

# 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. 2011-88001-30336







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

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Yap Prevalence Survey Results



United States Department of Agriculture  
National Institute of Food and Agriculture  
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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 is comprised of assessments about the availability of food resources, parks, play spaces, and walkable streets – and a Food Cost Survey.

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

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



# 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 Yap; 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 through fees for diet 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.

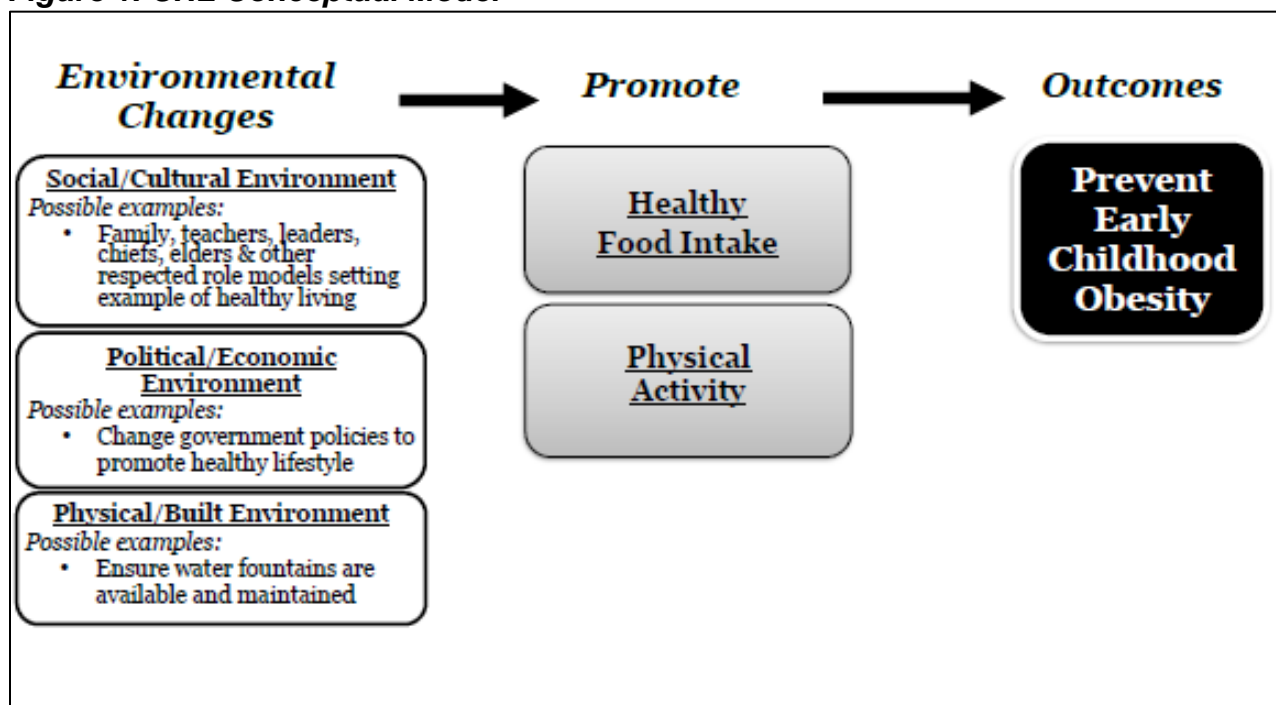
CHL strived for the following behavioral targets:

- 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 multicomponent 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 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 attended programs 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 student selection committees who screened and interviewed student applicants and identified the top candidates for the scholarships. 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 (see CHL web site for full list of trainees).

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.

**Figure 2. Institutions, Academic Program Areas and Degrees in the Children’s**

	<b><u>DEGREES:</u></b> AS = Associates of Science;
	AA = Associates of

## 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.

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 a course from the Food Science and Nutrition (FSHN) program, 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 (Fialkowski et al, 2016).

Other curriculum and educational 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, Maternal Child Health, School Health, and Non-communicable disease staff and community workers and is 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 report 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 2 undergraduate) have completed the CHL-TP and attained their degrees (Table 1). One graduate-level Trainee from Alaska is expected to complete a MS in the Summer of 2016 and another graduate-level Trainee from Alaska is expected to complete a MPH in the Fall of 2016. One graduate-level Trainee from CNMI is expected to complete her MPH degree while one graduate level Trainee from American Samoa is expected to complete a PhD in Epidemiology in the Spring of 2017. Two undergraduate Trainees from Chuuk, and the Marshall Islands are expected to graduate in Fall 2016 with Bachelor's degrees in Public Health. One undergraduate Trainee from Kosrae is expected to complete a degree in Nutrition in Spring 2017. Four undergraduate Trainees from Pohnpei, Chuuk, Kosrae, 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**

<b>Student Name</b>	<b>Jurisdiction</b>	<b>Degree Name/Type</b>	<b>Project Description</b>
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
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
Srue Wakuk	Kosrae	BA, Public Health	To analyze how the Women in Farming Kosrae (WIFK) Project empowers women and impacts Health

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

### **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](http://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 through 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 Summer Institute visit: <https://programs.coe.hawaii.edu/chl/>

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







## **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.

### **Prevalence Survey**

#### **Study Design**

The cross-sectional CHL study design involved data collection 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 September 1, 2014 and September 20, 2014 in Yap.

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 Yap referred to collectively in CHL as the Freely Associated States (FAS), and all other CHL jurisdictions -- Alaska, American Samoa, CNMI, Guam, and Hawaii.

The goal of the CHL Yap prevalence survey was to obtain health measures and health behaviors in children between the ages of 2-8, with a focus of those between the ages of 4-6 years old. . Due to the focus on young children, the Yap prevalence survey worked with the Early Child Education (ECE) centers to recruit children for the study. The ECEs in this study were located in the following communities: Colonia, Beleau, Ganelay, Tomil, Rumuu, Ulithi, and Mock.

The recruitment team organized a parent/teacher meeting to discuss this study and schedule for this study at each study site. Teachers and school staff encouraged participation and retention. Two recruitment staff assisted the CHL team by reporting numbers of possible participants and distributed CHL Flyers in the local language in communities. A total of 60 possible participants were recruited per recruitment site.

1. The measurement team consisted of a lead measurer and at least 3 staff trained and standardized in measurement collection. The lead calibration team from the CHL Coordinating Center (i.e., Program Director and Assistant Program Director) conducted measurement training and standardization for Yap staff in July 2014 in order to enable standardization of local staff prior to the start of measurement. Measurement teams were standardized by the CHL Coordinating Center (CCC) Calibration Team. A standardization/ quality assurance protocol developed by the Data Center as followed and the data as kept for reporting reliability and for quality assurance. Nine Yapese individuals were standardized; 3 for height, 9 for weight and 6 for waist circumference
2. (Sam Foulchaq, Daisy Gimatam, Adele xxxx, Paula Mitmow, Roxcillinda Yangelmog, Carlos Mangiluwa, Doreen Falurag, Mark Lureg). In addition to the measurements, data on the listed forms below were collected Parent Consent Form and the Screening form
3. Form Package, which included the following participant forms/questionnaires:
  - a. Participant Measurement Checklist
  - b. Registration Form
  - c. Demographics Questionnaire
  - d. Culture Questionnaire

- e. Sedentary Behavior Questionnaire
  - f. Sleep Questionnaire
  - g. Food & Activity Log. All participants (parents/caregivers) were instructed to complete 2 assigned days of Food & Activity Logs.
4. A referral letter was given to parents/caregivers when the child had a positive Acanthosis Nigricans screening result.

A total of 205 children were consented to participate in the survey. The Yap prevalence survey was part of a larger program and the number of children consented in the U.S. Affiliated Pacific are found in Table 1.

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

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

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

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

# Community Report






## V. Yap Community Report

The total number of responses for each question may not match the total number of consented participants as parents may not have answered every question. Parents identified their children as eligible (including age eligible) and consented, upon which children participated in the study. In the data analysis phase, some children were deemed outside the defined age range based upon age calculation metrics, 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





## Section 1. Child Demographics

A total of 203 children participated from Yap. Parents / caregivers answered multiple questions about their child participating in the CHL research program. The following section reports some of that information collected, including child's sex, age, race and ethnicity.

**Sex:** 199 children participating had data on sex.

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

Sex	Number	Percent
Boys	93	46.7%
Girls	106	53.3%
Total	199	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	3	1.5%
Age 3	22	10.8%
Age 4	50	24.6%
Age 5	67	33.0%
Age 6	30	14.8%
Age 7	15	7.4%
Age 8	16	7.9%
Total	203	100%

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

Age in Years	Number	Percent
2-5 years old	142	70.0%
6-8 years old	61	30.1%
<b>Total</b>	<b>203</b>	<b>100%</b>

### Racial and Ethnic Heritage

The data collection questions 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
Native Hawaiian Pacific Islander	195	96.1%
More than one race	6	3.0%
Asian	2	1.0%
<b>Total</b>	<b>203</b>	<b>100%</b>

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

Race of child of Pacific definition	Number	Percent
Yapese	189	93.1%
Mixed Yapese	6	3.0%
Yapese mixed with other Pacific Islanders	4	2.0%
Filipino	2	1.0%
Other (including Chamorro and Chuukese)	2	1.0%

Race of child of Pacific definition	Number	Percent
<b>Total</b>	203	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
<b>Yap</b>	173	86.9%
<b>USA (Continental US)</b>	8	4.1%
<b>FSM</b>	8	4.2%
<b>Guam</b>	4	2.0%
<b>Other*</b>	5	2.5%
<b>Total</b>	199	100.0%
*Including Hawaii, Nevada, Ohio, Oregon, and South Carolina		

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

Among the 203 children, 196 had information on this question. Among them, 176 (89.8%) had lived their whole life in Yap and the rest, 20 (10.2%), spent one-fifth to four-fifths of their life here.

## Language Child Speaks

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

*Note: Language responses may total over 203 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
Yapese	77	38.5%
English and Yapese	41	20.5%
Ulithian	31	15.5%
Woleaian	11	5.5%
English and Woleaian	9	4.5%
English and Yapese and Ulithian	7	3.5%
English and Ulithian	6	3.0%
English	4	2.0%
Other*	14	7.0%
<b>Total</b>	<b>203</b>	<b>100%</b>
*Includes English and Palauan and Ulithian and Yapese, English and Woleaian and Yapese, Satawalese and Woleaian, English and Satawalese, English and Satawalese and Yapese, and English and Ulithian and Yapese		

Yapese was the top language spoken at home (47.0%). Other languages children

spoke at home included English, Ulithian, Woleaian and Satawalese.

## **Summary**

Among the 203 children, 199 had information on sex, of which 106 (53.3%) were girls and 93 (46.7%) were boys. Furthermore, 142 (70.0%) were of age group 2-5 years and 61 (30.1%) were of age group 6-8 years. All had information on race, of which 195 (96.1%) were Native Hawaiian Pacific Islander (NHPI). From NHPI children, 189 (93.1%) were Yapese.







*Child Anthropometric  
Measurement Results*





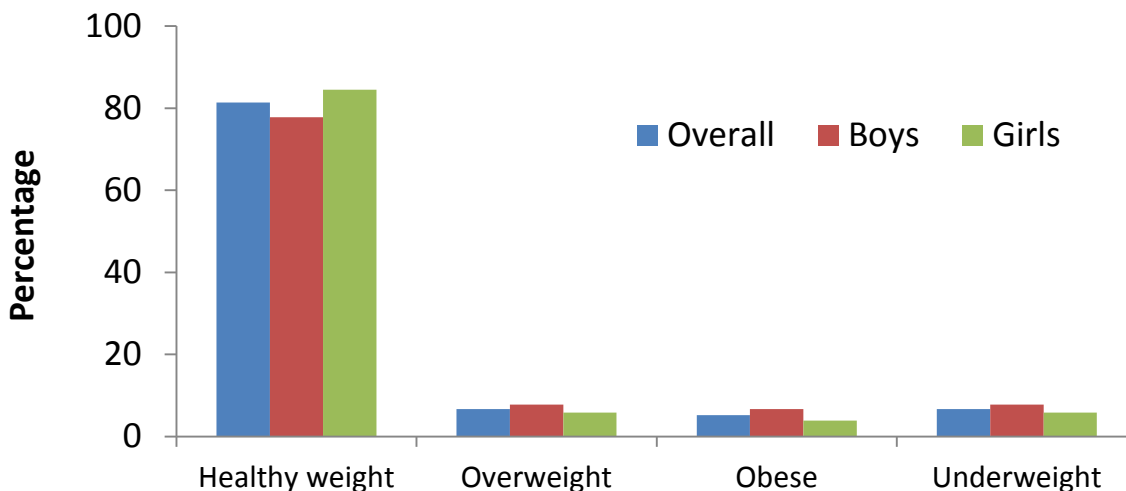
## Section 2. Child Anthropometric Measurement Results

### Body Mass Index

Among the 203 children who participated in Yap, 193 had valid measurements of Body Mass Index (BMI).

Overweight was defined as the 85th - 94th percentile for BMI (weight, kg/(height, m<sup>2</sup>)) 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 Yap*



A total of 193 children were included for this analysis. Among them, 81.4% were healthy weight, 6.7% were overweight, 6.7% were underweight and 5.2% were obese. No difference was found between boys and girls, or between children ages 2-5 and those 6-8 years old.

### Abdominal Obesity

The International Diabetes Federation (IDF) suggests that children 6 years or older with a waist circumference equal or greater than the 90<sup>th</sup> 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 90<sup>th</sup> percentile cutoff value is 71.47cm. The 90<sup>th</sup> 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 59 participants in Yap between the ages 6-8 years, using the CHL cutoff, 4 (6.8%) were considered as having abdominal obesity. Using the IDF cutoff value, 6 (10.2%) of children would be 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. Presence of acanthosis nigricans 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 203 children who participated, 197 had data on AN, of which 6 (3.1%) screened positive for AN.

### **Summary**

A total of 203 children were included for this analysis. Among them, 81.4% were healthy weight, 6.7% underweight, 6.7% overweight, and 5.2% were obese. Among boys, 77.8% were healthy weight, 7.8% were underweight, 7.8% overweight and 6.7% obese (Figure 1B). Among girls, 84.5% were healthy weight, 5.8% were underweight, 5.8% overweight and 3.9% obese.



*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 Yap, 182 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	Yap	
	Number of times reported	% of all foods reported
#1 White rice	768	18.0%
#2 Coconut water	154	3.6%
#3 Taro, cooked	141	3.3%
#4 Tuna, light meat, canned in oil, drained	137	3.2%
#5 Hot dog	133	3.1%

### 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.

**Table S.3.2 United States Department Daily Food Plan**

United States Department of Agriculture's My Daily Food Plan		
Daily recommended amount of fruits and vegetables	 VEGETABLES	 FRUITS
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 Yap, children ate 1.6 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 0.6 per day and the average servings of vegetables was 1.0 per day.

34 children (18.9%) in Yap met the U.S. national recommendations for daily fruit consumption.

39 children (21.7%) in Yap met the U.S. national recommendations for daily vegetable consumption.

Note that the percentages meeting the fruit and vegetable recommendations may not be a true representation 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 fruit and vegetable 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.

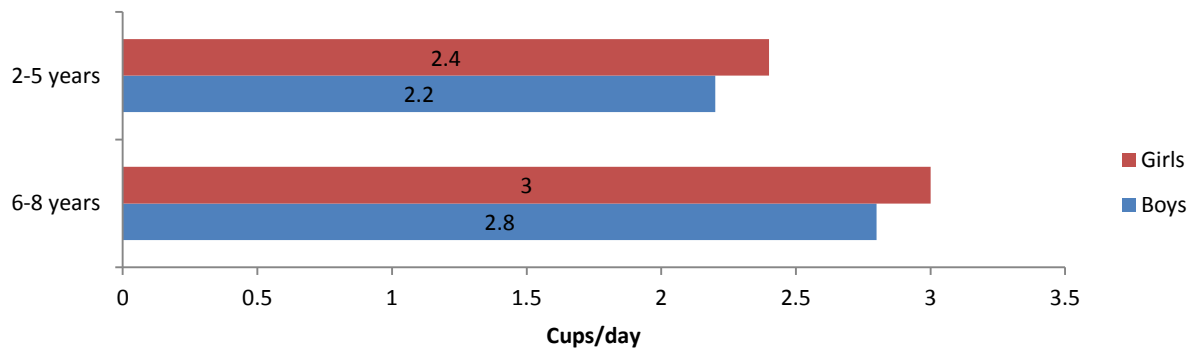
95.6% of Parents/ caregivers reported on the two-day Food and Activity Log that their child drank water over these two days.

On average, children in Yap drank 2.6 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	Yap	
	Number	Average
<b>Boys</b>		
2 – 5 years	46	2.2
6 – 8 years	49	2.8
<b>All</b>	95	2.5
<b>Girls</b>		
2 – 5 years	35	2.4
6 – 8 years	52	3.0
<b>All</b>	87	2.8

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



## Sugar-Sweetened Beverages (SSB)

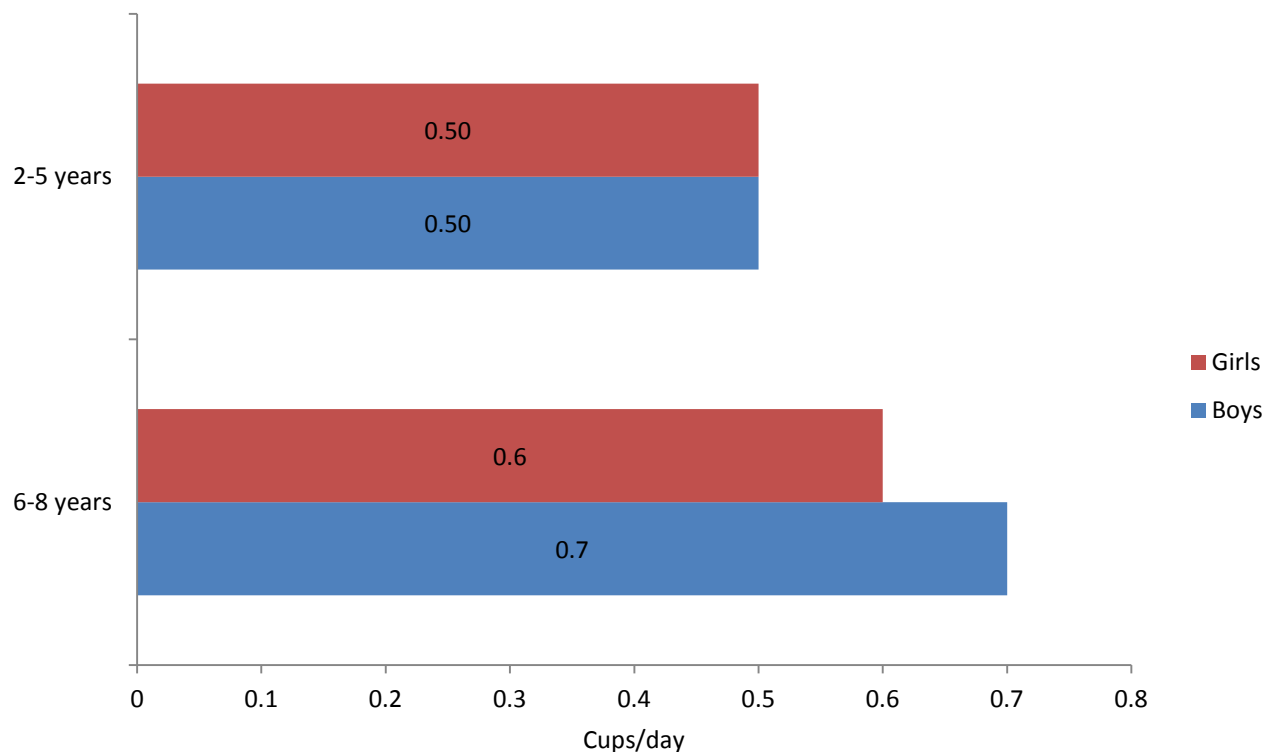
CHL behavioral intervention targets or goals are to limit (or avoid) the consumption of sugar-sweetened beverages (SSB).

From the two-day food record, 76 (41.8%) of parents/caregivers in Yap reported that their child consumed SSBs.

Children drank 0.6 cups of sugar-sweetened beverages on average daily.

For Yap, the most frequently consumed SSB included coconut water, milk 2%, and Koolaid.

### *Children's intake of Sugar-Sweetened Beverages (cups/day) for Yap*



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

Mean SSB intake (cups/day)	All children		SSB Recorded	
	Number	Average	Number	Average
<b>Boys</b>				
2 – 5 years	46	0.5	14	1.7
6 – 8 years	49	0.7	24	1.3
All	95	0.6	38	1.5
<b>Girls</b>				
2 – 5 years	35	0.5	15	1.2
6 – 8 years	52	0.6	23	1.3
All	87	0.5	38	1.2

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

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
<b>Boys</b>				
2 – 5 years	42 (91.3%)	4 (8.7%)	10 (71.4%)	4 (28.6%)
6 – 8 years	46 (93.9%)	3 (6.1%)	21 (87.5%)	3 (12.5%)
All	88 (92.6%)	7 (7.4%)	31 (81.6%)	7 (18.4%)
<b>Girls</b>				
2 – 5 years	33 (94.3%)	2 (5.7%)	13 (86.7%)	2 (13.3%)
6 – 8 years	47 (90.4%)	5 (9.6%)	18 (78.3%)	5 (21.7%)
All	80 (92.0%)	7 (8.1%)	31 (81.6%)	7 (18.4%)





# Physical Activity From Accelerometers





## Section 4. Physical Activity from Accelerometers

To provide data on 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  $CPM \leq 40$
- Light, if  $41 \leq CPM \leq 2295$
- Moderate, if  $2296 \leq CPM \leq 6815$
- Vigorous, if  $CPM \geq 6816$

**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 Yap, Actical accelerometers from 83 children provided valid data on their physical activity levels. After excluding outliers, on average children spent 11.0 hours in sedentary activities.

On average, children in Yap spent 12.0 hours on light activities.

On average, children in Yap engaged in 1 hour on moderate or vigorous activities.

Of the 83 children with accelerometer data, 33 (40.7%) of children in Yap 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.

**Table S.4.1. Hours of Physical Activity by Type**


Physical activity from accelerometer	Average mean hour	
<b>Sedentary activities (weighted) per day</b>	11.0 hours	
<b>Light activities (weighted) per day</b>	12.0 hours	
<b>Moderate activities (weighted) per day</b>	0.9 hours	
<b>Vigorous activities (weighted) per day</b>	0.1 hours	
<b>Moderate and vigorous activities (weighted) per day</b>	1.0 hours	
	Number	%
<b>Met national recommendation of <math>\geq 60</math> minutes of moderate or vigorous physical activity daily</b>	33	40.7%

### Summary

In Yap, a total of 83 children had valid accelerometer data. Among those 83 children, daily average minutes of moderate and vigorous physical activity (MVPA) were 60.0.

33 percent of those 83 children met the national recommendation of 60 minutes a day of MVPA. More boys than girls were physically active.





# 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 203 children who participated in Yap, **time spent on TV watching per day is 1.8 hours/day** overall, 1.6 hours on weekdays, and 2.3 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
<b>1/2 hour or less</b>	28.1%	42.2%	28.0%
<b>More than ½ hour up to 2 hours</b>	33.5%	27.6%	28.0%
<b>More than 2 hours up to 4 hours</b>	27.1%	20.1%	29.0%
<b>More than 4 hours up to 6 hours</b>	9.4%	8.0%	11.0%
<b>More than 6 hours up to 7 hours</b>	2.0%	2.0%	4.0%
<b>Total</b>	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 203 children who participated in Yap, a total of 202 had data on the overall

time spent on inactive video games. The overall **average among those 202 children is 0.6 hours/day**. A total of 199 children had data on weekday, while 197 had information on weekend inactive video time. Average inactive video time on weekdays is 0.5 and on weekends is 0.6. 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	73.3%	78.9%	74.1%
More than 1/2 hour up to 2 hours	17.3%	11.6%	14.7%
More than 2 hours up to 4 hours	6.4%	6.0%	9.1%
More than 4 hours up to 6 hours	3.0%	3.5%	2.0%
More than 6 hours up to 7 hours	--	--	--
<b>Total</b>	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 203 children who participated in Yap, a total of 202 had data on the overall time spent on active video games. The **overall average among those 202 children is 0.7 hours/day**. A total of 198 children had data on weekday active video time. Average active video time on weekdays is 0.6. A total of 198 children had data on weekend active video time. Average active video time on weekend is 0.8. 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
<b>1/2 hour or less</b>	70.3%	74.8%	72.7%
<b>More than ½ hour up to 2 hours</b>	17.8%	14.7%	14.1%
<b>More than 2 hours up to 4 hours</b>	7.4%	8.6%	8.1%
<b>More than 4 hours up to 6 hours</b>	4.5%	2.0%	5.1%
<b>More than 6 hours up to 7 hours</b>	--	--	--
<b>Total</b>	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.

Among the 203 children participated in Yap, 202 had data on the overall screen time, which averages to 3.1 hours. A total of 198 had data on weekday screen time, which averages to 2.7 hours. A total of 199 had data on weekend screen time, which averages to 3.7 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
<b>1/2 hour or less</b>	23.3%	35.9%	23.6%
<b>More than ½ hour up to 2 hours</b>	23.8%	21.2%	18.6%
<b>More than 2 hours up to 4 hours</b>	25.7%	17.7%	25.1%
<b>More than 4 hours up to 6 hours</b>	9.4%	10.1%	11.6%
<b>More than 6 hours</b>	17.8%	15.2%	21.1%
<b>Total</b>	100%	100%	100%

### Summary

A total of 202 children were included in the analysis of screen time. Among them, average screen time, such as watching TV, video games, or DVD, or playing active or inactive video games was 3.1 hours

While the national recommendation is for each child to spend 2 or less hours on screens every day, only 46.8% of our study children met this recommendation. This is an opportunity for both parents and educators to intervene to help children spend less screen time.







## 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	%
<b>2 year olds</b>	3	100.0%
<b>Less than 9 hours</b>	0	0.0%
<b>9 hours to less than 11 hours</b>	1	33.3%
<b>11 hours or more (to 13.5 hours)</b>	2	66.7%
<b>3 – 5 year olds</b>	135	100%
<b>Less than 8 hours</b>	7	5.2%
<b>From 8 hours to less than 10 hours</b>	31	23.0%
<b>From 10 hours to 13.5 hours</b>	97	71.9%
<b>6 – 8 year olds</b>	59	100.0%

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	10	17.0%
From 9 hours to 13.5	49	83.1%

**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	2	66.7%
Three to five year olds met recommendation of 10 – 13 hours of sleep	97	71.9%
Six to eight year olds met recommendation of 9 – 11 hours of sleep	49	83.1%

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	74	36.8%
15 to less than 30 minutes	93	46.3%
30 to less than 45 minutes	20	10.0%
45 to less than 60 minutes	7	3.5%
60 minutes and more	7	3.5%
<b>Total</b>	<b>201</b>	<b>100.0%</b>

**Table S.6.4. Number and Percent of Children with Difficulty Getting to Sleep**

The child has difficulty getting to sleep at night (and may require a parent to be present)	Number	%
This sleep behavior never occurs	110	54.7%
The behavior occurs once or twice a month	43	21.4%
Occurs one to two times a week	23	11.4%
Occurs between three and five nights a week	6	3.0%
The sleep behavior happens every night	19	9.5%
<b>Total</b>	<b>201</b>	<b>100.0%</b>

**Table S.6.5. 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	122	61.0%
The behavior occurs once or twice a month	39	19.5%
Occurs one to two times a week	18	9.0%
Occurs between three and five nights a week	3	1.5%
The sleep behavior happens every night	18	9.0%
<b>Total</b>	<b>200</b>	<b>100.0%</b>

**Table S.6.6. Number and Percent of Children Waking Up at Night**

<b>Child wakes up two or more times during the night</b>	<b>Number</b>	<b>%</b>
<b>This sleep behavior never occurs</b>	104	52.0%
<b>The behavior occurs once or twice a month</b>	48	24.0%
<b>Occurs one to two times a week</b>	33	16.5%
<b>Occurs between three and five nights a week</b>	5	2.5%
<b>The sleep behavior happens every night</b>	10	5.0%
<b>Total</b>	200	100.0%

**Table S.6.7. Number & Percent of Children Difficulty Falling Asleep After Awakening**

<b>After waking up in the night, child has difficulty falling asleep again by him or herself.</b>	<b>Number</b>	<b>%</b>
<b>This sleep behavior never occurs</b>	144	72.0%
<b>The behavior occurs once or twice a month</b>	41	20.5%
<b>Occurs one to two times a week</b>	11	5.5%
<b>Occurs between three and five nights a week</b>	1	0.5%
<b>The sleep behavior happens every night</b>	1	1.5%
<b>Total</b>	200	100.0%

**Table S.6.8. 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	89	44.3%
The behavior occurs once or twice a month	56	27.9%
Occurs one to two times a week	16	8.0%
Occurs between three and five nights a week	5	2.5%
The sleep behavior happens every night	35	17.4%
<b>Total</b>	<b>201</b>	<b>100.0%</b>

**Table S.6.9. 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	163	81.1%
The behavior occurs once or twice a month	19	9.5%
Occurs one to two times a week	10	5.0%
Occurs between three and five nights a week	1	0.5%
The sleep behavior happens every night	8	4.0%
<b>Total</b>	<b>201</b>	<b>100.0%</b>

**Table S.6.10. 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	130	64.7%
The behavior occurs once or twice a month	34	16.9%
Occurs one to two times a week	27	13.4%
Occurs between three and five nights a week	2	1.0%
The sleep behavior happens every night	8	4.0%
<b>Total</b>	<b>201</b>	<b>100.0%</b>

**Table S.6.11. Number and Percent of Children with Sleeping Difficulties**

Do you think your child has sleeping difficulties?	Number	%
No	190	96.5%
Yes	7	3.6%
<b>Total</b>	<b>197</b>	<b>100%</b>

**WHERE IS THE SUMMARY?**







## Section 7. Medical

Parents answered the question: Does your child have any current medical conditions diagnosed by a doctor? Among the 202 children who participated in Yap, a total of 202 had information on medical conditions. Among the 202 children, 25 (12.4%) reported that their children had a medical conditions diagnosed by a doctor. The top medical condition was asthma (14, 60.9%).

### Dental

**Table S.7.1. Frequency of Brushing Teeth**

How often does your child brush his/her teeth?	Number	Percent
More than once per day	69	35.0%
Once per day	102	51.8%
Once per week	20	10.2%
Once per year	2	1.0%
Never	4	2.0%

**Table S.7.2. Seen by Dentist**

In the past 12 months, did your child ever see a dentist for any routine preventive dental care?	Number	Percent
No	65	33.7%
Yes	128	66.3%





*Early Life & Feeding  
Of A Child*





## Section 8. Early Life and Feeding of Child

### Birth Weight

Among the 203 children who participated from Yap, a total of 120 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	28	23.3%
Healthy birth weight (2500 – 4000 g)	87	72.5%
High birth weight > 4000 g	5	4.2%

Among the 203 children who participated in Yap, a total of 21 had information on birth length. Among the 21 children, 14 (66.7%) had birth length below 5 percentile using the CDC 2000 reference data, which is at 45.57 cm implying “stunting”, and reflecting fetal growth restriction.

### Early Feeding Pattern

Among the 203 children who participated in Yap, a total of 196 had information on breastfeeding. Among the 196 children, 184 (93.9%) of children were reported to be ever breastfed.

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

Child ever Breastfed or fed Breastmilk	Number	%
Yes	184	93.9%
No	12	6.1%
Total	196	100.0%
If Yes, (about children who were ever breastfed)		


<b>Mean age child stopped breastfeeding or being fed breast milk (months) (n=153)</b>	17.3 months
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Among the 203 children who participated in Yap, a total of 187 had information on formula feeding. Among those 187 children, 101 (54.0%) children were reported to be 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**

<b>Child ever fed formula</b>	<b>Number</b>	<b>%</b>
<b>Yes</b>	101	54.0%
<b>No</b>	86	46.0%
<b>Total</b>	187	100.0%
<b>If Yes, (about children who were fed formula)</b>		
<b>Mean age child first fed formula (months) (n=88)</b>	5.2 months	
<b>Mean age child completely stopped drinking formula (months) (n=76)</b>	16.7 months	

A total of 167 out of the 203 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 is 9.0 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	58.6%
Birth dad	34	16.8%
Grandmother	18	8.9%
Legal guardian, other	16	7.9%
Adoptive mom	6	3.0%
Adoptive dad	4	2.0%
Other*	6	3.0%

\*Includes grandfather, step mom, and step dad

### Marital Status

A total of 202 out of the 203 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	163	80.7%
Single and not living with boyfriend, girlfriend, or partner	16	7.9%
Widowed	12	5.9%
Separated	6	3.0%
Divorced	3	1.5%
Single and living with boyfriend, girlfriend, or partner	2	1.0%

## Household Size and Multi-generation Households

All 203 children had information on the number of people lived in the same household and their relationship to the child. Among them, 80 (39.4%) were from multi-generation households.

Mean size of household was 6.3, with the minimum of 2 and maximum of 41 persons.

## Education

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

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

Education	Number	Percent
Never attended school or only kindergarten	4	2.0%
Grades 1 up to 8 (elementary to middle)	16	7.9%
Grades 9 to 11(some high school)	21	10.3%
Grades 12 or GED (high school graduate)	87	42.9%
College or technical school 1 to 3 years	55	27.1%
College 4 years or more	20	9.9%
Total	203	100%

## Employment Status of the Caregiver Participants

Among the 203 children who participated in Yap, 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 participants had information on whether the respondent had more than one job.

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

Employment	Number	Percent
Employed for wages / salary	73	36.0%
Self-employed	26	12.8%
Subsistence Living (fisherman / farmer)	18	8.9%

<b>Out of work (less than 1 year)</b>	3	1.5%
<b>Out of work (more than 1 year)</b>	19	9.4%
<b>Homemaker</b>	98	48.3%
<b>Student</b>	2	1.0%
<b>Unable to work</b>	2	1.0%
<b>Retired</b>	5	2.5%
<b>Has more than one job</b>	11	5.4%

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

### Household income level

Among the 203 children who participated in Yap, 117 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**

<b>Annual Household Income (past 12 months)</b>	<b>Number</b>	<b>Percent</b>
<b>Under \$2500</b>	56	47.9%
<b>From \$2500 to less than \$5000</b>	19	16.2%
<b>Under \$10,000</b>	24	20.5%
<b>From \$10,000 to less than \$20,000</b>	14	12.0%
<b>From \$20,000 to less than \$35,000</b>	4	3.4%
<b>Total</b>	117	100.0%

### Religion

Among the 203 children, a total of 202 had information on family's religious affiliation. Out of the 202, 5 (2.5%) reported no religious affiliation. Among the 202 with any type of

religious affiliation, the distribution of different religious affiliations is presented in the following table. A total of 106 had information on how often they engage in religious activities. The mean number of times per month attending religious activities was 5.3 among those participants.

**Table S.9.6. Number and percent of respondents' religious affiliation**

Religion Affiliation	Frequency	Percent
<b>Catholic</b>	151	76.7%
<b>Evangelical Covenant</b>	11	5.6%
<b>Baptist</b>	9	4.6%
<b>Mormon/Latter-day Saints</b>	9	4.6%
<b>Protestant</b>	7	3.6%
<b>Christian</b>	3	1.5%
<b>Other*</b>	7	3.6%
<b>Total</b>	187	100.0%
*Includes Bahai, Jehovah's Witness, Pentecostal, and Muslim		

### **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](http://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 203 children who participated in Yap, a total of 166 had information on whether money for food runs out, while 159 provided 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**

<b>Food Insecurity and Utilities in past 12 months</b>	<b>Number</b>	<b>%</b>
<b>Money runs out for food before the end of the month.</b>		
<b>Never</b>	40	24.1%
<b>Seldom</b>	20	12.1%
<b>Sometimes</b>	76	45.8%
<b>Most times</b>	23	13.9%
<b>Always</b>	7	4.2%
<b>Money for household utilities (water, fuel, etc.) runs out before the end of the month.</b>		
<b>Never</b>	31	19.5%
<b>Seldom</b>	20	12.6%
<b>Sometimes</b>	75	47.2%
<b>Most times or always</b>	22	13.8%
<b>Always</b>	11	6.9%

### **Water Source**

Participants were asked, where they obtained the water used at home, and were asked to include water used for all purposes (cleaning, cooking, and etc.). Among the 203 children who participated in Yap, a total of 199 had information on the family’s water source. Participants could select more than one response. The following table presents the answers.

**Table S.9.8. Source of Water**

Source of water used at home for all purposes	Number	Percent
Household Tap	71	35.7%
River/ Stream/ Creek	0	0.0%
Community Rain Water Collection	10	5.0%
Private Tap in Yard	32	16.1%
Public/ Shared Standpipe	84	42.2%
Purchased bottled water	25	12.6%
Home Rain water collection	73	36.7%
Neighbor's Tap	7	3.5%
Spring	5	2.5%
Refilling Station	17	8.5%

## 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	60	29.9%
Somewhat knowledgeable	120	59.7%
Neutral or no response	12	6.0%
Somewhat not knowledgeable	8	4.0%
Not at all knowledgeable	1	0.5%

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

Involved with traditional culture & lifestyle	Number	Percent
Very involved	75	37.3%
Somewhat involved	99	49.3%
Neutral or no response	17	8.5%
Somewhat not involved	6	3.0%
Not at all involved	4	2.0%

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

Feel towards traditional culture & lifestyle	Number	Percent
Very positive	88	43.8%
Somewhat positive	91	45.3%
Neutral or no response	20	10.0%
Somewhat negative	2	1.0%

**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	95	47.3%
Somewhat often	79	39.3%
Neutral or no response	9	4.5%
Very little of the time	14	7.0%
Not at all	4	2.0%

**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	21	10.6%
Somewhat knowledgeable	98	49.3%
Neutral or no response	24	12.1%
Somewhat not knowledgeable	34	17.1%
Not at all knowledgeable	22	11.1%

**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
<b>Very involved</b>	11	5.5%
<b>Somewhat involved</b>	94	47.2%
Neutral or no response	44	22.1%
<b>Somewhat not involved</b>	22	11.1%
<b>Not at all involved</b>	28	14.1%

**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
<b>Very positive</b>	31	15.6%
<b>Somewhat positive</b>	85	42.7%
Neutral or no response	60	30.2%
<b>Somewhat negative</b>	14	7.0%
<b>Very negative</b>	9	4.5%

**Table S.9.16. 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
<b>Most of the time</b>	20	10.1%
<b>Somewhat often</b>	78	39.2%
Neutral or no response	45	22.6%
<b>Very little of the time</b>	39	19.6%
<b>Not at all</b>	17	8.5%

## Betel Nut and Tobacco

### Betel nut

Among the 203 participants, a total of 201 who participated in Yap had information on Betel nut chewing. Out of the 201, 4 (2.0%) reported having never chewed. Among the 197 who indicated that they had ever chewed, 189 (93.6%) indicated that they were current chewers.



**Table S.9.17. Betel Nut Usage**

<b>Ever chewed Betel Nut</b>	<b>Number</b>	<b>Percent</b>
Yes	197	98.0%
No	4	2.0%
<b>Do you now chew Betel Nut?</b>		
Yes	189	93.6%
No	13	6.4%

Participants were asked about items added to Betel quid when chewing (tobacco, lime, betel leaf etc.). The following tables provide their responses.

**Table S.9.18. Betel Nut mixed with Tobacco**

<b>Tobacco included when chewing betel nut (from cigarette, snuff, twist tobacco, Red Man)</b>	<b>Number</b>	<b>Percentage</b>
Yes	163	87.6%
No	23	12.4%
<b>Lime included when chewing betel nut?</b>		
Yes	185	99.5%
No	1	0.5%
<b>Betel Leaf included when chewing?</b>		
Yes	179	95.7%
No	8	4.3%
<b>Added alcohol to any of the components of your chew (Nut, leaf, lime, or tobacco)?</b>		
Yes	87	46.8%
No	99	53.2%

Participants were also asked if there were other household members who chewed Betel nut. 188 (93.1%) participants in Yap indicated that there were other household members who chewed. The mean number of household members who chewed was 2.6.

**Table S.9.19. Household Member Betel Nut Usage**

Other household members chew Betel nut?	Number	Percentage
Yes	188	93.1%
No	14	6.9%
<b>How many household members chew Betel nut?</b>		
Average number of household members who chew (n=176)	2.6 members	

### **Tobacco**

Among the 203 participants, a total of 200 had information on Tobacco use. Out of these 200 participants in Yap, 54 (27.0%) reported current use of tobacco products. Participants also reported whether other members of the household used tobacco, with the mean number of household tobacco users being 2.3 persons.

**Table S.9.20. Tobacco Use**

Do you now use any tobacco products (smoking cigarettes, cigars or pipes; chewing smokeless tobacco); Aside from adding to a betel quid?	Number	Percentage
Yes	54	27.0%
No	146	73.0%
<b>Other household members use tobacco</b>		
Yes	122	62.6%
No	73	37.4%
<b>How many sticks/pipes do you smoke daily?</b>		
Mean number of sticks/pipes smoked daily (n=17)	10.9 sticks/pipes	
<b>How many household members use tobacco (with or without betel nut)?</b>		
Mean number of household members using tobacco (n=118)	2.3 persons	

# 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 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
- Number of fast food restaurants / jurisdiction

## 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 were instructed to spend about 30 minutes walking through each park to survey its accessibility, setting, amenities, sports fields (e.g., soccer, football, baseball), courts (e.g., tennis, basketball, volleyball), walking/running/biking trails, and incivilities.

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

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

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

## 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 Yap there were 3 parks with this information. Among the 3 parks, none were a public park, while none were adjacent to another school, and none shared sports features with any adjacent schools. All locations in Yap were identified as a communal space.

One of the parks (33.3%) had on-site parking, while none had an on-site parking with overhead lighting and none had bicycle parking. All three parks surveyed had information on sidewalk, of which none had sidewalks leading up to the entrance of the park as well as sidewalks with overhead lighting.

Observation on park amenities included whether it had closing time signage, restrooms, showers, and beverage vending machine. Among the 3 parks with such information, 1 (33.3%) had closing time signage, while 2 (66.7%) had restrooms. None of the parks had showers and none had beverage vending machines.

**Table S.2.1. Park Setting (N=3)**

Park Setting	Number	Percent
<b>Setting (n=3)</b>		
Public Park	0	0.0%
Adjacent to a school	0	0.0%
Shares sports features with a school	0	0.0%
Communal Space	3	100.0%
<b>Parking (n=3)</b>		
Parking on-site available (not including street parking)	1	33.3%
Parking has lights	0	0.0%
Bicycle parking racks or cages available	0	0.0%
<b>Sidewalk (n=3)</b>		

<b>Sidewalks on street lead up to the entrance*</b>	0	0.0%
<b>Sidewalks have lighting</b>	0	0.0%
<b>Amenities (n=3)</b>		
<b>Park has closing time signage</b>	1	33.3%
<b>Restrooms present</b>	2	66.7%
<b>Showers present</b>	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 parks surveyed in Yap, all had a response on the question of whether there was an entrance fee. None of the parks had a fee associated with entrance. None had signage indicating the park name, none 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 had a locked fence or other physical barrier around the perimeter.

**Table S.2.2. Park Access and Barriers (N=3)**

<b>Access and barriers</b>	<b>Number</b>	<b>Percent</b>
<b>Signage indicates park name</b>	0	0.0%
<b>Signage states public use of area is limited to specific times</b>	0	0.0%
<b>Signage states area is private or restricted access at all times</b>	0	0.0%
<b>Locked fence or other physical barrier around the perimeter prevents public access</b>	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 (These are detailed further in APPENDIX B)**

- **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 Fitness Trails or Fit Trails.
- **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 concrete covered the entire surface and looked for cracks or uneven slabs in the concrete surface.

## Survey Results for Sports Features

Across the three parks surveyed in Yap, there were a total of 15 features, of which 15 all were rated as ok/good. Multiuse fields, basketball courts, volleyball courts, multiuse courts, and playgrounds were the most frequent features (3). Playgrounds may be of particular interests to families with young children. In Yap, of the 3 playgrounds, all were rated as ok/good. 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 the parks surveyed.

**Table S.2.3. Sports Features Across all 3 Parks in Yap**

Feature	Total number of the feature	Condition of the Feature			Number of features w/ Lighting
		OK/Good	Poor	Not rated	
Field multiuse	3	3	0	0	1
Field football	0	0	0	0	0
Field baseball	0	0	0	0	0
Field soccer	0	0	0	0	0
Court basketball	3	3	0	0	1
Court tennis	0	0	0	0	0
Court volleyball	3	3	0	0	1
Court multiuse	3	3	--	0	1
Track	0	0	0	0	0
Pool	0	0	0	0	0
Playground	3	3	--	--	1
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 (These are detailed further in Appendix B):**

- **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 3 parks in Yap, there were a total of 15 features and amenities, of which 7 were rated as ok/good and 8 were not rated. The most common features and amenities present were green park space, shelters, and benches. The following table summarizes the total number and condition of each individual feature/amenities which was assessed.

**Table S.2.4. Park Features and Amenities Across all 3 Parks in Yap**

Feature	Total Number of the feature	Condition of the Feature		
		OK/Good	Poor	Not rated
Green Space	3	3	0	0
Beach swim	1	1	0	0
Beach recreational	1	1	0	0
Beach lifeguard	0	0	0	0
Waterpark	1	0	0	1
Shelters	2	1	0	1
Picnic Tables w/Shade	0	0	0	0
Picnic Tables w/o Shade	1	0	0	1
Benches	2	1	0	1
Drinking fountain	1	0	0	1
Décor fountain	1	0	0	1
Trash bins	1	0	0	1
Grills	1	0	0	1
Fence	0	0	0	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 or markers of blight. 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 or on a 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 3 (a lot). 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. See Appendix B for a detailed protocol on how each incivility was rated for amount.

Among the three parks in Yap, there were a little bit of incivilities (mean= 0.6; sd=0.6). Across the parks in Yap, there was on average, a little bit of garbage, graffiti/tagging, evidence of alcohol use, evidence of substance abuse, dog refuse, dogs left unattended, and vandalism. There was no broken glass or sex paraphernalia present across any of the parks (Table S.2.5).

**Table S.2.5. Average Amount of Each Incivility Across 3 Parks in Yap**

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

The original form can be viewed at:

[http://www.bridgingthegapresearch.org/asset/vnb0e7/BTGCOMP\\_Park\\_2012.pdf](http://www.bridgingthegapresearch.org/asset/vnb0e7/BTGCOMP_Park_2012.pdf)



### **Section 3. Assessment of Schools**

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 schools 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 all of them when there were less than ten schools in a community. Staff were instructed to spend about 30 minutes walking through each school 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**

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 Yap there were 6 schools with this information. Among the 6 schools, none were adjacent to a park and none shared sports features with an adjacent park.

Among the 6 schools, 1 (16.7%) had on-site parking, while none had an on-site parking with overhead lighting, and none had bicycle parking. Only 1 (16.7%) of schools had a sidewalk leading up to the entrance of the school, while none of the schools had sidewalks with overhead lighting.

Observation on school amenities included whether it had closing time signage, restrooms, showers, and beverage vending machine. Among the 6 schools with such

information, 1 (16.7%) had closing time signage, all 6 (100%) had restrooms, 2 (40%) had showers, and none had beverage vending machines.

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

School Setting	Number	Percent
<b>Setting (n=6)</b>		
Adjacent to a park	0	0.0%
Shares sports features with a park	0	0.0%
<b>Parking (n=6)</b>		
Parking on-site available (not including street parking)	1	16.7%
Parking has lights	0	0.0%
Bicycle parking racks or cages available	0	0.0%
<b>Sidewalk (n=6)</b>		
Sidewalks on street lead up to the entrance	1	16.7%
Sidewalks have lighting	0	0.0%
<b>Amenities (n=5)</b>		
School has closing time signage	1	16.7%
Restrooms present	6	100.0%
Showers present	2	40.0%
Beverage vending machines present	0	0.0%

### 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 six schools surveyed in Yap, 5 (83.3%) 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 has restricted access at all times (e.g. no trespassing, school use only), and 2 (33.3%) of the schools had a locked fence or other physical barrier around the perimeter.

**Table S.3.2. School Access and Barriers (N=6)**

Access and barriers		
<b>Signage indicates school name</b>	5	83.3%
<b>Signage states public use of area is limited to specific times</b>	1	16.7%
<b>Signage states area is private or restricted access at all times</b>	2	33.3%
<b>Locked fence or other physical barrier around the perimeter prevents public access</b>	2	33.3%

## 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. (These are detailed further in Appendix B)

## 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 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 are rated okay/good, 1 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 B for a detailed protocol on how each sports feature was rated for condition.

### **Survey Results for Sports Features**

Across the 6 schools surveyed in Yap, there were a total of 26 sports features, of which 25 were rated as ok/good and 1 was rated as poor. Among the 26 rated features, 96% were rated as ok/good.

Playgrounds were the most frequent features (5), followed by multiuse fields (4), basketball courts (4), volleyball courts (4), and multiuse courts (4). Playgrounds may be of particular interests to families with young children. Among the 5 playgrounds in Yap, all 5 were rated ok/good and while 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 Yap.

**Table S.3.3. Sports Features Across all 6 Schools in Yap**

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	1	1	0	0	0
Field baseball	2	2	0	0	0
Field soccer	2	2	0	0	0
Court basketball	4	4	0	0	0
Court tennis	0	0	0	0	0
Court volleyball	4	3	1	0	0
Court multiuse	4	4	0	0	0
Track	0	0	0	0	0
Pool	0	0	0	0	0
Playground	5	5	0	0	0
Skateboarding	0	0	0	0	0
Exercise Stations	0	0	0	0	0
Rock Climbing	0	0	0	0	0

### **School Features and Amenities**

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. (These are detailed further in Appendix B).

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. See Appendix B for a detailed protocol on how each feature or amenity type was rated for condition.

## Survey Results of School Features and Amenities

Among the 6 schools in Yap, there were a total of 24 features and amenities, of which 10 were rated as ok/good and 14 were not rated. Among rated features and amenities, 41.7% were rated as ok/good. The most common features and amenities present were green spaces (5), trash bins (5), and benches (4). The following table 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 Yap**

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

## Incivilities

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. (These are detailed further in Appendix B).

### Amount of Incivilities

Staff looked for incivilities throughout the school and assigned a score for each incivility type 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. Mean rating across all 9 items were then used as an overall rating of incivilities across all schools surveyed in that community. See Appendix B for a detailed protocol on how each incivility was rated for amount.

Among the 6 schools in Yap, there was a little bit of each type of incivility, except for sex paraphernalia and vandalism which had none (Table S.3.5).

**Table S.3.5. Average Amount of Each Incivility across 6 Schools in Yap**

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

## Section 4. Churches

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

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

### Church Setting, Parking, Sidewalks, and Amenities

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

In Yap there were 5 churches. Observations on church settings included whether it was within a quarter mile of another community feature (e.g. a school, housing, food store). Among the 5 churches, 4 (80.0%) churches were near another community resource.

Four churches had on-site parking, while 1 (20.0%) church had on-site parking with overhead lighting, and no churches had bicycle parking. 1 (20.0%) of the churches had a sidewalk leading up to the entrance of the church while none had a sidewalk with



overhead lighting.

Observations on church amenities included whether it had closing time signage, restrooms, showers, and beverage vending machines. Among the 5 churches, none had closing time signage, 3 (60.0%) had restrooms, none had showers, and none had beverage vending machines.

**Table S.4.1. Church Setting (N=5)**

<b>Church Setting</b>	<b>Number</b>	<b>Percent</b>
<b>Setting</b>		
<b>Within ¼ of a mile from another community feature</b>	4	80.0%
<b>Parking</b>		
<b>Parking on-site available (not including street parking)</b>	4	80.0%
<b>Parking has lights</b>	1	20.0%
<b>Bicycle parking racks or cages available</b>	0	0.0%
<b>Sidewalk</b>		
<b>Sidewalks on street lead up to the entrance*</b>	1	20.0%
<b>Sidewalks have lighting</b>	0	0.0%
<b>Amenities</b>		
<b>Church has closing time signage</b>	0	0.0%
<b>Restrooms present</b>	3	60.0%
<b>Showers present</b>	0	0.0%
<b>Beverage vending machines present</b>	0	0.0%

### **Church Access and Barriers to Entry**

Staff assessed each church for signage limiting entry and any physical barriers around the perimeter of the church. Among the 5 churches surveyed in Yap, 2 (40.0%) had signage indicating the church name, 3 (60.0%) had signage stating that an area was open to the public, 2 (40.0%) had signage indicating that an area was open to church members only, 3 (60.0%) had signage indicating that use of an area was limited to

specific times, 3 (60.0%) had signage stating that use of an area required permission (e.g. from a minister or deacon), none had signage stating that supervision was needed (e.g. by an adult or minister), and none had signage stating that an area was private or restricted at all times. Among the 5 churches none had a locked fence or other physical barrier around the perimeter.

**Table S.4.2. Church Access and Barriers (N=5)**

<b>Access and barriers</b>		
<b>Signage indicates church name</b>	2	40.0%
<b>Signage states an area is open to the public</b>	3	60.0%
<b>Signage states an area is open to church members only</b>	2	40.0%
<b>Signage indicates that use of an area was limited to specific times</b>	3	60.0%
<b>Signage states that use of an area required permission</b>	3	60.0%
<b>Signage states that supervision was needed</b>	0	0.0%
<b>Signage states area is private or restricted access at all times</b>	0	0.0%
<b>Locked fence or other physical barrier around the perimeter prevents public access</b>	0	0.0%

## **Sports Features**

Staff assessed each church 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. (These data are detailed further in Appendix B).

## **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 each church. For example, if a church 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 church 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 B for a detailed protocol on how each sports feature was rated for condition.

### **Survey Results for Sports Features**

Across the 5 churches surveyed in Yap, there were a total of 12 features, of which all 12 were rated as ok/good. Among the rated features, 100% were rated as ok/good.

Multiuse fields and playgrounds were the most frequent features (3), followed by soccer fields (2). Playground may be of particular interest to families with young children. Among the 3 playgrounds in Yap, all 3 were rated ok/good, and 1 of the churches 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 the 5 churches in Yap.

**Table S.4.3. Sports Features Across all 5 Churches in Yap**

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

### **Church Features and Amenities**

Method: Staff assessed each church 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. (These are detailed further in Appendix B).

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. See Appendix B for a detailed protocol on how each feature or amenity type was rated for condition.

## Survey Results of Church Features and Amenities

Among the 5 churches in Yap, there were a total of 17 features and amenities, of which 6 were rated as ok/good, 1 was rated as poor, and 10 were not rated. Among rated features and amenities, 85.7% were rated as ok/good. The most common features and amenities present were green space (5), benches (4) and trash bins (4). The following table summarizes the total number and condition of each individual feature/amenity that was assessed.

**Table S.4.4. Features and Amenities Across all 5 Churches in Yap**

Feature	Total Number of the feature	Condition of the Feature		
		OK/Good	Poor	Not rated
Green Space	5	5	0	0
Beach for swimming	2	1	0	1
Beach, recreational	1	0	0	1
Beach with lifeguard	0	0	0	0
Waterpark	0	0	0	0
Shelters	0	0	0	0
Picnic Tables w/ Shade	0	0	0	0
Picnic Tables w/o Shade	0	0	0	0
Benches	4	0	0	4
Drinking fountain	1	0	0	1
Decorative fountain	0	0	0	0
Trash bins	4	0	1	3
Grills	0	0	0	0
Fence	0	0	0	0
Trails	0	0	0	0

## Incivilities

Method: Staff assessed each church 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 church grounds environment. These incivilities are the same as those included in the assessment of parks. (These are detailed further in Appendix B).

### **Amount of Incivilities**

Staff looked for incivilities throughout the church and assigned a score for each of 9 incivility types based upon the amount that was present across the church 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. See Appendix B for a detailed protocol on how each incivility was rated for amount.

Among the 5 churches in Yap, there was a little bit of garbage, evidence of alcohol use, evidence of substance abuse, dog refuse, and dogs left unattended. There was no evidence of broken glass, graffiti/tagging, sex paraphernalia, and vandalism present (Table S.4.5).

***Table S.4.5. Average Amount of Each Incivility Across all 5 Churches in Yap***

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

## **Section 5. 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). 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 Yap, 2 facilities were listed on the inventory and 2 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. Among the 2 PA

facilities assessed, all had information on setting. Out of those 2 PA facilities, 1 (50.0%) was a communal play spaces, and 1 (50.0%) was a community recreation center. None of the facilities were a for-profit facility. Among the 2 PA facilities, both (100%) had indoor features and outdoor features. None of the facilities offered childcare and only 1 (50.0%) facility offered teen services. All facilities offered a daily fee and a discount for low-income but not for youth. Table S.5.1 summarizes this information.

**Table S.5.1. PA Facility Setting (N=2 unless otherwise noted)**

<b>PA facility Setting</b>	<b>Number</b>	<b>Percent</b>
<b>Setting</b>		
Communal Play Space	1	50.0%
For-profit Facility	0	0.0%
<b>Sport feature location</b>		
Indoor	0	0.0%
Outdoor	0	0.0%
Both Indoor and Outdoor	2	100.0%
<b>Services</b>		
Childcare	0	0.0%
Teen activities	1	50.0%
<b>Fees</b>		
Daily Fees	2	100.0%
Fee discount for low-income	2	100.0%
Fee discount for youth	0	0.0%

### **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 two PA facilities surveyed in Yap, 1 (50.0%) had on-site parking, none had parking with overhead lighting, and none had bicycle parking. None of the PA facilities had a sidewalk leading up to the entrance or had a sidewalk with overhead lighting.

Observations on PA facility amenities included whether it had restrooms, showers, and beverage vending machines both inside and outside. Among the 2 PA facilities with indoor features, all 2 (100%) had restrooms inside. None had showers and none had a beverage vending machine present inside. On the outside, 1 (50.0%) out of the 2 outdoor facilities had restrooms, none had showers, and none had a beverage vending machine. Table S.5.2 summarizes this information.

**Table S.5.2. PA Facility Amenities (N=2 unless otherwise noted)**

<b>Access and barriers</b>		
<b>Parking</b>		
<b>Parking on-site available (not including street parking)</b>	1	50.0%
<b>Parking has lights</b>	0	0.0%
<b>Bicycle parking racks or cages available</b>	0	0.0%
<b>Sidewalk</b>		
<b>Sidewalks on street lead up to the entrance</b>	0	0.0%
<b>Sidewalks have lighting</b>	0	0.0%
<b>Amenities</b>		
<b>Restrooms present inside</b>	2	100.0%
<b>Showers present inside</b>	0	0.0%
<b>Beverage vending machines present inside</b>	0	0.0%
<b>Restrooms present outside</b>	1	50.0%

<b>Showers present outside</b>	0	0.0%
<b>Beverage vending machines present outside</b>	0	0.0%
<b>Restrooms present inside or outside</b>	3	100.0%
<b>Showers present inside or outside</b>	0	0.0%
<b>Beverage vending machines present inside or outside</b>	0	0.0%

### **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. (These features are detailed further in Appendix B)

### **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. See Appendix B for a detailed protocol on how each sports feature was rated for condition.

### Survey Results for Indoor Sports Features

Across the two PA facilities surveyed in Yap, there were a total of 7 indoor sports features, of which all (100%) were rated as ok/good.

Basketball courts, volleyball courts, and multiuse courts were the most common features (2). The multipurpose room in Yap was rated ok/good. The following table (Table S.5.3) summarizes the number of each sports feature and the conditions of the feature across all 2 PA facilities in Yap.

**Table S.5.3. Indoor Sports Features Across all 2 PA Facilities in Yap**

Feature	Total number of the feature	Condition of the Feature		
		OK/Good	Poor	Not rated
Field soccer	0	0	0	0
Court basketball	2	2	0	0
Court tennis	0	0	0	0
Court volleyball	2	2	0	0
Court racquetball	0	0	0	0
Court multiuse	2	2	0	0
Multipurpose room	1	1	0	0
Exercise machine area	0	0	0	0

<b>Gymnastics facilities</b>	0	0	0	0
<b>Running/ Walking track</b>	0	0	0	0
<b>Pool &gt;3 feet deep</b>	0	0	0	0
<b>Skateboarding</b>	0	0	0	0
<b>Rock Climbing</b>	0	0	0	0

### Survey Results for Outdoor Sports Features

Across the two PA facilities surveyed in Yap, there were a total of 3 outdoor sports features, of which 3 (100%) were rated as ok/good. None of the facilities had lighting on outdoor features.

The most common features were basketball courts, multiuse courts, and playgrounds (1). Playgrounds may be of particular interest to parents of young children. The 1 playground in Yap was rated ok/good, and had no lighting on outdoor sports features. The following table (Table S.5.4.) summarizes the number of each sports feature and the conditions of the feature across all 2 PA facilities in Yap.

**Table S.5.4. Outdoor Sports Features Across all 2 PA Facilities in Yap**

Feature	Total number of the feature	Condition of the Feature			Number of facilities w/ Lighting
		OK/Good	Poor	Not rated	
<b>Field multiuse</b>	1	1	0	0	0
<b>Field football</b>	0	0	0	0	0
<b>Field baseball</b>	0	0	0	0	0
<b>Field soccer</b>	0	0	0	0	0
<b>Court basketball</b>	1	1	0	0	0
<b>Court tennis</b>	0	0	0	0	0

<b>Court volleyball</b>	0	0	0	0	0
<b>Court multiuse</b>	0	0	0	0	0
<b>Running/walking track</b>	0	0	0	0	0
<b>Pool &lt;3 feet deep</b>	0	0	0	0	0
<b>Pool wading</b>	0	0	0	0	0
<b>Playground</b>	1	1	0	0	0
<b>Skateboarding</b>	0	0	0	0	0
<b>Exercise Stations</b>	0	0	0	0	0
<b>Rock Climbing</b>	0	0	0	0	0

### 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. (These are detailed further in Appendix B).

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. See Appendix B for a detailed protocol on how each feature or amenity type was rated for condition.

Among the 2 PA facilities in Yap, all had information on amenities. Among the facilities there were a total of 3 amenities, of which 2 were rated as ok/good while 1 was not rated. The amenities present were benches (2) and trash bins (1). Table S.5.5 summarizes the total number and condition of each individual feature/amenity which was assessed.

**Table S.5.5. Amenities Across all 2 PA Facilities in Yap**

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

**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. (These are detailed further in Appendix B). 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. See Appendix B for a detailed protocol on how each incivility was rated for amount.

Among the 2 PA facilities in Yap, there was a little bit of incivilities. There was, on average, a little bit of garbage, graffiti/tagging, drug use, dog refuse, and dogs left unattended. The other incivilities including broken glass, evidence of alcohol use, sex paraphilia, and vandalism were not present (Table S.5.6).

**Table S.5.6. Average Amount of Each Incivility across 2 PA Facilities in Yap**

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

The original form can be viewed at:

[http://www.bridgingthegapresearch.org/\\_asset/2npg33/BTGCOMP\\_PA\\_2012.pdf](http://www.bridgingthegapresearch.org/_asset/2npg33/BTGCOMP_PA_2012.pdf)

## **Section 6. 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 Yap 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 Yap, 2 outlets were listed on the original inventory, 1 was visited and had a complete assessment, which was 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. The fast food outlet in Yap had information on the outlet type. The type of outlet assessed was a burger and fries joint.

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. The fast food outlet in Yap had information on shared space. The outlet in Yap shared an area with a grocery store. Table S.6.1 summarizes this information.

**Table S.6.1. Outlet Type and Shared Space (N=1)**

<b>Outlet Setting</b>	<b>Number</b>	<b>Percent</b>
<b>Outlet Type</b>		
<b>Burger and Fries</b>	1	100.0%
<b>Mexican/Latin American</b>	0	0.0%
<b>Fried Chicken/Fried Fish</b>	0	0.0%
<b>Sandwich or Sub Shop</b>	0	0.0%
<b>Sandwich/Pastry</b>	0	0.0%
<b>Pizzeria/Italian</b>	0	0.0%
<b>Plate Lunch/Lunch Truck</b>	0	0.0%
<b>Chinese/Pan-Asian</b>	0	0.0%
<b>Other, SPECIFY:</b>	0	0.0%
<b>Shared Space</b>		
<b>Food Court</b>	0	0.0%
<b>Grocery Store</b>	1	100.0%
<b>Gas Station</b>	0	0.0%
<b>Other Restaurant</b>	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.

The 1 fast food outlet surveyed in Yap had on-site parking with overhead lighting, but did not have bicycle parking. The outlet did not have a sidewalk leading up to the entrance and did not have a sidewalk with overhead 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. The fast food outlet in Yap had outdoor seating, but had no bars on the windows, no exterior play area, no indoor play area that was visible from the outside, and no drive-thru window. This information is summarized in Table S.6.2.

**Table S.6.2. Parking, Sidewalks, and Exterior Amenities (N=1)**

Exterior Feature	Number	Percent
<b>Parking</b>		
<b>Parking on-site available (not including street parking)</b>	1	100.0%
<b>Parking has lights</b>	1	100.0%
<b>Bicycle parking racks or cages available</b>	0	0.0%
<b>Sidewalk</b>		
<b>Sidewalks on street lead up to the entrance</b>	0	0.0%
<b>Sidewalks have lighting</b>	0	0.0%
<b>Outdoor seating</b>	1	100.0%
<b>Bars on windows</b>	0	0.0%
<b>Exterior play area</b>	0	0.0%
<b>Indoor play area visible from outside</b>	0	0.0%
<b>Drive thru window</b>	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. The fast food restaurant surveyed in Yap had information about the number of walls visible from the street. The outlet had four visible

walls. 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. The fast food outlet in Yap had information on the level of graffiti and garbage that was present. The outlet had no graffiti or garbage present. This information is summarized in Table S.6.3.

**Table S.6.3. Exterior (N=1)**

Exterior Feature	Number	Percent
<b>Walls visible from street</b>		
0	0	0.0%
1	0	0.0%
2	0	0.0%
3	0	0.0%
4	1	100.0%
<b>Graffiti</b>		
None	1	100.0%
A little	0	0.0%
Some	0	0.0%
A lot	0	0.0%
<b>Garbage</b>		
None	1	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. 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.

The fast food outlet in Yap was assessed for ads on the building exterior. Among the outlet, there were no ads. The presence of specific types of ads at each outlet is presented in table S.6.4.

**Table S.6.4. Summary of Price Promotion, Food, Beverage, or Soda Ads on the Building Exterior or Property across 1 Fast Food Outlet in Yap**

Location	# surveyed	Type of Ad				
		Total	Price Promo	Food Ad	Beverage Ad	Soda Ad
Exterior	1	0	0	0	0	0
Property	1	0	0	0	0	0

### 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.

The fast food restaurant in Yap had information on the outlet’s exterior. The outlet lacked a dollar menu ad, cartoon ad, celebrity ad, kids’ meal toy ad, health ads, or other child-directed marketing. Table S.6.5 summarizes this information.

**Table S.6.5. Presence of Ads by Type (N=1)**

Type of Ad	Number	Percent
<b>External</b>		
Price Promo	0	0.0%
Food Ad	0	0.0%
Beverage Ad	0	0.0%
Soda Ad	0	0.0%
<b>Property (n=0)</b>		
Price Promo	0	0.0%

<b>Food Ad</b>	0	0.0%
<b>Beverage Ad</b>	0	0.0%
<b>Soda Ad</b>	0	0.0%
<b>Dollar menu</b>	0	0.0%
<b>Health claim</b>	0	0.0%
<b>Cartoon character(s)</b>	0	0.0%
<b>TV/ movie star/sports star/youth celebrity</b>	0	0.0%
<b>Kids' meal toy</b>	0	0.0%
<b>Other child-targeted marketing</b>	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 Yap were a drive-in only restaurant therefore all were assessed for restaurant interior characteristics. The outlet had information about whether food was ordered at the counter. Food was ordered at the counter among the one outlet in Yap. The outlet had food pick up and payment at the counter. Staff counted the number of cash registers inside of the restaurant and found that the outlet did have a register. The outlet lacked a glass or Plexiglas divider between customers and a cash register in the restaurant interior.

Regarding other interior characteristics, the fast food outlet in Yap had indoor seating, had bathrooms available to customers, but lacked 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, the outlet lacked sweets--such as cookies and candy--near the cash register, self-serve fountain drinks, free water, and self-serve salads.

**Table S.6.6 Counter Service and Restaurant Interior (N=1)**

<b>Restaurant Feature</b>	<b>Number</b>	<b>Percent</b>
<b>Drive-in only</b>	0	0.0%
<b>Counter Service</b>		
<b>Ordering food</b>	1	100.0%
<b>Picking up food</b>	1	100.0%
<b>Paying for food</b>	1	100.0%
<b>Interior Register Count</b>		
<b>0 register</b>	0	0.0%
<b>1 register</b>	1	100.0%
<b>Divider between customer and cash register</b>	0	0.0%
<b>Indoor Seats</b>	1	100.0%
<b>Restrooms</b>	1	100.0%
<b>Indoor displays for kids' meal toys</b>		
<b>Any ad or display</b>	0	0.0%
<b>Toy display 3½ feet or less from the ground</b>	0	0.0%
<b>Sweet snacks near counter</b>	0	0.0%

Restaurant Feature	Number	Percent
Self-serve fountain drinks	0	0.0%
Free water	0	0.0%
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.

The fast food outlet in Yap, lacked a dollar menu, salad as an entrée, and low-fat dressing. The outlet had no information on the availability of a combo meal.

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.”

The outlet in Yap was assessed for vegetables and fruit. Across the menu of the outlet, there was a total of 1 vegetable, 1 fresh fruit, and zero other fruit options. The outlet had at least one vegetable option and one fruit option.

Staff looked for signage indicating food as low calorie, low fat, low sodium, or healthy.



For the fast food outlet in Yap, the outlet lacked signage for low fat, low sodium food, low calorie or healthy food items. The fast food outlet had liquor on the menu. This information is summarized in Table S.6.7.

**Table S.6.7 General Menu Items (N=1 unless otherwise noted)**

<b>Menu Feature</b>	<b>Number</b>	<b>Percent</b>
<b>Dollar Menu</b>	0	0.0%
<b>Fruit on Dollar Menu</b>	0	0.0%
<b>Dessert on Dollar Menu</b>	0	0.0%
<b>Drink on Dollar Menu</b>	0	0.0%
<b>Fries on Dollar Menu</b>	0	0.0%
<b>Entrée on Dollar Menu</b>	0	0.0%
<b>Combo meal (n=0)</b>	--	--
<b>Salad as an entrée</b>	1	100%
<b>Low-fat salad dressing</b>	1	100%
<b>Vegetable Items Count</b>		
<b>none</b>	0	0.0%
<b>1-2</b>	1	100.0%
<b>2-4</b>	0	0.0%
<b>5 or more</b>	0	0.0%
<b>Fruit Items Count</b>		

<b>Menu Feature</b>	<b>Number</b>	<b>Percent</b>
<b>none</b>	0	0.0%
<b>1-2</b>	1	100.0%
<b>2-4</b>	0	0.0%
<b>5 or more</b>	0	0.0%
<b>Signage on the menu</b>		
<b>Low calorie</b>	0	0.0%
<b>Low fat</b>	0	0.0%
<b>Low sodium</b>	0	0.0%
<b>Healthy</b>	0	0.0%
<b>Liquor</b>	1	100.0%

### **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. The fast food outlet in Yap had information on beverage items. The most commonly available drinks were packaged soda, bottled water, coffee, shakes, and flavored milk. This information is presented in Table S.6.8.

**Table S.6.8 Beverage Items (N=1)**

<b>Beverage</b>	<b>Number</b>	<b>Percent</b>
<b>Fountain drink</b>	0	0.0%
<b>Packaged soda</b>	1	100.0%
<b>100% Juice</b>	0	0.0%
<b>Milk, skim or 1% fat (unflavored)</b>	0	0.0%
<b>Milk, whole/Vit D or 2% fat (unflavored)</b>	0	0.0%
<b>Bottled Water</b>	1	100.0%
<b>Flavored Coffee Drinks (hot or iced)</b>	1	100.0%
<b>Shakes or Malts</b>	1	100.0%
<b>Flavored Milk (e.g., chocolate, strawberry)</b>	1	100.0%

### **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. For the fast food outlet in Yap, the most commonly available food items from the list of specific foods were French fries, cheeseburgers, chicken sandwiches, entrée salads, fried chicken, cheese pizza, and tacos. This information is presented in Table S.6.9.

**Table S.6.9 Food Items (N=1)**

<b>Food</b>	<b>Number</b>	<b>Percent</b>
French fries	1	100.0%
Cheeseburger	1	100.0%
Chicken Sandwich, with roasted or grilled chicken	1	100.0%
Entrée salad, with roasted or grilled chicken	1	100.0%
Fried chicken – legs, drumstick, and thigh	1	100.0%
Cheese pizza, thin crust	1	100.0%
Taco with ground beef	1	100.0%
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.

For the fast food outlet in Yap, the outlet did not have a kids’ menu or meal available. This information is summarized in Table S.6.10.

**Table S.6.10 Children’s Menu (N=1)**

<b>Menu feature</b>	<b>Number</b>	<b>Percent</b>
Kids’ menu or meal	0	0.0%
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%

<b>Fruit, vegetable (only non-fried vegetables w/o added fat), salad or yogurt (listed or shown on board)</b>	0	0.0%
<b>Fruit, vegetable (only non-fried vegetables w/o added fat), salad or yogurt (available when asked)</b>	0	0.0%
<b>Free toy with kids' meal</b>	0	0.0%
<b>Toy for additional charge</b>	0	0.0%

The original form can be viewed at:

[http://www.bridgingthegapresearch.org/asset/2npq33/BTGCOMP\\_PA\\_2012.pdf](http://www.bridgingthegapresearch.org/asset/2npq33/BTGCOMP_PA_2012.pdf)

## Section 7. Food Availability and Marketing Form

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

**Supermarket Chain:** a large store that sells food and other items, including canned and frozen foods, fresh fruits and vegetables, and fresh (raw) and prepared meats, fish, and poultry. It is owned by a company that has many stores such as Safeway, K-mart, payless. (This type of store has twenty or more employees and at least 4 cash registers.)

**Large Grocery Store** (not part of a large chain): a large store that sells food and other items, including canned and frozen foods, fresh fruits and vegetables, and fresh (raw) and prepared meats, fish, and poultry. It may be part of a small regional chain of fewer than 5 stores or may be independent. (This type of store also has twenty or more employees and at least 4 cash registers.)

**Small Market:** usually an independent store that sells food including canned and frozen foods, fresh fruits and vegetables, and fresh (raw) and prepared meats, fish, and poultry as well as convenience items and alcohol. This type of store has fewer than 20 employees and 3 or fewer 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.

**Food Supply Ships:** These may usually supply produce and other grocery type items to the outer islands.

**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 Yap. Among the 10 stores assessed, the most common store types in Yap were convenience stores (10).

**Table S.7.1. Type of Store (N=10)**

Type	Number	Percent
Supermarket chain	0	0.0%
Large grocery store	0	0.0%
Small market	0	0.0%
Convenience	10	100.0%

### **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 10 stores with this data in Yap, 8 (88.9%) had no fruits, 7 (70.0%) had no vegetables, 1 (11.1%) had a limited variety of fruit and none had a wide variety of vegetables.

**Table S.7.2. Variety of Fruits and Vegetables (N=10)**

Variety	Number	Percent
<b>Fruits (n=9)</b>		
None	8	88.9%
Limited	1	11.1%
Moderate variety	0	0.0%
Wide variety	0	0.0%
<b>Vegetables</b>		
None	7	70.0%
Limited	2	20.0%
Moderate variety	1	10.0%
Wide variety	0	0.0%

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 10 stores in Yap assessed for quality, none had good quality for fruit and none had good quality for vegetables.

**Table S.7.3. Quality of Fruit and Vegetables (N=10)**

Quality	Number	Percent
<b>Fruit</b>		
None	8	88.9%
Poor	0	0.0%
Mixed Poor	1	11.1%
Mixed Good	0	0.0%
Good	0	0.0%
<b>Vegetable</b>		
None	7	77.8%
Poor	0	0.0%
Mixed Poor	1	11.1%
Mixed Good	1	11.1%
Good	0	0.0%

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 8 stores in Yap had data on the availability of fruits and 9 stores had data on the availability of vegetables. The most commonly available fruits were bananas and oranges which

were each available in 1 (12.5%) of stores. No oranges were sold in stores. Carrots were in 1 (11.1%) of stores and cabbage was in 2 (22.2%) of the stores. No tomatoes or broccoli were sold in stores.

**Table S.7.4. Availability of Selected Fruits and Vegetables (N=10 unless otherwise noted)**

Availability	Number	Percent
<b>Selected fruit (n=8)</b>		
Apple	1	12.5%
Banana	1	12.5%
Orange	0	0.0%
<b>Selected vegetable (n=9)</b>		
Carrot	1	11.1
Tomato	0	0.0%
Broccoli	0	0.0%
Cabbage	2	22.2%
<b>Select Local Foods</b>		
Ong Choi	3	30.0%
Pandanus (n=9)	0	0.0%
Taro (n=9)	2	22.2%
Cassava (n=9)	0	0.0%

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 10 stores assessed in Yap, 5 (50.0%) had at least one low/reduced fat dairy or soy beverage, 6 (60.0%) had at least one lean meat protein, 3 (30.0%) had at least one non-meat protein, 2 (20.0%) had at least one whole-grain item, 2 (20.0%) had at least one canned/ frozen fruit or vegetable, and 1 (10.0%) had at least one baby food.

**Table S.7.5. Availability of Other Healthy Foods in Stores (N=10)**

Other Healthy Foods	Number	Percent
<b>Low/reduced fat dairy or soy beverage</b>	5	50.0%
1% milk (n=9)	2	22.2%
2% milk	4	40.0%
Skim milk	0	0.0%
Mozzarella	0	0.0%
Flavored soy beverage	3	30.0%
Plain soy beverage	1	10.0%
<b>Lean meat protein</b>	6	60.0%
Ground beef or turkey, lean (85% or higher)	2	20.0%
Whole chicken	5	50.0%
Tuna (light) canned in water	3	30.0%
Salmon canned in water	1	10.0%
Sardines canned in water, tomato, or mustard (n=9)	1	11.1%
<b>Non-meat protein</b>	3	30.0%
Tofu, plain	2	20.0%

<b>Other Healthy Foods</b>	<b>Number</b>	<b>Percent</b>
<b>Beans, dried</b>	0	0.0%
<b>Beans, canned with no added fats, sugar or sweetener</b>	2	20.0%
<b>Whole grain</b>	2	20.0%
<b>Whole grain bread</b>	0	0.0%
<b>Brown rice</b>	0	0.0%
<b>High fiber cereal (<math>\geq 3</math> grams fiber, <math>\leq 12</math> grams sugar per serving)</b>	0	0.0%
<b>Oatmeal (plain) (n=9)</b>	2	22.2%
<b>Tortillas, soft corn or whole wheat (no lard)</b>	0	0.0%
<b>Canned/ frozen fruit or vegetables</b>	2	20.0%
<b>Any canned fruit packed in 100% fruit juice</b>	1	10.0%
<b>Any canned vegetable with no added fats, sugar, or sweetener</b>	1	10.0%
<b>Any frozen fruit with no added fats, sugar, or sweetener</b>	0	0.0%
<b>Any frozen vegetable with no added fats, sugar, or sweetener</b>	1	10.0%
<b>Baby food</b>	1	10.0%
<b>Baby food, jarred, single fruit</b>	1	10.0%
<b>Baby food, jarred, single vegetable</b>	1	10.0%
<b>Baby food, jarred, single meat</b>	1	10.0%

### **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 10 stores with this data, only 1 (10%) 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

In Yap, one (10.0%) store had health promotion items around the fruit and vegetable display categorized as “Other: Raffle Ticket on Every Purchase of Fruits and Vegetables”. Stores were also assessed for ads promoting locally grown produce. One (10.0%) store had locally grown items.

**Table S.7.6. Advertisements Inside the Store (N=10)**

<b>Interior Advertisements</b>	<b>Number</b>	<b>Percent</b>
<b>Health promotion around the fruit and vegetable display</b>	1	10.0%
<b>5 A Day signs</b>	0	0.0%
<b>Nutrition information</b>	0	0.0%
<b>Fruit and Veggies: More matters</b>	0	0.0%
<b>Children’s Healthy Living (CHL) or CHL partnership</b>	0	0.0%
<b>Other (Raffle Ticket on Every Purchase of Fruits and Vegetables)</b>	1	100.0%
<b>Promotion of locally grown produce</b>	1	10.0%

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,  $\geq 2$  g fiber,  $\leq 1$  g saturated fat,  $\leq 14$  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 10 stores surveyed all had information on the marketing near the main check-out area. Looking at ads for healthy food products, 5 stores had no ads, 1 store had ads for 1-2 items, and 1 store had ads for 3 or more items. Looking at ads for unhealthy food products, 2 stores had no ads, 5 stores had ads for 1-2 items, and 3 stores had ads for 3 or more items. More stores had at least one ad for unhealthy food products compared to healthy food products near the main check-out area (8 versus 2).

Looking at the presence of healthy food products near the main check-out area, 8 stores had no items and 2 stores had 1-2 items. Looking at the presence of unhealthy food products near the main check-out area, 1 store had no items and 9 stores had 1-2

items. More stores had at least one unhealthy food product compared to healthy food product near the main check-out area (9 versus 2).

**Table S.7.7. Store Check-out Area Marketing (N=10)**

Marketing next to the main check-out area	Healthy Food Products (n)	Unhealthy Food Products (n)
<b>Presence of ads or promotions</b>		
<b>0</b>	5	2
<b>1-2 items</b>	1	5
<b>3-4 items</b>	1	3
<b>Presence of products</b>		
<b>0</b>	8	1
<b>1-2 items</b>	2	9
<b>3-5 items</b>	0	0

### 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 ( $\geq 2$  g fiber per serving), energy bars ( $\leq 14$  g sugar per serving), nuts and seeds, non-fat and low fat milk products, water, or 100% fruit juice.

Among the 10 stores that had data on the presence of exterior ads for healthy foods,

none had ads for healthy foods. Among the 10 stores that had data on the presence of exterior ads for unhealthy foods, 5 (50.0%) had ads for unhealthy foods.

### Store Exterior Conditions

Stores were assessed for specific exterior conditions for food promotion. Among the 10 stores surveyed, 1 (10.0%) had produce bins on the sidewalk in front of the store. 6 (60.0%) 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 were no vending machines on the sidewalk in front of any of the 10 stores surveyed. 4 (40.0%) stores had ads on the roof, walls, or anywhere on the store property of the stores surveyed. 6 (60.0%) stores had images of unhealthy foods and/or beverages painted on doors or windows of the storefront, and 1 (10.0%) store had images of healthy foods and/or beverages. None of the stores had painted murals of healthy food and/or beverages on the building walls of the store.

**Table S.7.8. Store Exterior Conditions (N=10)**

Exterior Conditions	Number	Percent
Produce bins on the sidewalk in front of the store	1	10.0%
Products displayed on the sidewalk in front for the store or inside the store next to the window	6	60.0%
Vending machines on the sidewalk in front of the store	0	0.0%
Advertising (banners, posters, temporary signs, etc.) on the roof, walls or elsewhere on the property	4	40.0%
Images of healthy food (e.g. tomato, apple) and/or beverages (e.g. milk) painted on doors or windows of the storefront (n=1)	1	10.0%
Images of unhealthy food (e.g. hamburger, hot dog) and/or beverages (e.g. soda, shake) painted on doors or windows of the storefront	6	60.0%
Painted murals of healthy foods and/or beverages anywhere on the building walls	0	0.0%



## Perceptions of Safety at Store

Stores 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 (e.g. 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. Among the 10 stores, 8 (80.0%) had bars. Among 10 stores with information on Lee Law compliance, 4 (40.0%) complied with Lee Law. Among 6 stores assessed for whether people feel safe during the walk around or outside of the store none of the stores were rated that people feel safe. And among all 10 stores which were assessed for walkability, none of the stores met standards for being located in a safe, walkable environment.

**Table S.7.9. Perceived Safety of Store (N=10)**

Safety	Number	Percent
Store has bars or chains on windows or doors	8	80.0%
Store sells alcohol and no more than 1/3 of window area is covered with ads (Lee Law )	4	40.0%
People feel safe during the walk around or outside of the store	0	0.0%
Store meets standards for being located in a safe, walkable environment	0	0.0%

## Overall Summary of Store Assessments

Among the 10 stores surveyed in Yap there were strengths and areas needing improvement in order for stores to support community health.

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

- Of the 10 stores with this data in Yap, none had a wide variety of fruits and

vegetables. There were 8 stores (88.9%) that sold no fruits and 7 stores (70.0%) that sold no vegetables.

- For the stores that had fruits and vegetables, all stores can improve their quality of fruit and their quality for vegetables.
- All stores can improve the availability of common, as well as local fruits and vegetables.

#### Ads, promotions, and marketing

- Among the 10 stores in Yap, only 1 store had health promotion items around the fruit and vegetables display and only 1 store promoted locally grown produce.
- Stores in Yap are more likely to have ads for unhealthy food products than healthy food products near the main check out area (8 stores versus 2 stores). Stores in Yap also had at least one unhealthy food product compared to unhealthy food product near the main check-out area (9 versus 2).
- On the store exterior 5 stores had ads for unhealthy foods, while none had ads for healthy foods.
- Looking at the store exterior conditions, 1 had produce bins on the sidewalk in front of the store. Only 1 store had images of healthy food and/or beverages painted on doors or windows of the storefront. 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 10 stores surveyed in Yap, 8 had bars or chains on the windows. No stores were rated as people feeling safe around or outside of the store and no stores were in a location deemed to be a safe, walkable environment.
- Only 4 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 8. 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 Yap. 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.

<b>Community walkability rating scale</b>		
<b>Rating Scale</b>	<b>Total Score</b>	<b>Community Walkability</b>
1	26-30	Celebrate! You have a great neighbourhood for walking.
2	21-25	Celebrate a little. Your neighbourhood is pretty good.
3	16-20	Okay, but it needs work.
4	11-15	It needs lots of work.
5	5-10	It's a disaster for walking!

The total rating scores for Yap, as well as the individual scores for the 5 items, are summarized in the table below. For the total score, the number of neighborhoods audited (n) is 6. This is followed by the mean total score (18.3), standard deviation (1.5), minimum (16.0), and maximum (20.0). According to the mean total score, the neighborhoods surveyed in Yap is okay for walking but it needs work to encourage community walkability.

**Table S.8.1. Community Walking Features**

Walking Features	n	mean	SD	med	min	max
Total Score	6	18.3	1.5	--	16.0	20.0
Room to walk	6	4.0	0.0	--	4.0	4.0
Ease of crossing street(s)	6	4.0	0.0	--	4.0	4.0
Ease of following safety rules	6	4.0	0.0	--	4.0	4.0
Drivers' behavior	6	4.3	0.8	--	4.0	6.0
Pleasantness of walk	6	3.5	0.5	--	3.0	4.0

\*Walkability survey and rating scale is adapted from Pedestrian and Bicycle Information Center ([http://www.pedbikeinfo.org/planning/tools\\_audits.cfm](http://www.pedbikeinfo.org/planning/tools_audits.cfm))

# 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 Yap during 2014. 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 policies that increase the health and well-being of young children in Yap.

By increasing the amount of fruit and vegetables sold at stores and increasing walkability could all serve to better the health and well-being of young children in the community. More attention to the environment of pregnant women to increase their healthy food intake may help to decrease the prevalence of small birth size in infants.

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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