackening
- **Shriveling -** skin has wrinkles
- **Brown stems/dry stem cuts**
- **Color changes** - yellowing when item should be dark green

The quality was rated as:

- **None** - None sold
- **Poor** - All or most of fruit is of poor quality (brown, bruised, overripe, wilted)
- **Mixed Poor** - Mixed quality; more poor than good
- **Mixed Good** - Mixed quality; more good than poor
- **Good** - All or most of fruit is of good quality (very fresh, no soft spots, excellent color)

Of the 8 stores in Wailuku assessed for quality, 5 (62.5%) had good quality for fruit and 3 (37.5%) had good quality for vegetables.

Table S.6.4. Quality of Fruit and Vegetables (N=8)

Quality	Number	Percent
Fruit		
None	3	37.5%
Poor	0	0%
Mixed Poor	0	0%
Mixed Good	0	0%
Good	5	62.5%
Vegetable		

None	4	50.0%
Poor	0	0%
Mixed Poor	0	0%
Mixed Good	1	12.5%
Good	3	37.5%

Stores were assessed for the availability and price of specific fruits (apple, banana, and orange) and vegetables (carrot, tomato, broccoli, and cabbage). A total of 7 stores in Wailuku had data on the availability of these produce. The most commonly available fruit was apples (n=4, 57.1%). Bananas were in 2 (28.6%) stores and oranges were in 3 (42.9%) stores. Among the vegetables, carrots, tomato, and cabbage were each in

3 (42.9%) of stores, while broccoli was in only 2 (28.6%) stores.

Table S.6.5. Availability of Selected Fruits and Vegetables (N=7)

Availability	Number	Percent
Selected fruit		
Apple	4	57.1%
Banana	2	28.6%
Orange	3	42.9%
Selected vegetable		
Carrot	3	42.9%
Tomato	3	42.9%
Broccoli	2	28.6%
Cabbage	3	42.9%

Stores were assessed for the availability of other healthy foods. **Healthy foods** are fruits and vegetables, whole grains, beans, nuts and seeds, non-fat and low fat milk products, and lean meat, poultry, and fish. Healthy foods include minimal or no added fat, sugars, or sweeteners. Unsweetened black coffee is included. Pickled vegetables, whole coconut, and coconut water are included.

Stores were specifically assessed for a variety of items considered to be low/reduced fat dairy or soy drinks, lean meat protein, non-meat protein, whole-grain, canned/frozen fruit or vegetables, and baby food. Of the 8 stores assessed in Wailuku, 2 (25.0%) had at least one low/reduced fat dairy or soy beverage, 7 (87.5%) had at least one lean meat protein, 6 (75%) had at least one non-meat protein, 4 (50.0%) had at least one whole-grain item, 4 (50.0%) had at least one canned/ frozen fruit or vegetable, and 1 (12.5%) had at least one baby food.

Table S.6.6. Availability of Other Healthy Foods in Stores (N=8)

Other Healthy Foods	Number	Percent
Low/reduced fat dairy or soy beverage	2	25.0%
1% milk	1	12.5%
2% milk	2	25.0%
Skim milk	2	25.0%
Mozzarella	2	25.0%
Flavored soy beverage	2	25.0%
Plain soy beverage	1	12.5%
Lean meat protein	7	87.5%
Ground beef or turkey, lean (85% or higher)	2	25.0%
Whole chicken	1	12.5%
Tuna (light) canned in water	6	75.0%
Salmon canned in water	2	25.0%

Other Healthy Foods	Number	Percent
Sardines canned in water, tomato, or mustard	6	75.0%
Non-meat protein	6	75.0%
Tofu, plain	1	12.5%
Beans, dried	4	50.0%
Beans, canned with no added fats, sugar or sweetener	5	62.5%
Whole grain	4	50.0%
Whole grain bread	2	25.0%
Brown rice	3	37.5%
High fiber cereal (>= 3 grams fiber, <=12 grams sugar per serving)	1	12.5%
Oatmeal (plain)	1	12.5%
Tortillas, soft corn or whole wheat (no lard)	1	12.5%
Canned/ frozen fruit or vegetables	4	50.0%
Any canned fruit packed in 100% fruit juice	3	37.5%
Any canned vegetable with no added fats, sugar, or sweetener	3	37.5%
Any frozen fruit with no added fats, sugar, or sweetener	0	0%
Any frozen vegetable with no added fats, sugar, or sweetener	1	12.5%
Baby food	1	12.5%
Baby food, jarred, single fruit	1	12.5%
Baby food, jarred, single vegetable	1	12.5%
Baby food, jarred, single meat	1	12.5%

Store Interior Advertisements or Promotions

Stores were assessed for specific ads or promotion themes in the interior of the store. First, staff looked to see if there were health promotion items around the fruit and vegetables display. Of the 8 stores with this data, none (0%) had a health promotion item. Staff then categorized each health promotion item into one of the following themes:

- 5 A Day signs
- Nutrition information
- Fruit and Veggies: More matters
- Children's Healthy Living (CHL) or CHL partnership
- Other

Stores were also assessed for ads promoting locally grown produce. Of the 8 stores with this data, 2 (25.0%) promoted locally grown produce.

Table S.6.7. Advertisements Inside the Store (N=8)

Interior Advertisements	Number	Percent
Health promotion around the fruit and vegetable display	0	0%
5 A Day signs	0	0%
Nutrition information	0	0%
Fruit and Veggies: More matters	0	0%
Children's Healthy Living (CHL) or CHL partnership	0	0%
Other (Eat Local, Eat Fresh)	0	0%
Promotion of locally grown produce	2	25%

Staff looked at the marketing (presence of ads and product placement) of specific healthy and unhealthy foods near the main check-out area. The presence of ads or promotions recorded included those next to or below the check out, on the floor, or

hanging from the ceiling. The presence of products recorded included those next to or below the check out and near the exit doorway.

The healthy products surveyed include the following:

- Granola bars (whole grain, ≥ 2 g fiber, ≤ 1 g saturated fat, ≤ 14 g sugar per serving)
- Bagged Nuts/seeds (does not include honey roasted or w/ added sugar) (next to or below counter/check-out)
- Fresh fruit (next to or below counter/check-out)
- Bottled water (next to or below counter/check-out)
- Other: specify (such as dried fruit, trail mix, 100% juice, etc.)

The unhealthy products surveyed include the following:

- Gumball or candy machine (next to counter or exit doorway)
- Candy (next to or below counter/check-out)
- Soda (next to or below counter/check-out)
- Chips (next to or below counter/check-out)
- Other: specify (such as cookies, ice cream, beef jerky, energy drinks, etc.)

Among the 8 stores surveyed all had information on the marketing near the main check-out area. Looking at ads for healthy food products, no stores had any ads. Looking at ads unhealthy food products, 1 store had ads for 1-2 items, and 1 store had ads for 3-4 items. 7 (87.5%) stores had at least one unhealthy food product and only 1 (12.5%) healthy food products near the main check-out area.

Looking at the presence of healthy food products near the main check-out area, 7 stores had 0 items, and 1 store had 1-2 items. Looking at the presence of unhealthy food products near the main check-out area, 1 store had 0 items, 1 store had 1-2 items, and 6 stores had 3-5 items.

Table S.6.8. Store Check-out area Marketing (N=8)

Marketing next to the main check-out area	Healthy Food Products (n)	Unhealthy Food Products (n)
Presence of ads or promotions		
0	8	0
1-2 items	0	2
3-4 items	0	1
Presence of products		
0	7	1
1-2 items	1	1
3-5 items	0	6

Store Exterior Advertisements on Healthy and Unhealthy Foods

Stores were assessed for ads promoting healthy or unhealthy foods on the exterior of the store. **Unhealthy products** are high calorie, low nutrient foods and beverages that include alcoholic beverages, soft drinks and other sweetened beverages including diet drinks, sweet desserts and highly sugared cereals, chips and other salty snacks, most solid fats, fried foods, and other foods with high amounts of sugar, fat and/or sodium. **Healthy products** include minimal or no added fat, sugars, or sweeteners. Examples include fresh or dried fruits and vegetables, whole grain snacks (≥ 2 g fiber per serving), energy bars (≤ 14 g sugar per serving), nuts and seeds, non-fat and low fat milk products, water, or 100% fruit juice.

Among the 8 stores that had data on the presence of exterior ads for healthy foods, 0 (0%) had ads on healthy foods. Among the 8 stores that had data on the presence of exterior ads for unhealthy foods, 3 (37.5%) had ads for unhealthy foods.

Store Exterior Conditions

Stores were assessed for specific exterior conditions for food promotion. Among the 8 stores surveyed, none had produce bins on the sidewalk in front of the store. No stores had other products (e.g., soda, water) displayed on the sidewalk in front of the store or inside the store next to the window so they are clearly visible from the outside. There was no vending machine on the sidewalk in front of any of the 8 stores surveyed. There were no ads on the roof, walls, or anywhere on the store property of any of the 8 stores surveyed. No stores had images of both healthy and unhealthy foods and/or beverages painted on doors or windows of the storefront. None of the stores had painted murals of healthy food and/or beverages on the building walls of the store.

Table S.6.9. Store Exterior Conditions (N=8)

Exterior Conditions	Number	Percent
Produce bins on the sidewalk in front of the store	0	0%
Products displayed on the sidewalk in front for the store or inside the store next to the window	0	0%
Vending machines on the sidewalk in front of the store	0	0%
Advertising (banners, posters, temporary signs, etc.) on the roof, walls or elsewhere on the property	0	0%
Images of healthy food (e.g. tomato, apple) and/or beverages (e.g. milk) painted on doors or windows of the storefront	0	0%
Images of unhealthy food (e.g. hamburger, hot dog) and/or beverages (e.g. soda, shake) painted on doors or windows of the storefront	0	0%
Painted murals of healthy foods and/or beverages anywhere on the building walls	0	0%

Perceptions of Safety at Store

Store were assessed for perceptions of safety including whether there were bars or chains on the exterior, whether advertisements covered no more than 1/3 of the window area and the cash register could be seen from the outside for stores that sold alcoholic

beverages (eg. the Lee Law which was passed in California ref), whether people felt safe walking in and around the store, and if the store was located in a safe, walkable environment. All 8 stores had information about bars on the windows, 8 (100%) had bars. Only 6 stores had information of Lee Law compliance. All 6 (100%) of these stores complied with Lee Law. None of the store (0%) met standards for being located in a safe, walkable environment.

Table S.6.10. Perceived Safety of Store (N=8)

Safety	Number	Percent
Store has bars or chains on windows or doors	8	100%
Store sells alcohol and no more than 1/3 of window area is covered with ads (Lee Law) (N=6)	6	100%
Store meets standards for being located in a safe, walkable environment	0	0%

Overall Summary of Store Assessments

Among the 8 stores surveyed in Wailuku there were strengths and areas needing improvement in order for stores to support community health.

WIC and Food Stamps/SNAP benefits:

- Only 1 of the 8 stores surveyed (12.5%) accept WIC and 5 (62.5%) accepted Food Stamps/EBT. Among the 6 stores with information on signage, 0 (0%) display signage for WIC being accepted and 3 (37.5%) displayed signage for Food Stamps/EBT being accepted.

Variety, Quality, and Availability of Fruits and Vegetables and Other Healthy Foods

- Of the 8 stores with this data in Wailuku, only 2 (25.0%) had a wide variety of fruit and 2 (25.0%) had a wide variety of vegetables.
- 3 of the 8 stores did not sell fruit and 4 of the 8 (one-half) did not sell vegetables.

- For the 4 stores store that had fruits and vegetables, these stores can improve the availability of common fruits and vegetables.

- Among the 8 stores assessed for Other Healthy Foods, 6 (75.0%) lacked at least one low/reduced fat dairy or soy beverage, 1 (12.5%) lacked at least one non-meat protein, 4 (50.0%) lacked at least one whole-grain item, 4 (50.0%) lacked at least one canned/ frozen fruit or vegetable, and 7 (87.5%) lacked at least one baby food.

Ads, promotions, and marketing

- Among the 8 stores in Wailuku, no stores had health promotion items around the fruit and vegetables display. However, 2 of them had promotion of locally grown produce.

- Stores in Wailuku are did not have any ads for healthy food products near the main check out area, however 8 stores had ads for unhealthy food products near the main check out area. Stores had more unhealthy food products compared to healthy food product compared to unhealthy food product near the main check-out area (7 versus 1).

- On the store exterior 3 stores had ads for unhealthy foods, while 0 had ads for healthy foods.

- Looking at the store exterior conditions, 0 had produce bins on the sidewalk in front of the store. None of the stores had painted murals of healthy foods and/or beverages anywhere on the building walls.

Perceptions on Safety around the Store

- Of the 8 stores in Wailuku, 6 had bars or chains on the windows, and no stores were in a location deemed to be a safe, walkable environment.
- A majority of stores met the standards of California's Lee Law to limit the amount of space taken by advertisements for alcohol on the store exterior.

Section 7. Walkability Survey

Everyone benefits from walking. These benefits include: improved fitness, cleaner air, reduced risks of certain health problems, and a greater sense of community, but walking needs to be safe and easy.

CHL staff conducted two separate walkability survey in Wailuku. The survey included a checklist of items to be observed and rated, which are related to the safety and quality of the walk. The individual scores for these items were then added for a total score to get an overall rating for the community walkability.

Rating Scale for Each Walking Feature
1=awful
2=many problems
3=some problems
4=good
5=very good
6=excellent

Total Walkability Score	Community Walkability
26-30	Celebrate! You have a great neighbourhood for walking.
21-25	Celebrate a little. Your neighbourhood is pretty good.
16-20	Okay, but it needs work.
11-15	It needs lots of work.
5-10	It's a disaster for walking!

The rating scores for Wailuku are summarized in the table below. For the total score, the number of neighborhoods audited (n) is 2. This is followed by the mean total score (17.0), standard deviation (1.4), median (17.0), minimum (16.0), and maximum (18.0). According to the mean total score, the walking environment surveyed in Wailuku is okay, but needs work to encourage community walkability.

Table S.7.1. Community Walking Features

Walking Features	n	mean	SD	med	min	max
Total Walking rating	*2*	*17.0*	*1.4*	*17.0*	*16*	*18*
Room to walk	2	4.0	1.4	4.0	3.0	5.0
Ease of crossing street (s)	2	3.5	0.7	3.5	3.0	4.0
Ease of following safety rules	2	3.5	0.7	3.5	3.0	4.0
Drivers' behavior	2	4.0	0	4.0	4.0	4.0
Pleasantness of walk	1	4.0	0	4.0	4.0	4.0

*Walkability survey and rating scale is adapted from The National Center for Safe Routes to School (www.**saferoutes**info.org/sites/default/files/**walkability**checklist.pdf)

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 timely survey of communities in the CHL jurisdictions. Up to three stores in Wailuku were assessed to determine the cost and availability of market foods in Wailuku.

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 (USDA, 1999). It assumes that the food items are bought at a store and are prepared at home. This menu is made of foods in 10 categories. The categories include fruits, vegetables, meats, legumes, dairy, egg, fats / oils, grain, sweets / beverages, and spices. We can report 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. Wailuku had no missing items whose costs had to be estimated for our analyses.

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 Thrifty food Plan menu was developed based on diets and food availability in the contiguous U.S. Further work is necessary to document local diets and food availability and to examine how they may be incorporated into an adjusted thrifty food menu for use in Hawaii, and its effect on community food costs.

Food Cost Survey, Costs of Food at Home ($) based on the Thrifty Food Plan and USDA adjustments.

The weekly food cost for the Thrifty Food Plan menu for a family of four in Wailuku was $222.51. In the CHL region, the average cost was $215.18, with a minimum of $173.97 and a maximum of $286.30. The cost in Portland, USA was $142.37. Wailuku's costs for the same or comparable food items of the Thrifty Food Plan are 156.2% of the cost in Portland, Ore.

Table 1. Weekly and Monthly Food Cost to Eat According to the U.S. Thrifty Food Plan in Wailuku

Age, Groups	Weekly	Monthly
INDIVIDUALS		
Child, 6-8 years	$46.63	$202.07
Child, 9-11 years	$55.34	$239.79
Male, 20-50 years	$63.00	$273.00

Female, 20-50 years	$57.54	$249.36
FAMILY		
Family of 2, 20-50 years	$132.62	$574.70
Family of 4 , Couple, 20-50 years and children, 6-8 and 9-11 years	$222.51	$964.21

***** Ratio used to calculate cost of family of other size and individuals are based on Center for Nutrition and Policy and Promotion (CNPP)'s Official USDA Alaska and Hawaii Thrifty Food Plans at http://www.cnpp.usda.gov

Thrifty Food Plan, Weekly Food Costs: By Food Category

Cost and percent of each food category was presented in the following table (Table 2), in the order from most expensive to least expensive.

Table 2. Weekly Thrifty Food Plan Costs for a Family of 4 by Food Category in Wailuku

Food Group	Cost	Percent
Meat	56.39	25.3%
Fruit	48.17	21.6%
Grain	43.36	19.49%
Vegetable	26.83	12.1%
Diary	14.20	6.4%
Spice	9.06	4.1%
Sweets and Beverages	8.02	3.6%
Legume	6.16	2.8%
Fats and Oils	5.16	2.3%
Egg	5.16	2.2%

Thrifty Food Plan, Weekly Food Costs: Top 10 Most Expensive Foods

The top 10 most expensive foods in Wailuku were presented in Table 3.

Table 3. Top 10 Most Costly Food Items in Wailuku

Food	Food Group	Price	Percent
Orange juice, frozen concentrate	Fruit	21.40	9.6%
Beef, ground, lean (16 to 23% fat)	Meat	16.67	7.5%
Fish, flounder, cod, tilapia or similar, frozen	Meat	15.65	7.0%
Bagels, plain, enriched	Grain	7.87	3.5%
Potatoes, any variety	Vegetable	7.77	3.5%

Milk, 1% milk fat	Dairy	7.46	3.4%
Oranges, any variety (bagged or loose)	Fruit	7.17	3.2%
Pork, ground	Meat	6.27	2.8%
Bread, white, enriched	Grain	6.08	2.7%
Grapes (green or red)	Fruit	5.80	2.6%
Total		$93.14	45.8%

Summary

The CHL food cost survey found the cost of food for a family of four, using the TFP, to be $222.51 per week which is 56.2% higher than the weekly food cost for a family of four in Portland, Oregon. In comparison to the average of the CHL region ($215.98), the weekly food cost in Wailuku was 3.0% higher.

Summary of Prevalence Study

Children's Healthy Living Program

VII. Conclusion / Summary of Prevalence Study

The purpose of this report is to inform the community of the CHL research that was conducted in Wailuku during 2013. It is a “snapshot” of the community during this time period. It is hoped that this comprehensive report will help the community in designing programs, allocating resources, and advocating for polices that increase the health and well-being of young children in Wailuku.

By improving the variety and quality of produce in stores; increasing pedestrian access to stores; and increasing healthy menu items could all serve to better the health and well-being of young children in the community.

The CHL team would like to express our gratitude and appreciation to all the children, parents, caregivers, teachers, community members and partners who assisted in the collection of this information. Without the support and participation of the community this report would not exist.

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