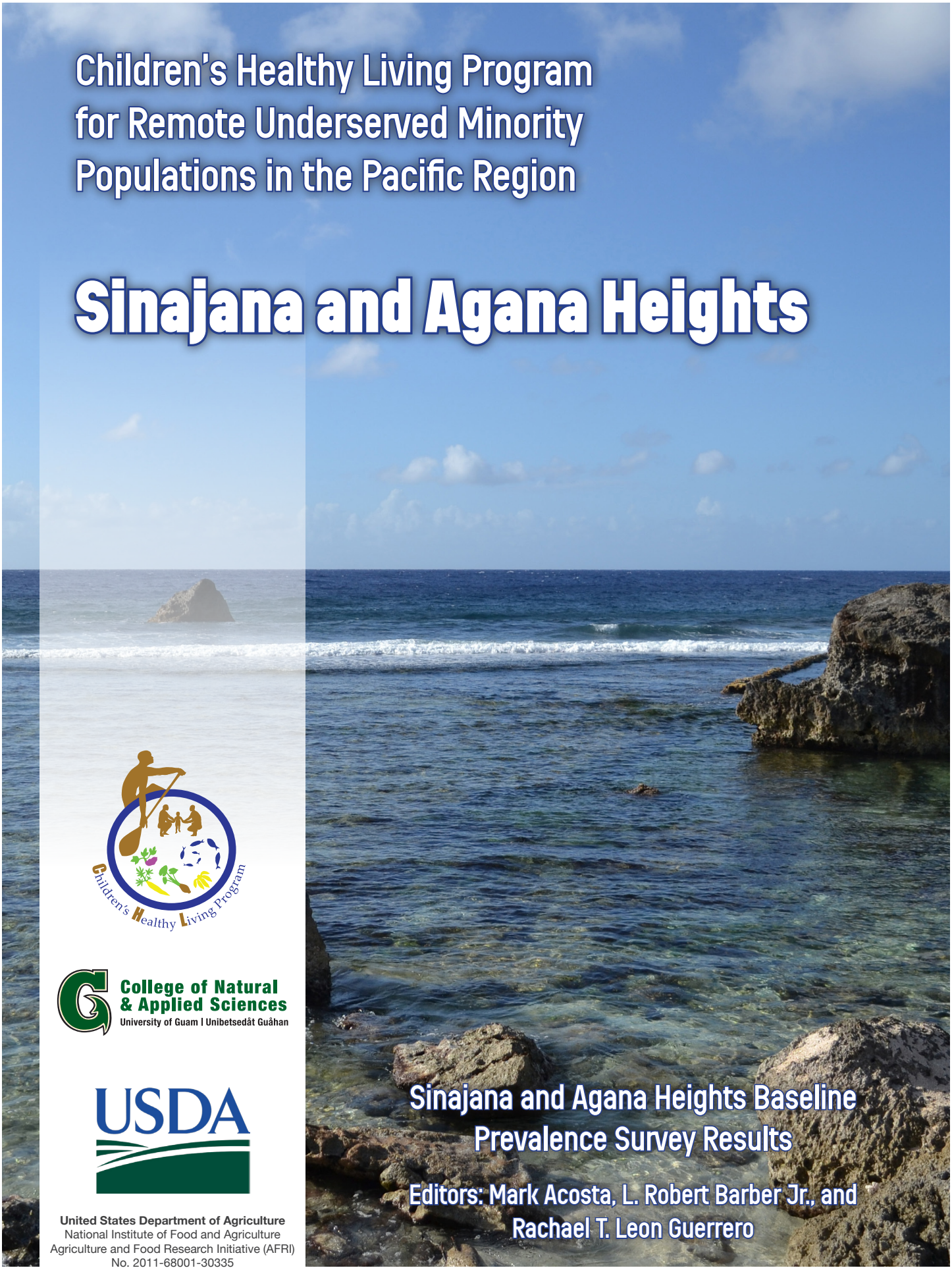
Children's Healthy Living Program for Remote Underserved Minority Populations in the Pacific Region

Sinajana and Agana Heights



Children's Healthy Living Program

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Sinajana and Agana Heights Baseline Prevalence Survey Results

Editors: Mark Acosta, L. Robert Barber Jr., and Rachael T. Leon Guerrero

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I. Executive Summary

Introduction to the Report

The CHL program utilizes three major strategies towards its goals: 1) training, 2) extension – intervention, and 3) research. The purpose of this document is to report on the measures of these three strategic areas in your community at the beginning (baseline) of the project. It includes information about CHL training, and the research 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. This report includes only the baseline data. The results of the CHL-wide intervention study examining changes between baseline and 24-month data will be available later in a separate report.

If you have any questions about this report, please contact Rachael Leon Guerrero at rachaeltlg@triton.uog.edu or 671-735-2001; or contact L. Robert Barber at bbarber@triton.uog.edu or 671-787-7391 or 671-735-2080.

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

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Children's Healthy Living Program (CHL)

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II. Children's Healthy Living Program (CHL)

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

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

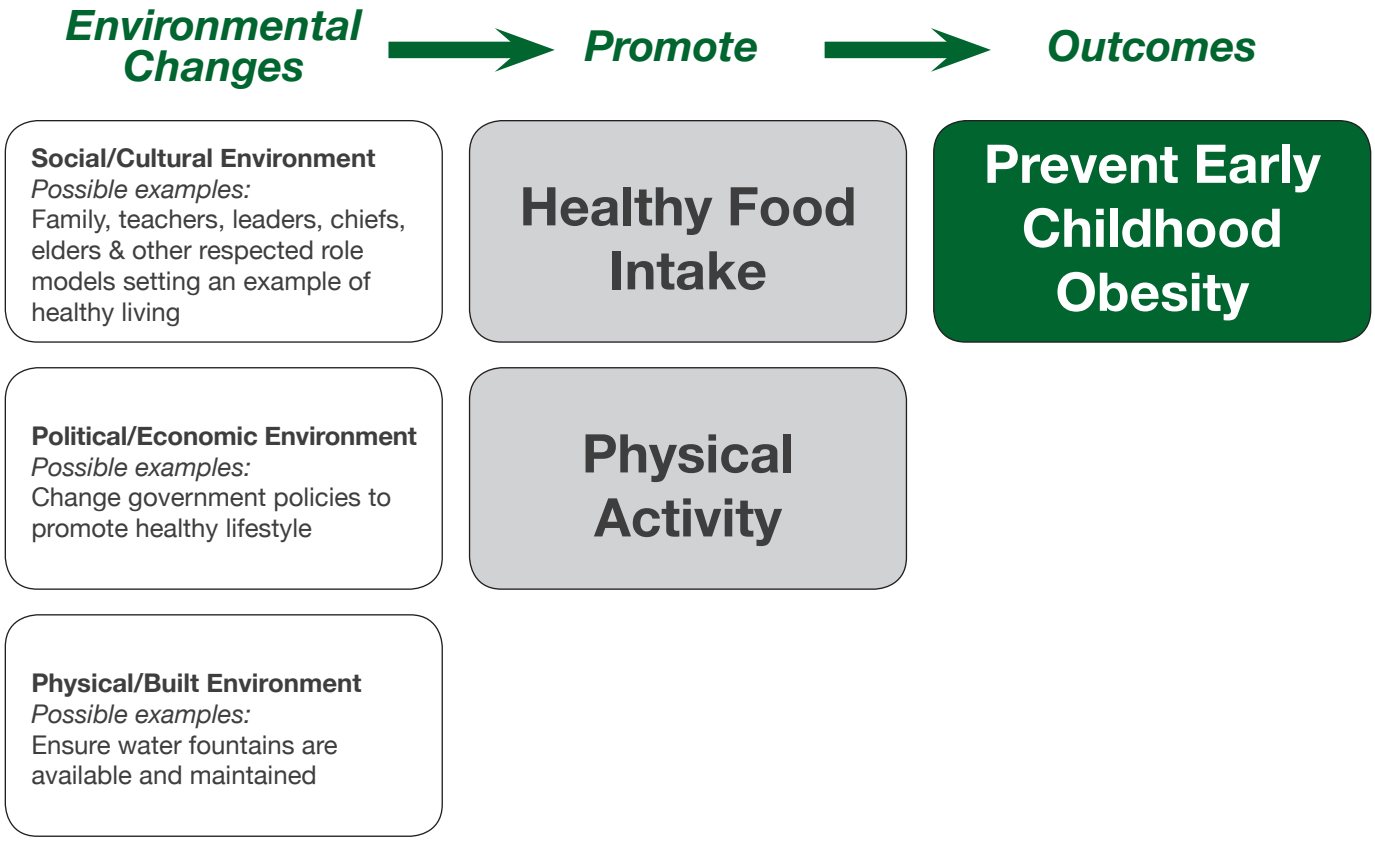
The goal of CHL is to help to create a social, cultural, political, economic, and physical environment in the Pacific Region that supports active play, physical activity, and eating healthy food, in order to promote health. In partnership with participating communities, our mission is to elevate the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

CHL strived for the following behavior targets:

1. Lower weight and BMI gain
2. Increased physical activity
3. Higher fruit and vegetable intake
4. Increased sleep
5. Higher water intake
6. Reduced consumption of sugar-sweetened beverages (SSB)
7. Reduced TV/video viewing
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



CHL Research Activities

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III. CHL Research Activities

A. 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.

B. Research Methods

Study Design

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

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

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

Selection of Communities

Communities were identified in Alaska, American Samoa, CNMI, Guam and Hawaii using the 2000 U.S. Census tract data (U.S. Census Bureau). In the FAS, 2010 country census data were used to inform selection of sites. The community eligibility criteria included population size of >1000 (except for FAS), >25% of the population of indigenous/native descent (except 15% in Alaska due to no targeted census tract within the CHL catchment area with a population of more than 1000 having more than 25% indigenous/native), and >10% of the population under age 10 years. Additional selection criteria included adequate settings for measuring children (e.g., schools), reasonable accessibility for the CHL team, and geographic representation for FAS.

Longitudinal Study

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

A second round of measurement occurred around 24-months from the baseline in Alaska, American Samoa, and Commonwealth of the Northern Mariana Islands (CNMI), Guam, and Hawaii to examine if CHL intervention activities in those jurisdictions were effective. Smaller amounts of data were collected from the "temporal" communities. The temporal communities served to show changes in BMI over time, in communities that did not have any CHL activities.

This report includes only the baseline data and a few questions that were not in the baseline survey that were collected at a second data collection period in some jurisdictions. The results of the CHL-wide intervention study examining changes between baseline and 24-month data will be available later in a separate report.

Selection of Participants

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

Table 2: Number of Participants Consented in each Jurisdiction for CHL Research

Jurisdiction	Number Consent
Alaska *Anchorage, Fairbanks, Kenai, Mat-Su Valley*	713
American Samoa *Fagaitua/Pagai/Amaua/Auto/Utusia, Leloaloa/Aua, Onenoa/Tula/Alao, Aoloau/Aasu*	978
CNMI *Koblerville/San Antonio, Oleai, Kagman, San Roque, Saipan, Village*	924
Guam *Yigo, Yona/Talafofo, Agat/Santa Rita, Sinajana and Agana Heights, Dededo*	885
Hawaii *Nanakuli, Waimanalo, Hilo, Wailuku, Kauai, Molokai*	988
CHL Intervention Study Data (total)	**4,498**

Jurisdiction	Number Consent
Freely Associated States	
Pohnpei *Nett, Mand, Sekere, Wenik*	212
Republic of the Marshall Islands *Majuro, Ebeye (Kwajalein atoll), Ailinglaplap*	218
Palau *Koror, Ngaraard, Melekeok, Airai*	214
Yap *Rull, Tomil, Weloy, Ulithi*	205
Kosrae *Tafunsak, Lelu, Sansrik, Malem, Utwe/Walung*	207
Chuuk *Weno (Sapuk, Iras), Tol, Tonoas, Uman*	231
FAS Prevalence Data (total)	1,287
CHL Total (CHL Intervention + FAS Prevalence)	**5,785**

CHL Community Intervention Strategies and Activities

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IV. CHL Community Intervention Strategies and Activities

A. Target Behaviors, Strategies, and Cross Cutting Functions

CHL's goal was to achieve healthy weight among young children (ages 2 to 8 years) by promoting **six target behaviors:**

1. Increase consumption of fruits and vegetables, preferably locally grown fruits and vegetables
2. Increase physical activity
3. Increase water consumption
4. Increase hours of sleep
5. Decrease consumption of sugar sweetened beverages (SSB)
6. Decrease screen time

To promote these target behaviors in communities with young children, the CHL team conducted community meetings, reviewed literature, and worked together to identify strategies and activities that would be appropriate for young children and their caregivers. The culture and environment of children and families also were taken into account.

Based on these data, CHL jurisdictions agreed to engage in **six strategies** to promote the target behaviors.

1. Introduce, enhance, and support policy for healthy eating and physical activity of 2 to 8 year-old children
2. Engage 2 to 8 year-old children in growing and eating local healthy foods
3. Train and support role models to promote CHL's six target behaviors
4. Increase accessibility of environments for safe play and physical activity for young children and their families
5. Increase accessibility of drinking water for young children
6. Provide other education and training related to CHL's six target behaviors

These six intervention strategies were collapsed into **four cross-cutting functions**, signifying the four action areas of the intervention:

1. Strengthen and actualize school wellness policies
2. Partner and advocate for environmental (social and built) change
3. Promote the CHL message
4. Train trainers (capacity building)

Specific recommended activities under each cross-cutting function were provided. Relationships between these activities and the CHL's behavior-change objectives are shown in Table 2. Specific types of activities and venues identified for use in Guam interventions are shown in the Areas of Focus Column.

Table 2. Relationship of Areas of Focus to CHL Cross-Cutting Function and Target Behavior

Cross-Cutting Function	Area of Focus	Target Behavior Addressed
Review Assessment Data for the Policy and Physical Environment related to the 6 CHL behaviors		
a) Review preschool wellness policy assessment data to identify training needs. i) Review preschool wellness policy assessment data to identify policy gaps	Preschool Wellness Policies & Trainings	All behaviors (Increase fruit & vegetable consumption; Increase physical activity; Increase water consumption; Increase sleep; Decrease sugar sweetened beverage consumption; Decrease screen time)
ii) Address policy gaps with preschool administration	Preschool Wellness Policies & Trainings	All behaviors
iii) Assess policy implementation quality (ID strengths and weaknesses)	Preschool Wellness Policies & Trainings	All behaviors
iv) Work with preschool administrators to address weaknesses in policy implementation	Preschool Wellness Policies & Trainings	All behaviors
b) Review CAT (community assessment toolbox) data related to the physical environment to identify areas for advocacy. i) Assess the physical environment using the CAT	Community Gathering Spaces & Schools	• Increase Fruit & Vegetable consumption • Increase Physical Activity • Increase Water consumption • Decrease sugar sweetened beverages
ii) Review CAT data related to the physical environment to identify areas for improvements and advocacy	Mayors' Offices, NCD, and Schools on: Community Gathering Spaces & School Grounds	• Increase Fruit & Vegetable consumption • Increase Physical Activity • Increase Water consumption • Decrease sugar sweetened beverages
iii) Improve CAT-indicated physical activity environments	Mayors' Offices, NCD, and Schools on: Community Gathering Spaces & School Grounds	• Increase Fruit & Vegetable consumption • Increase Physical Activity • Increase Water consumption • Decrease sugar sweetened beverages

Cross-Cutting Function	Area of Focus	Target Behavior Addressed
iv) Advocate (with partners, stakeholders, role models, coalitions, etc.) for CAT-indicated physical activity environment changes	NCD, Mayors' Offices & Schools; Community Gathering Spaces & Schools	• Increase Fruit & Vegetable consumption • Increase Physical Activity • Increase Water consumption • Decrease sugar sweetened beverages
Partner and Advocate for Environmental Change		
a) Work with existing community organizations and coalitions and/or form new coalitions to advocate for:	NCD, Mayors' Office & Schools; Community Gathering Spaces & Schools	
i) Better access to parks that are safe and inviting	NCD, Mayors' Offices & Schools; Community Gathering	Increase Physical Activity
ii) Better access to clean water	NCD, Mayors' Offices & Schools; Community Gathering	Increase Water consumption
iii) Safer environments for walking, biking, etc. (e.g., bike lanes/racks, sidewalks, greenways)	NCD, Mayors' Offices; Community Gathering Spaces	Increase Physical Activity
iv) Better food placement in stores	NCD	• Increase Fruit & Vegetable consumption • Increase Physical Activity • Increase Water consumption • Decrease sugar sweetened beverages
v) Gardens and hydroponics	NCD, Mayors' Offices & Schools; School Grounds and Families	Increase Fruit & Vegetable Consumption
b) Partner with existing entities to purchase or obtain sponsorship for: i) Water in the preschools and childcare centers	Mayors' Offices	Increase Water Consumption
ii) Gardening supplies for preschool kids	Community Gathering Spaces, NCD & CE&O: Schools & Families	Increase Fruit & Vegetable Consumption
iii) Sports/play equipment for preschool kids	Schools; SPARK & Food Friends & Mighty Moves	Increase Physical Activity
iv) Campaigns and messages	NCD, Mayors Office & Schools	All behaviors

Cross-Cutting Function	Area of Focus	Target Behavior Addressed
Promote the CHL Message		
a) Support Role Models to deliver CHL messages in various ways (using the CHL role model curriculum as a guide)	NCD, Mayors' Offices & Schools: Support Community Role Models	All behaviors
b) Enhance existing social marketing campaigns in the intervention communities, and/ or develop low-cost local social marking campaigns related to the 6 CHL behaviors	NCD, Mayors' Offices & Schools: Support Community Role Models	All behaviors
c) Advertise CHL or other activities that promote 6 CHL target behaviors	NCD, Mayors' Offices & Schools: Support Community Role Models	All behaviors
Train the Trainers		
a) Train individuals to promote gardening in preschools and communities	Gardening Curriculum Development, Workshops, and Partnerships	Increase fruit & vegetable consumption
b) Train individuals to lead interactive, hands-on sessions to promote the 6 CHL behaviors	Workshops on Curriculum	All behaviors
c) Train individuals to organize and lead family-based activities that support the 6 CHL behaviors (park clean-ups, hikes, cooking sessions, etc.)	NCD, Mayors' Offices and Community Activities	All behaviors
d) Provide TA to preschool and childcare staff on wellness policies	Preschool Wellness Policies & Trainings	All behaviors
e) Train childcare providers and preschool teachers in curricula related to 6 CHL behaviors	Preschool Wellness Policies & Trainings	All behaviors to some extent – emphasis on Increasing Fruit & Vegetable Consumption and Increasing Physical Activity
f) Train role models (community champions, role celebrities, role models)	NCD, School Teachers and Mayors' Offices: Support Community Role Models	All behaviors

B. Guam Intervention Phases and Focus for Sustainability

CHL aimed to put the health and well being of young children in the forefront of our communities and help the communities and local organizations move together to create an environment that enhances the health and well being of young children. The CHL interventions for Guam's four communities were divided into two phases to accommodate the project's research goals. These two phases were the initial intervention and the delayed optimized intervention.

The initial intervention was implemented in the Yona/Talofofo and Yigo communities immediately following the baseline data collection that is the subject of this report. The delayed optimized intervention was conducted in the Sinajana and Agana Heights and the Agat and Santa Rita communities following the 24 month data collection period that followed the initial intervention. These interventions used common components with the delayed optimized intervention communities, like Sinajana and Agana Heights, benefiting from the lessons learned in the initial intervention.

In order to create a lasting impact and increase the sustainability of Guam's CHL efforts we sought community agencies and organizations whose mission and activities aligned with CHL's goals to partner with. To do this CHL strove to convene, facilitate, and unite people, groups, and organizations concerned about the health and well being of young children in efforts to support obesity prevention strategies in their work. We tried to increase community readiness and the communities' capacity to advocate and make environmental and policy changes that enhance the health and well-being of young children and their families. We were guided by the belief that it is important to identify, empower, and support role models in the community and persuade or motivate adults in the community, that have children under their care, to be better role models of healthy behaviors.

The activities, strategies, and results of the initial and optimized interventions and the results of the 24-month data collection effort and analysis will be provided in a later report to follow this report on the baseline data collection.

The CHL Training Program

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V. The CHL Training Program

A. Training Program Objectives

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

Figure 2. Institutions, academic program areas and degrees in the Children's Healthy Living (CHL) Training Program

Degrees:

AS: Associates of Science
AA: Associate of Arts
BS: Bachelor of Science
BA: Bachelor of Arts
MS: Master of Science
MPH: Master of Public Health
PhD: Doctor of Philosophy

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.

B. Training Program Partnerships

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

Partner jurisdictions created selection committees who screened and interviewed student applicants and identified the top candidates for the scholarship awards. Two students from each of Alaska, American Samoa, CNMI, Chuuk (FSM), Guam, Hawai'i, Kosrae (FSM), Pohnpei (FSM), the Republic of the Marshall Islands, the Republic of Palau, and Yap (FSM) were selected for a scholarship to enroll in a degree program at one of the partner institutions (Table 1).

C. Training Program Accomplishments

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

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

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

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

As of this report, 24 students have participated in the CHL-TP. Two Trainees dropped out of the program after their first year, due to personal reasons. The two vacant scholarship positions were offered to two other qualified Trainees from those respective jurisdictions. Two Trainees were released from

the program due to poor performance. To date, 6 students (5 graduate and 1 undergraduate) have completed the CHL-TP and attained their degrees (Table 1). One graduate-level Trainee from Alaska is expected to complete a MPH degree in the Spring of 2016. One graduate level Trainee from American Samoa is working towards a PhD in Epidemiology and is expected to complete the degree in Summer of 2016. Two graduate level Trainees from CNMI are working on their MPH degrees. Three undergraduate Trainees from American Samoa, Chuuk, and Kosrae are expected to graduate by Spring 2016 with Bachelor's degrees in Public Health (2) and Nutrition (1), respectively. One undergraduate Trainee from Yap is expected to graduate with a Bachelor's degree in Nutrition by Summer 2016. Two undergraduate Trainees from Pohnpei and Chuuk are expected to graduate by Fall 2017 and Fall 2018, respectively, with Bachelor's degrees in Health Science. One undergraduate Trainee from Palau transferred out of Health Science and is working on a Bachelor's in Sociology. However, the fourth, an undergraduate Trainee from the Marshall Islands dropped out.

Table 1. CHL Training Program Graduates by jurisdiction, degree type, and project description

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

Undergraduate Students			
Student Name	**Jurisdiction**	**Degree Name/ Type**	**Project Description**
Srue Wakuk	Kosrae	BA, Public Health	To evaluate how the Women in Farming Kosrae (WIFK) Project empowers women and improves health
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
Shra Kedi	Republic of the Marshall Islands	BA, Public Health	To evaluate school wellness policies on Majuro using the CHL Wellness Policy Evaluation Tool/Rudd School Wellness Policy Evaluation Tool

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

D. Long-term Plans

The CHL program is committed to exploring other funding opportunities for Trainees who will not complete their degree programs within the life of the CHL grant. The CHL-TP will also serve as a source for professional collaboration and career networking for all of the Trainees. In addition, the CHLTP 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 offered 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 nutritional education resource, the Pacific Food Guide, has also been developed into a web resource available for free at www.manoa.hawaii.edu/ctahr/pacificfoodguide

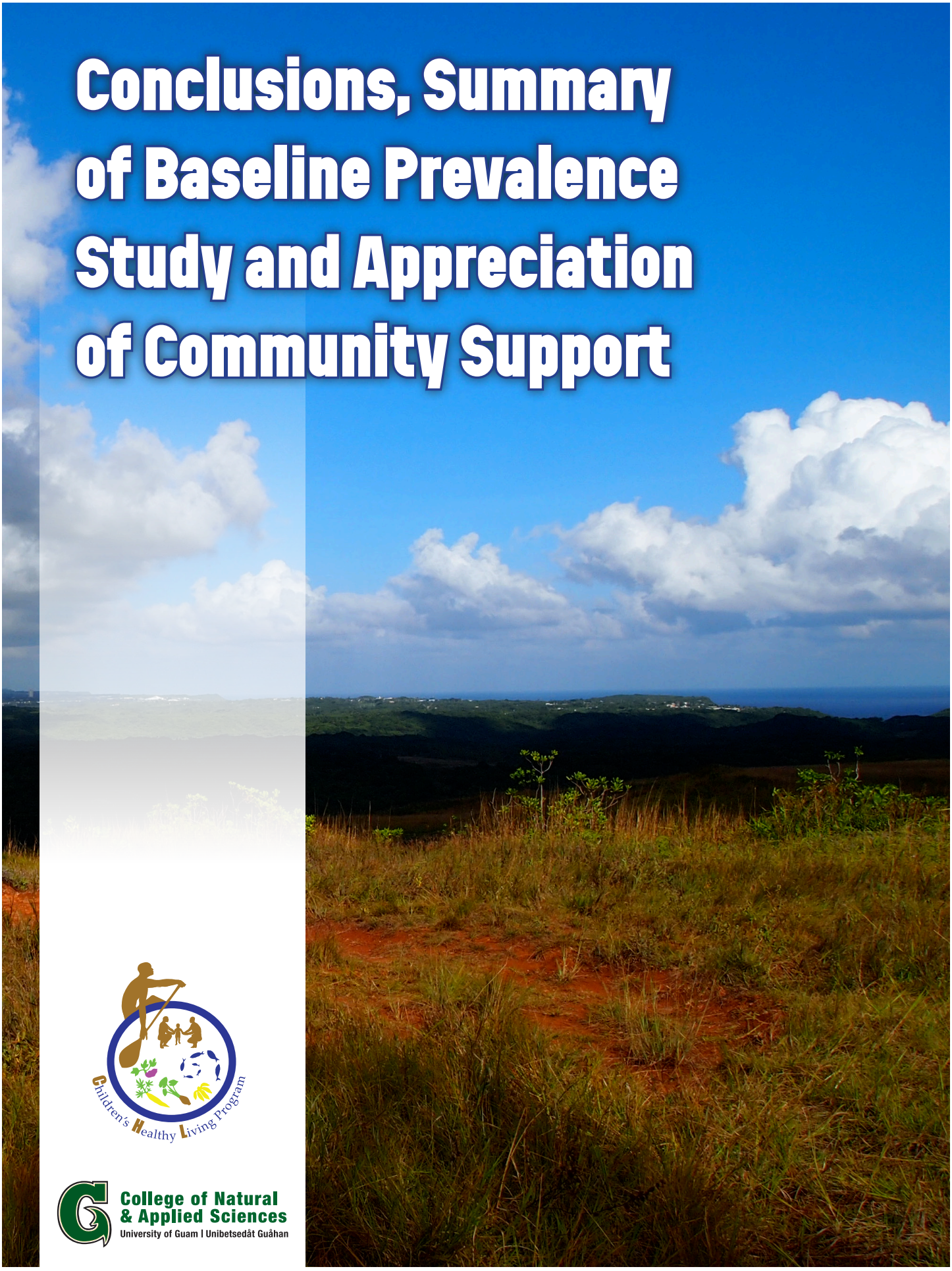
The series of seminars developed for the CHL Trainees on the causes of childhood obesity and evidenced-based strategies for childhood obesity prevention are currently being adapted into a comprehensive distance-learning platform so that it may be offered through a CHL Summer Institute. The online platform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

For further information on the CHL Training Program please see the following resources:

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

- CHL Training Program available at: http://www.chl-pacific.org/trainingeducation/program-overview

Conclusions, Summary of Baseline Prevalence Study and Appreciation of Community Support



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VI. Conclusions, Summary of Baseline Prevalence Study and Appreciation of Community Support

The purpose of this report is to inform the community of the CHL research that was conducted in Sinajana and Agana Heights during 2012 and 2013. It is a “snapshot” of the community during this time period. It is hoped that this comprehensive report will help the community in designing programs, allocating resources, and advocating for polices that increase the health and well being of young children in Sinajana and Agana Heights.

Sinajana and Agana Heights’ parks were found to be in good condition and the stores had an adequate selection of vegetables and fruit. By decreasing the amount of unhealthy food available at store checkouts and increasing healthy menu items could serve to better the health and well being of young children in the community.

Nearly 21% of participants in Sinajana and Agana Heights reported that they ran out of money for food “most times” or “always” each month and 90% reported they received some type of food assistance. This is a concern as 25.02% of participants’ household income was <$20,000 and the weekly cost to feed a family of four on the Thrifty Meal plan is $247.23.

We would like to acknowledge the guidance and support the CHL team received from the CHL Guam Advisory Committee. Their expertise and willingness to collaborate provided the CHL team with needed community input to help achieve better young child health in Guam.

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.

Sinajana and Agana Heights Community Report

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VII. Sinajana and Agana Heights Community Report

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

A. Child Demographics

A total of 204 children participated from Sinajana and Agana Heights. 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: All 204 children participated had data on sex.

Sex	Frequency	Percent
Boys	109	53.43%
Girls	95	46.57%
Total	**204**	**100%**

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

Age in Years	Frequency	Percent
Age 2	20	9.80%
Age 3	25	12.25%
Age 4	23	11.27%
Age 5	45	22.06%
Age 6	34	16.67%
Age 7	24	11.76%
Age 8	33	16.18%
Total	**204**	**100%**

Age in Years	Frequency	Percent
2-5 years old	113	55.39%
6-8 years old	91	44.61%
Total	**204**	**100%**

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, the 2011 Middle School Youth Risk Behavior Survey.

The distribution of race of the children using the US Office of Management and Budget (OMB) definition:

Race of child of OMB definition:	Frequency	Percent
More than one race	25	12.25%
Native Hawaiian or other Pacific Islander	174	85.29%
Asian	3	1.47%
White	2	0.98%
Total	**204**	**100%**

The distribution of race/ethnicity of the children using the CHL pacific definition, which prioritize the indigenous ethnic groups in the jurisdiction (CHL pacific):

Race of child of Pacific definition	Frequency	Percent
Chamorro	132	64.71%
Chuukese	24	11.76%
Mix Chamorro	21	10.29%
Mix within NHPI Chamorro	8	3.92%
Mix Chuukese	4	1.96%
Kosraean	3	1.47%
Carolinian	2	0.98%
Filipino	2	0.98%
Mix within NHPI Chuukese	2	0.98%
NHPI Other	2	0.98%
White	2	0.98%
Mix Filipino	1	0.49%
Palauan	1	0.49%
Total	**204**	**100%**

Child's Birth Place

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

Birth Place	Frequency	Percent
Guam	169	83.25%
CNMI	9	4.43%
Chuuk	7	3.45%
USA	15	6.89%
TOTAL	**203**	**100%**

Parents responded to the question about residence: "How many years has your child lived here?" Among the 204 children, 194 had information on this question. Among them, **170 (87.63%) lived their whole life in Sinajana and Agana Heights**.

Language child speaks

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

Note: Language responses may total over 204 and 100% because some respondents could speak more than one language.

Top languages child speaks	Frequency	Percent
English	164	80.39%
English Chuukese	20	9.80%
Chuukese	10	4.90%
English Chamorro	5	2.45%
English Kosraean	2	0.98%
English American Sign Language	1	0.49%
English Tagalog	1	0.49%
English Tagalog Chamorro	1	0.49%
Total	**204**	**100%**

English was the top language spoken at home (80.39%). Other languages children in Sinajana and Agana Heights speak at home included English-Chuukese, Chuukese, English-Chamorro, English-Kosraean, English-American Sign Language, English-Tagalog, and English-Tagalog-Chamorro. Eighty percent of children only speak English at home. **14.71% of the children speak English and at least one other language.**

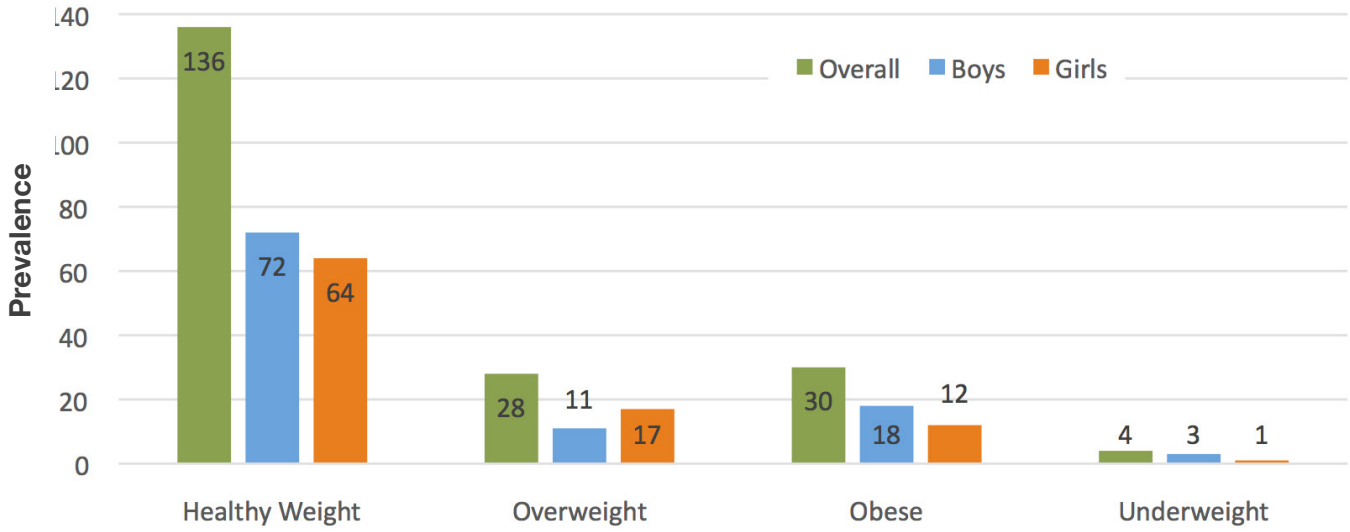
B. Child Anthropometry Measurement Results

Body Mass Index

Among the 204 children who participated in Sinajana and Agana Heights, 198 had valid measurements of Body Mass Index (BMI).

Overweight was defined as the 85th - 94th percentile for BMI (weight, kg/height, m^2) and obesity was defined as greater than or equal to the 95th percentile for BMI (Centers for Disease Control and Prevention, 2009).

Prevalence of overweight and obesity of study children in Sinajana- Agana Heights



A total of 198 children were included for this analysis. Among them, 136 were healthy weight, 28 were overweight, 30 were obese, and 4 were underweight.

Abdominal Obesity

The International Diabetes Federation (IDF) suggests that children 6 years or older with a waist circumference equal or greater than the 90th percentile be considered as having abdominal obesity (Zimmett, et al., 2007). For children younger than 6 years of age, currently there is insufficient information for such classification. Using children ages 6-8 years in the CHL data set as the reference data, the 90th percentile cutoff value is 71.4667cm. The 90th percentile cutoff value reported from the IDF, which uses "a nationally representative sample" of boys and girls, is 67.65 cm for 7-year olds.

Among the 91 participants in Sinajana and Agana Heights between the ages 6-8 years, using either the CHL cutoff or IDF cutoff value, **twenty-one (21.00%) of children 6-8 years old were considered as having abdominal obesity.**

Acanthosis nigricans (AN)

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

Burke's (1999) quantitative scale was utilized, with scores given for the severity of AN. Among the 204 children who participated, 201 had data on AN, of which 5 (2.49%) screened positive for AN.

C. 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.

180 Food and Activity Logs were completed and returned to CHL by parents in Sinajana and Agana Heights.

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

Foods, beverages or condiments most commonly reported	Sinajana and Agana Heights	
	Frequency	Percent
#1 Rice, white, not enriched, short grain, cooked, no salt	313	6.6%
#2 Milk, reduced fat (2%)	164	3.4%
#3 Milk, low fat (1%)	112	2.3%
#4 Bread, white, enriched	103	2.2%
#5 Rice, white, enriched, long grain, cooked, no salt	87	1.8%
#6 Soy sauce, regular	79	1.7%
#7 Orange-apricot drink, canned	67	1.4%
#8 Bananas, ripe	58	1.2%
#9 Milk, whole	57	1.2%
#10 Tea, instant or canned, sweetened, no Vitamin C added	56	1.2%

Fruit and Vegetable Intake

USDA Daily Recommended Amounts of Fruits and Vegetables for Children 2-8 Years of Age.

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

The fruits and vegetables eaten by children most frequently recorded on the Food and Activity Logs are listed in the following table.

Fruits and Vegetables most frequently eaten by children	Sinajana and Agana Heights	
	Frequency	Percent
#1 Bananas, ripe	58	1.2%
#2 Apples, raw, w/skin	46	1.0%
#3 Lettuce, head or iceberg	43	0.9%
#4 Oranges, raw, all varieties	38	0.8%
#5 Tomatoes, ripe, raw	37	0.8%

Children ate 1.4 servings of fruits and vegetables per day on average as recorded by parents/caregivers on the two-day food log.

56 (31.11%) of children in Sinajana and Agana Heights met the U.S. national recommendations for daily fruit consumption.

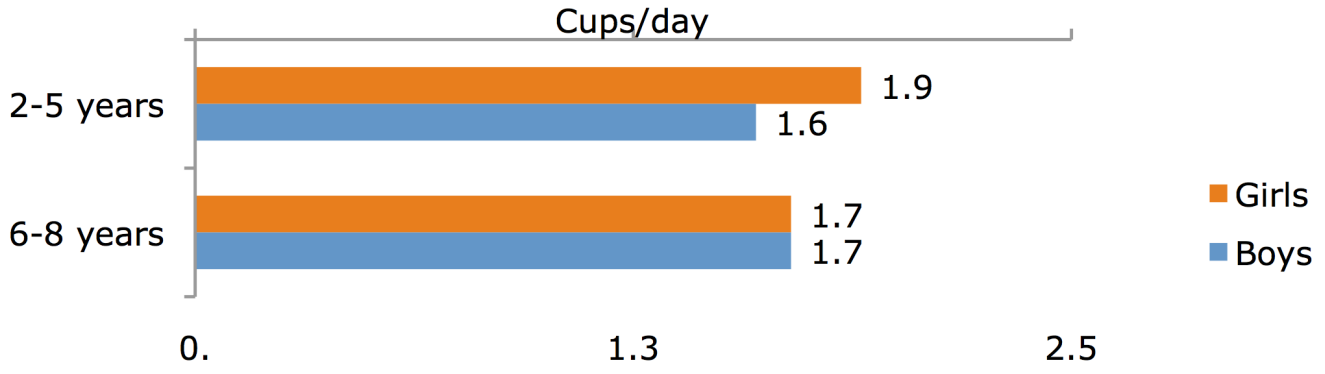
10 (5.56%) of children in Sinajana and Agana Heights met the U.S. national recommendations for daily vegetable consumption.

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.

91.11 % of Parents/caregivers reported on the two-day Food and Activity Log that their child drank water daily.

On average, children in Sinajana and Agana Heights drank 1.7 cups of water daily.



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

Drinking water intake (cups / day) by sex	Sinajana and Agana Heights	
	N	Mean (SD)
Boys		
2 – 5 years	44	1.6
6 – 8 years	49	1.7
All	**93**	**1.7**
Girls		
2 – 5 years	35	1.9
6 – 8 years	52	1.7
All	**87**	**1.8**

Sugar-Sweetened Beverages (SSB)

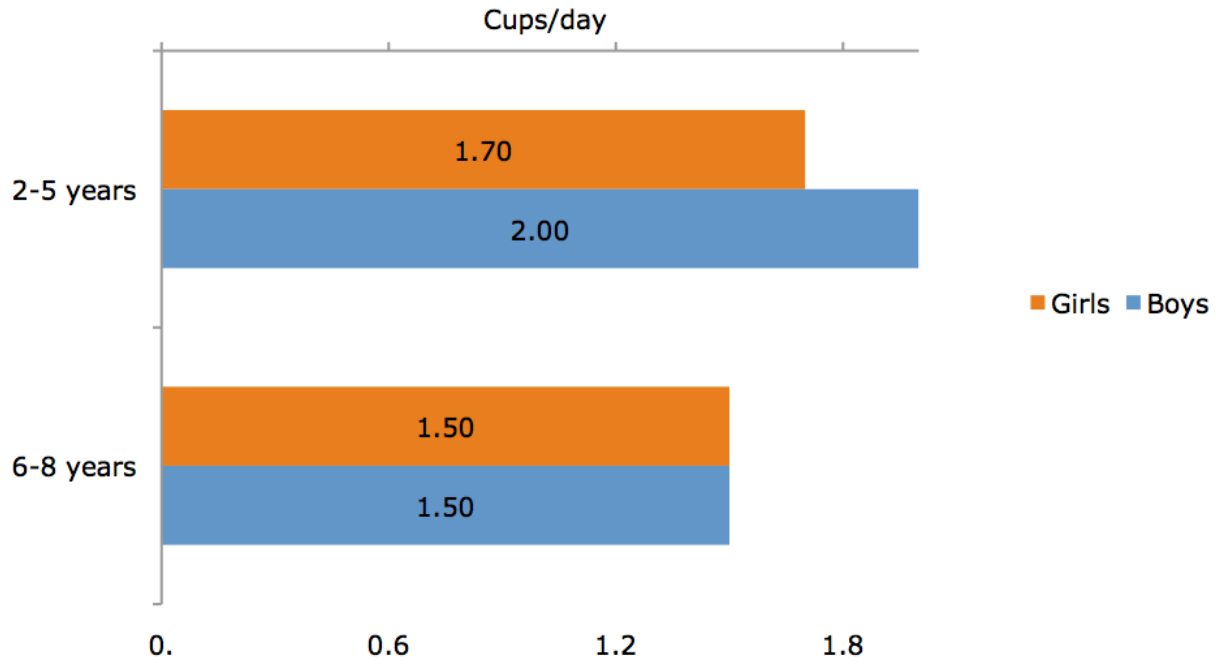
CHL behavioral intervention targets or goals are to limit (or avoid) the consumption of Sugar-Sweetened Beverages (SSB).

From the two-day food record, 126 (68.9%) of parents/caregivers in Sinajana and Agana Heights reported that their child consumed SSBs.

Children drank 5 cups of sugar-sweetened beverages on average daily.

For Sinajana and Agana Heights, the most frequently consumed SSB included orange-apricot drink, tea, and Kool-Aid.

Children's intake of Sugar-Sweetened Beverages (cups/day) for Sinajana and Agana Heights



Mean SSB intake (cups/day) for all children and those with SSB's recorded for Sinajana and Agana Heights

Mean SSB intake (cups/day)	All children		SSB Recorded	
	Number	Mean	Number	Mean
Boys				
2 – 5 years	44	0.8	34	1.1
6 – 8 years	49	0.9	36	1.2
All	**93**	**0.9**	**70**	**1.2**
Girls				
2 – 5 years	35	1.1	25	1.6
6 – 8 years	52	0.9	34	1.4
All	**87**	**1.0**	**59**	**1.5**

Proportion of SSB consumption >2 cups per day among all children and only children with SSB recorded for Sinajana and Agana Heights.

Proportion of children with SSB consumption >2 cups per day	All children, n (%)		SSB Recorded, n (%)	
	0-2 cups	>2 cups	0-2 cups	>2 cups
Boys				
2 – 5 years	39 (41.9%)	5 (5.4%)	29 (41.4%)	5 (7.1%)
6 – 8 years	43 (46.2%)	6 (6.4%)	60 (42.3%)	6 (8.6%)
All	**82 (45.6%)**	**11 (6.1%)**	**59 (45.6%)**	**11 (8.5%)**
Girls				
2 – 5 years	29 (33.3%)	6 (6.9%)	19 (32.2%)	6 (10.2%)
6 – 8 years	46 (52.3%)	6 (6.9%)	28 (47.5%)	6 (10.2%)
All	**75 (41.7%)**	**12 (6.7%)**	**47 (36.4%)**	**12 (9.3%)**

D. Physical Activity from Accelerometers

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

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

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

Potential outliers with extreme values (defined as those with a value of 3 standard deviations (sd) above or below the mean) were excluded from this report. In Sinajana and Agana Heights Actical accelerometers from 95 children provided valid data on their physical activity levels. After excluding outliers, on average children spent 11 hours 30 minutes sedentary activities (sd=1.6 hours).

On average, children in Sinajana and Agana Heights spent 11 hours 24 minutes (sd=1.4 hours) on light activities.

On average, children in Sinajana and Agana Heights engaged 1 hour and 2 minutes on moderate or vigorous activities (sd=0.5 hour)

Of the 96 children with accelerometer data, in Sinajana and Agana Heights 44 (45.8%) of children in Sinajana and Agana Heights met the U.S. national recommendations for achieving at least 60 minutes of moderate or vigorous activity daily, which is also a CHL behavioral intervention target or goal.

This information can be found in the following table.

Physical activity from accelerometer	Mean hour (sd)	
Sedentary activities (weighted) per day	11.5 (1.6)	
Light activities (weighted) per day	11.4 (1.4)	
Moderate activities (weighted) per day	0.96 (0.5)	
Vigorous activities (weighted) per day	0.07 (0.1)	
Moderate and vigorous activities (weighted) per day	1.03 (0.6)	
	Number	%
Met national recommendation of >=60 minutes of moderate or vigorous physical activity daily	**44**	**45.8%**

E. 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 204 children participated in Sinajana and Agana Heights, **time spent on TV watching per day is 2.7 hours/day** (sd=1.4 hour) overall, 2.7 hours (sd=1.5) on weekdays, and 2.8 hours (sd=1.6) on weekends. The following table summarizes the distribution of duration of TV watching.

Hours per day child watches TV (n=204)	Percent of children		
	Per Day (adjusted for weekday and weekend)	Per Weekday	Per Weekend day
1/2 hour or less	6.37%	9.31%	9.36%
More than ½ hour up to 2 hours	32.84%	37.25%	33.50%
More than 2 hours up to 4 hours	41.67%	36.76%	35.47%
More than 4 hours up to 6 hours	18.14%	15.69%	21.18%
More than 6 hours up to 7 hours	0.98%	0.98%	0.49%
Total	**100%**	**100%**	**100%**

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

Parents were asked, "On a usual weekday (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 204 children participated in Sinajana and Agana Heights, a total of 197 had data on the overall time spent on inactive video games. The **overall average among those 197 children is 1.10 hours/day** (sd=1.23 hour). A total of 199 children had data on weekday or weekend inactive video time. Average inactive video time on weekdays is 1.1 (sd=1.33) and on weekends is 1.1 (sd=1.33). The following table summarizes the distribution of duration of inactive video playing time.

Hours per daychild 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	44.16%	48.74%	48.45%
More than ½ hour up to 2 hours	37.06%	38.69%	35.05%
More than 2 hours up to 4 hours	14.21%	8.04%	11.34%
More than 4 hours up to 6 hours	4.57%	4.52%	5.15%
Total	**100%**	**100%**	**100%**

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

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

Among the 204 children participated in Sinajana and Agana Heights, a total of 202 had data on the overall time spent on active video games. The **overall average among those 202 children is 0.80 hours/day** (sd=1.14 hour). A total of 201 children had data on weekday active video time. Average active video time on weekdays is 0.72 (sd=1.10). A total of 203 children had data on weekend active video time. Average active video time on weekend is 0.97 (sd=1.44). The following table summarizes the distribution of duration of active video playing time.

Hours per day child spent on active video games	Percent of children		
	Per Day (adjusted for weekday and weekend)	Per Weekday	Per Weekend day
1/2 hour or less	60.40%	65.17%	58.13%
More than ½ hour up to 2 hours	27.72%	25.87%	27.09%
More than 2 hours up to 4 hours	8.91%	7.46%	8.37%
More than 4 hours up to 6 hours	2.97%	1.49%	6.40%
Total	**100%**	**100%**	**100%**

Screen Time - Overall

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

Among the 203 children participated in Sinajana and Agana Heights, all had data on the overall screen time, which averages to 4.79 hours (sd=3.18). A total of 203 had data on weekday screen time, which averages to 4.67 hour (sd=3.27). A total of 204 had data on weekend screen time, which averages to 5.15 hour (sd=3.62). The following table summarizes the distribution of duration of screen time.

Hours per day child spent on screen time	Percent of children		
	Per Day (adjusted for weekday and weekend)	Per Weekday	Per Weekend day
1/2 hour or less	3.94%	5.91%	5.88%
More than ½ hour up to 2 hours	16.75%	19.21%	16.67%
More than 2 hours up to 4 hours	26.60%	32.02%	28.43%
More than 4 hours up to 6 hours	24.63%	20.69%	19.12%
More than 6 hours	28.08%	22.17%	29.90%
Total	**100%**	**100%**	**100%**

The national recommendation is that young children should spent 2 hours or less on screen time per day. **Only 25.6% of the children in Sinajana and Agana Heights meet this recommendation.**

F. 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-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 chosen over 13 hours, 13.5 hour was assigned instead; hence, the maximum hours are at 13.5 hours.

Some participants misunderstood the question but put down child's naptime 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 biological invaluable values.

Hours of sleep in 24 hours at night and in naps (on average and from parent / caregiver report)	Frequency	Percent
2 year olds	**20**	**100%**
Less than 9 hours	3	15%
9 hours to less than 11 hours	8	40%
11 hours or more (to 13.5 hours)	9	45%
3 – 5 year olds	**85**	**100%**
Less than 8 hours	5	5.88%
From 8 hours to less than 10 hours	46	54.12%
From 10 hours to 13.5 hours	34	40.00%
6 – 8 year olds	**91**	**100%**
Less than 7 hours	2	2.20%
From 7 hours to less than 9 hours	39	42.86%
From 9 hours to 13.5	50	54.95%

Met recommended hours of sleep	Frequency	Percent
Two year olds met recommendation of 11 – 14 hours of sleep	2	33.3%
Three to five year olds met recommendation of 10 – 13 hours of sleep	51	45.1%
Six to eight year olds met recommendation of 9 – 11 hours of sleep	22	71.0%

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

How long after going to bed does your child usually fall asleep?	Frequency	Percent
0 to less than 15 minutes	67	32.84%
15 to less than 30 minutes	95	46.57%
30 to less than 45 minutes	30	14.71%
45 to less than 60 minutes	7	3.43%
60 minutes and more	5	2.45%
Total	**204**	**100%**

Your child goes to bed reluctantly (hesitant, slowly, involuntary)?	Frequency	Percent
This sleep behavior never occurs	80	39.22%
The behavior occurs once or twice a month	51	25.00%
Occurs one to two times a week	44	21.57%
Occurs between three and five nights a week	17	8.33%
The sleep behavior happens every night	12	5.88%
Total	**204**	**100%**

The child has difficulty getting to sleep at night (and may require a parent to be present)	Frequency	Percent
This sleep behavior never occurs	97	47.55%
The behavior occurs once or twice a month	45	22.06%
Occurs one to two times a week	24	11.76%
Occurs between three and five nights a week	17	8.33%
The sleep behavior happens every night	21	10.29 %
Total	**204**	**100%**

Child does not fall asleep in his or her own bed.	Frequency	Percent
This sleep behavior never occurs	119	58.33%
The behavior occurs once or twice a month	31	15.20%
Occurs one to two times a week	14	6.86%
Occurs between three and five nights a week	5	2.45%
The sleep behavior happens every night	35	17.16%
Total	**204**	**100%**

After waking up in the night, child has difficulty falling asleep again by himself or herself.	Frequency	Percent
This sleep behavior never occurs	164	80.39%
The behavior occurs once or twice a month	27	13.24%
Occurs one to two times a week	9	4.41%
Occurs between three and five nights a week	2	0.98%
The sleep behavior happens every night	2	0.98%
Total	**100%**	**100%**

Child sleeps in the parent's bed at some time during the night	Frequency	Percent
This sleep behavior never occurs	95	46.57%
The behavior occurs once or twice a month	44	21.57%
Occurs one to two times a week	17	8.33%
Occurs between three and five nights a week	4	1.96%
The sleep behavior happens every night	44	21.57%
Total	**204**	**100%**

If child wakes, he or she uses a comforter (e.g. pacifier or binky) and requires a parent to replace it.	Frequency	Percent
This sleep behavior never occurs	183	89.71%
The behavior occurs once or twice a month	11	5.39%
Occurs one to two times a week	4	1.96%
Occurs between three and five nights a week	1	0.49%
The sleep behavior happens every night	5	2.45%
Total	**204**	**100%**

Child wants a drink during night (including breast or bottle-feed)	Frequency	Percent
This sleep behavior never occurs	141	69.12%
The behavior occurs once or twice a month	37	18.14%
Occurs one to two times a week	18	8.82%
Occurs between three and five nights a week	3	1.47%
The sleep behavior happens every night	5	2.45%
Total	**204**	**100%**

Do you think your child has sleeping difficulties?	Frequency	Percent
No	191	93.63%
Yes	13	6.37%
Total	**204**	**100%**

G. Medical

Parents answered the question: Does your child have any current medical conditions diagnosed by a doctor? Among the 204 children, 38 (18.72%) reported that their children had a medical conditions diagnosed by a doctor. The top two medical conditions are asthma (33, 16.18%) and ADHD (1, 0.49%).

H. Early life and feeding of child

Birth Weight

Among the 204 children that participated from Sinajana and Agana Heights, a total of 152 had information on birth weight. The distribution of birth weight into three groups is summarized in the following table.

Birth Size	Frequency	Percent
Low birth weight < 2500 g	15	9.87%
Healthy birth weight (2500 – 4000 g)	124	81.58%
High birth weight > 4000 g	13	8.55%

Among the 204 children that participated in Sinajana and Agana Heights, a total of 120 had information on birth length. Among the 120 children, 22 (18.33%) had birth length below 5 percentile using the CDC 2000 reference data.

Early Feeding Pattern

Among the 204 children that participated in Sinajana and Agana Heights, a total of 193 had information on breastfeeding. Among the 143 (74.09%) children were reported to be ever breastfed.

Child ever Breastfed or fed Breastmilk	Frequency	Percent
Yes	143	74.09%
No	50	25.91%
Total	**193**	**100%**
If Yes, about children who were ever breastfed		
Mean age child stopped breastfeeding or being fed breast milk (months) (n=131)	11.62 month (sd=10.98)	

Among the 204 children that participated in Sinajana and Agana Heights, a total of 190 had information on formula feeding. Among those 190 children, 159 (83.68%) of children were reported to be ever formula fed. The mean age when children started formula feeding or stopped formula feeding is reported in the following table.

Child ever fed formula	Frequency	Percent
Yes	159	83.7%
No	31	16.3 %
Total	**190**	**100%**
If Yes, about children who were fed formula		
Mean age child first fed formula (months) (n=144)	2.6 month (4.7)	
Mean age child completely stopped drinking formula (months) (n=142)	13.1 month (5.5)	

A total of 170 out of the 204 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 7.9 months (sd=4.6).

I. 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.

Adult Participant Relationship to Child

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

Relationship	Frequency	Percent
Biological mom	141	69.12%
Birth dad	30	14.71%
Legal guardian, caregiver, other	15	7.35%
Grandmother	10	4.90%
Adoptive mom	3	1.47%
Step dad	3	1.47%
Adoptive dad	1	0.49%
Grandfather	1	0.49%

Participant Marital Status

A total of 204 participants had marital status information of the respondent (see the following table).

Marital Status	Frequency	Percent
Single and living with boyfriend, girlfriend, or partner	85	41.67%
Married	81	39.71%
Single and not living with boyfriend, girlfriend, or partner	21	10.29%
Separated	8	3.92%
Divorced	3	1.47%
Other	3	1.47%
Widowed	3	1.47%

Household Size and Multi-Generation Households

All 204 children had information on the number of people lived in the same household and their relationship to the child. Among them, 36 (17.65%) are from multi-generation households.

Mean size of household is 5, with the minimum of 2 and maximum of 22.

Participant Education

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

Education	Frequency	Percent
Never attend school or only kindergarten	6	2.94%
Grades 1 up to 8 (elem to middle)	5	2.45%
Grades 9 to 11(some high school)	29	14.22%
Grades 12 or GED (high school graduate)	92	45.10%
College or technical school 1 to 3 years	32	20.59%
College 4 years or more	30	14.71%
Total	**194**	**100%**

Employment Status of Caregiver Participants

Among the 204 children participated in Sinajana and Agana Heights, all had information on whether the respondent is employed for wages/salary, whether he/she is self-employed, whether he/she is out of work for more than a year or less than a year, whether the respondent is a homemaker, a student, or unable to work. A total of 204 had information on whether the respondent has more than one job.

Employment	Frequency	Percent
Employed for wages / salary	115	56.37%
Self-employed	4	1.96%
Out of work (more than 1 year)	19	9.31%
Out of work (less than 1 year)	19	9.31%
Homemaker	42	20.59%
Student	17	8.33%
Retired	2	0.98%
Unable to work	7	3.43%
More than one job	18	8.82%

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

Household Income Level

Among the 204 children participated in Sinajana and Agana Heights, 173 had information on annual household income from all sources over the past 12 months. The following table summarizes this information.

Annual household income in the past 12 months	Frequency	Percent
Under $10,000	49	28.32%
From $10,000 to less than $20,000	41	23.70%
From $20,000 to less than $35,000	21	12.14%
From $35,000 to less than $60,0000	33	19.08%
From $60,000 to less than $75,000	12	6.94%
$75,000 or more	17	9.83%
Total	**173**	**100%**

Religion

Among the 156 children, a total of 129 had information on family's religious affiliation. Out of the 129, 23 (17.8%) reported no religious affiliation. Among the 106 with any type of religious affiliation, the distribution of different religious affiliations is presented in the following table. A total of 71 had information on how often they engage in religious activities. The mean number of times per month attending religious activities is 8 among those participants.

Religion Affiliation	Frequency	Percent
Catholic	164	84.10%
Christian denomination not specified	8	4.10%
Protestant	8	4.10%
Pentecostal	6	3.08%
Baptist	4	2.05%
Evangelical Covenant	4	2.05%
Buddhist	1	0.51%
Total	**195**	**100%**

Food Security / Resource Availability

Addressing 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 USDA (2008) questions used by USDA to Assess Household Food Security (USDA, 2008). NHANES (cdc.gov/nchs/data/nhanes/nhanes_11_12/fsq_family.pdf).

Participants were asked, in the past 12 months, how often money for food or money for utility runs out before the end of the month. Among the 204 children participated in Sinajana and Agana Heights, a total of 187 had information on whether money for food runs out or not and a total of 179 had information on whether money for utility runs out or not. The following table presents the answers.

Food Insecurity and Utilities in past 12 months	Frequency	Percent
Money runs out for food before the end of the month.		
Never	55	29.41%
Seldom	31	16.58%
Sometimes	63	33.69%
Most times	31	16.58%
Always	7	3.74%
Money for household utilities (water, fuel, etc.) runs out before the end of the month.		
Never	51	28.49%
Seldom	24	13.41%
Sometimes	48	26.82%
Most times or always	45	25.14%
Always	11	6.15%

A total of 200 children had information on whether they received assistance to pay food. Among those 200 children, 149 (74.50%) reported they did receive assistance. The following table summarizes different types of benefits their households have received.

Food Assistance Benefits received for those who obtained food assistance	Frequency	Percent
EBT/ SNAP / NAP (formerly called Food Stamps)	134	90.54%
Food Assistance (Food Bank / Food Pantries or Commodity foods)	6	4.05%
WIC benefits	49	33.11%
Free or reduced cost breakfast or lunch at school	62	41.89%

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

Culture

The degree of participants' own group's cultural and U.S. mainland cultural identifications were assessed using an acculturation questionnaire. The following tables summarize their responses to those questions.

Knowledge of traditional culture & lifestyle	Frequency	Percent
Very knowledgeable	60	29.41%
Somewhat knowledgeable	107	52.45%
Neutral or not response	29	14.22%
Somewhat not knowledgeable	5	2.45%
Not at all knowledgeable	3	1.47%

Involved with traditional culture & lifestyle	Frequency	Percent
Very involved	47	23.04%
Somewhat involved	88	43.14%
Neutral or no response	45	22.06%
Somewhat not involved	15	7.35%
Not at all involved	9	4.41%

Feel towards traditional culture & lifestyle	Frequency	Percent
Very positive	80	39.22%
Somewhat positive	79	38.73%
Neutral or no response	40	19.61%
Somewhat negative	2	0.98%
Very negative	3	1.47%

How often associate with people of your traditional culture & lifestyle	Frequency	Percent
Most of the time	77	37.75%
Somewhat often	75	36.76%
Neutral or no response	36	17.65%
Very little of the time	9	4.41%
Not at all	7	3.43%

Knowledge of U.S. Mainland / Lower 48 culture and lifestyle	Frequency	Percent
Very knowledgeable	45	22.06%
Somewhat knowledgeable	82	40.20%
Neutral or no response	47	23.04%
Somewhat not knowledgeable	13	6.37%
Not at all knowledgeable	17	8.33%

Involvement with U.S. Mainland / Lower 48 culture and lifestyle	Frequency	Percent
Very involved	23	11.39%
Somewhat involved	74	36.63%
Neutral or no response	66	32.67%
Somewhat not involved	15	7.43%
Not at all involved	24	11.88%

Feeling towards U.S. Mainland / Lower 48 culture and lifestyle	Frequency	Percent
Very positive	32	15.69%
Somewhat positive	71	34.80%
Neutral or no response	87	42.65%
Somewhat negative	8	3.92%
Very negative	6	2.94%

How often associate with U.S. Mainland / Lower 48 culture and lifestyle	Frequency	Percent
Most of the time	32	15.69%
Somewhat often	67	32.84%
Neutral or no response	68	33.33%
Very little of the time	28	13.73%
Not at all	9	4.41%

Community Assessment Results

Children's Healthy Living Program

College of Natural & Applied Sciences
University of Guam | Unibetsedåt Guåhan

VIII. 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.

A. 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 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 (No fast food in Sinajana and Agana Heights)

Food Availability and Marketing Survey

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

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

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

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

Convenience: a store that sells convenience items only, including bread, milk, soda, snacks and may sell alcohol and gasoline. These stores do not sell fresh (raw) meat. These stores also are known as food marts.

Other: a store that does not fit into supermarket chain, large grocery store, small market or convenience, but is seen by the community as a general source of food products. Examples would include farmers market, dollar stores or drug stores.

The following table is a breakdown of the store types surveyed in Sinajana and Agana Heights. Among the 10 stores assessed, the most common store types in Sinajana and Agana Heights were small market (7), convenience (2), and supermarket chain (1).

Store information	Frequency	Percent
Supermarket chain (e.g., Safeway, Pay-Less)	1	10.00%
Large grocery store (> 20 employees or ≥ 4 registers, but not large chain)	0	0.00%
Small Market (< 4 registers, but not convenience)	7	70.00%
Convenience (sells food items and snacks, no fresh meat, may sell gas)	2	20.00%
Other (NO liquor stores)	0	0.00%

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

Stores were also assessed on whether or not they display signage saying “We Accept WIC” and “We Accept Food Stamps/EBT” (electronic benefit transfer). Among the 10 stores surveyed, 10 stores had information on participating in WIC or Food Stamps/EBT. Among those 10 stores, 2 (20.00%) accept WIC and 9 (90.00%) accept Food Stamps/EBT.

Among the 10 stores with information on signage, 2 (20.00%) display signage for WIC being accepted and 7 (70.00%) display signage for Food Stamps/EBT being accepted.

Federal Benefits	Frequency	Percent
WIC vendor	2	20.00%
Food stamp or SNAP vendor	9	90.00%
“We Accept WIC” signage displayed	2	20.00%
“We Accept Food Stamps/EBT” signage displayed	7	70.00%

Store exterior

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

Among the 10 stores that had data on the presence of exterior ads for healthy foods, 1 (10.00%) had ads on healthy foods. Among the 10 stores that had data on the presence of exterior ads for unhealthy foods, 9 (90.00%) had ads for unhealthy foods.

Among the 9 stores that had data on the presence of exterior ads for healthy foods, 3 (30%) had ads on healthy foods. Among the 8 stores that had data on the presence of exterior ads for unhealthy foods, 2 (20%) had ads for unhealthy foods.

Store Exterior Conditions

Stores were assessed for specific exterior conditions for food promotion. Among the 10 stores surveyed, none had produce bins on the sidewalk in front of the store. No stores had products displayed, no stores had water, no stores had other product, and no stores had soda displayed on the sidewalk in front of the store or inside the store next to the window so they are clearly visible from the outside. There was no vending machine on the sidewalk in front of any of the 10 stores surveyed. No stores had images of both healthy and unhealthy foods and/or beverages painted on doors or windows of the storefront. However, there were ads on the roof, walls, or anywhere on the store property of 8 of the 10 stores surveyed.

Types of Advertisements	Frequency	Percent
Produce bins on the sidewalk in front of the store	0	0.00%%
Other products displayed on the sidewalk in front of the store or inside the store next to the window that are clearly visible from the outside	0	0.00%
Vending machines on the sidewalk in front of the store	0	0.00%
Advertisements (banners, posters, temporary signs, etc.) on the roof, walls or elsewhere on the property	8	80.00%
Images of healthy food and/or beverage, painted on doors or windows	0	0.00%
Images of un-healthy food and/or beverages painted on doors or windows	0	0.00%
Painted murals of healthy food and/or beverages	0	0.00%

Perceptions of Safety at Store

Store were assessed for perceptions of safety including whether there were bars or chains on the exterior, whether advertisements covered no more than 1/3 of the window area and the cash register could be seen from the outside for stores that sold alcoholic beverages (e.g. the Lee Law which was passed in California) 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 with this information, 1 store (10.00%) had bars and 1 store didn't comply with the Lee Law.

Safety	Frequency	Percent
Permanent bars/chains on the windows or doors	1	10.00%
More than 1/3 of the total window area covered by alcohol ads	1	10.00%

Store Interior

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.

Advertisements	Frequency	Percent
Marketing of foods and beverages next to the main check-out area		
UNHEALTHY ads or promotions next to check-out	0	0.00%
UNHEALTHY ads or promotions below check-out level	0	0.00%
UNHEALTHY ads or promotions on floor	0	0.00%
UNHEALTHY ads or promotions hanging from ceiling	0	0.00%
HEALTHY ads or promotions next to check-out	0	0.00%
HEALTHY ads or promotions below check-out level	0	0.00%
HEALTHY ads or promotions on floor	0	0.00%
HEALTHY ads or promotions hanging from ceiling	0	0.00%
UNHEALTHY products next to or below a check-out counter		
Gumball or candy machine	1	10.00%
Candy	9	90.00%
Soda	0	0.00%
Chips	3	30.00%
Other (beef jerky, donuts, lumpia, sushi, cookies, etc.)	7	70.00%
HEALTHY products next to or below a check-out counter		
Granola bars	0	0.00%
Bagged Nuts/seeds	1	10.00%
Fresh fruit	0	0.00%
Bottled	0	0.00%
Other (Pickled pickles, papaya, radish, baby onion, and eggs)	4	40.00%

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 (10.00%) had a health promotion item. Staff then categorized each health promotion item into one of the following themes:

- 5 A Day signs, 0.
- Nutrition information, 0.
- Fruit and Veggies: More matters, 0.
- Children's Healthy Living (CHL) or CHL partnership, 0.
- Of the 9 stores with this data, 1 (11.11%) promoted locally grown produce.

Health Promotion Items around Fruit & Vegetables	Frequency	Percent
5 A Day signs (not on packaging)	0	0.00
Nutrition information	0	0.00
Fruit and Veggies: More matters	0	0.00
Children's Healthy living (CHL) or CHL Partnership	0	0.00
Other	0	0.00
Items promoting locally grown produce	1	10.00%

Variety, Quality, and Availability of Fruits and Vegetables and Other Health 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 Sinajana and Agana Heights, only 7 stores had information on whether or not they sold fruits and vegetables. Furthermore, 1 had a wide variety of fruit and also had a wide variety of vegetables.

Questions	None	Limited (1-3 types)	Moderate variety (4-6 types)	Wide variety (7 or more types)
Fresh fruit	3	2	1	1
Fresh vegetables	0	4	2	1

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 Sinajana and Agana Heights, only 7 stores had information assessed for quality and only 1 had good quality for fruit and also had good quality for vegetables.

Questions	Frequency	Percent
Best describes the overall quality of the fresh fruit.		
None sold	3	42.85%
All or most of fruit is of poor quality (brown, bruised, overripe, wilted)	0	0.00%
Mixed quality; more poor than good	0	0.00%
Mixed quality; more good than poor	3	42.85%
All or most of fruit is of good quality (very fresh, no soft spots, excellent color)	1	14.28%

Questions	Frequency	Percent
Best describes the overall quality of the fresh vegetables		
None sold	0	0.00%
All or most of vegetable is of poor quality (brown, bruised, overripe, wilted)	0	0.00%
Mixed quality; more poor than good	0	0.00%
Mixed quality; more good than poor	6	85.71%
All or most of vegetable is of good quality (very fresh, no soft spots, excellent color)	1	14.28%

Stores were assessed for the availability and price of specific fruits (apple, banana, and orange) and vegetables (carrot, tomato, broccoli, and cabbage). A total of 7 out of the 10 stores in Sinajana and Agana Heights had data on the availability of these produce. The most commonly available fruits were apples (n=2, 28.57%) and most commonly available vegetables were carrots, broccoli, and cabbage was found in 2 (28.57%) of the stores.

Questions	Frequency	Percent
Fruits		
Available Apples	2	28.57%
Available Bananas	1	14.29%
Available Oranges	1	14.29%
Available Carrots	2	28.57%
Available Tomatoes	1	14.29%
Available Broccoli	2	28.57%
Available Cabbage	2	28.57%

Store Interior

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 9 stores assessed in Sinajana and Agana Heights, 8 (88.89%) had at least one low/reduced fat dairy or soy beverage, 1 (11.11%) had at least one lean meat protein, 2 (22.22%) had at least one non-meat protein, 3 (33.33%) had at least one whole-grain item, 9 (90%) had at least one canned/ frozen fruit or vegetable, and 6 (60%) had at least one baby food.

Questions	Frequency	Percent
Milk – skim, non-fat, plain white (not flavored- chocolate, strawberry, vanilla)	2	20.00%
Milk – 1%, low fat, plain white (not flavored- chocolate, strawberry, vanilla)	1	10.00%
Milk – 2%, reduced fat, plain white (not flavored- chocolate, strawberry, vanilla)	9	90.00%
Mozzarella cheese, part skim	2	20.00%
Ground beef or turkey, lean (85% or higher)	1	10.00%
Whole chicken	3	30.00%
Whole wheat bread	3	30.00%
Brown rice	3	30.00%
High fiber cereal (≥ 3 grams fiber, ≤ 12 grams sugar per serving)	7	70.00%
Oatmeal (plain)	2	20.00%
Tortillas, soft corn or whole wheat (no lard)	5	50.00%
Soy beverage, plain, with no added sugar or sweeteners	1	10.00%
Soy beverage, flavored, vanilla or chocolate	3	30.00%
Tofu, plain	1	10.00%
Beans, dried	6	60.00%
Beans, canned with no added fats, sugar or sweetener	6	60.00%
Tuna (light) canned in water	5	50.00%
Salmon canned in water	7	70.00%
Sardines canned in water, tomato, or mustard	8	80.00%
Any canned fruit packed in 100% fruit juice	6	60.00%
Any canned vegetable with no added fats, sugar, or sweetener	8	80.00%
Any frozen fruit with no added fats, sugar, or sweetener	5	50.00%

Questions	Frequency	Percent
Any frozen vegetables with no added fats, sugar, or sweetener	5	50.00%
Baby food, jarred, single fruit	5	50.00%
Baby food, jarred, single vegetable	4	40.00%
Baby food, jarred, single meat	4	40.00%

Store Environment 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 ten separate store walkability surveys in Sinajana and Agana Heights. A checklist of categories were observed and rated, related to the safety and quality of the walk, for the area around the ten stores in the villages.

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

Rating Scale for Each Walking Feature

0 = excellent
1 = very good
2 = good
3 = some problems
4 = many problems
5 = awful

The rating scores of Sinajana and Agana Heights are summarized in the table below. Each store area was ranked (0 to 5) under five categories and an average (mean) was calculated for each category. The village total score (5.1) is the sum of these category averages. According to the table above the total score for the walking environment in Sinajana and Agana Heights 5.1 ranks as **"Celebrate! You have a great neighborhood for walking"**. This score reflects the sidewalk infrastructure in Sinajana and parts of Agana Heights.

Total Walking Rating	5.1					
Walking Features	**Number of Observations**	**Average Score**	**Sd**	**Median**	**Min.**	**Max.**
Room to walk	10	0.8	1.32	0	0	4
Ease of crossing street (s)	10	1.2	0.63	1	0	2
Driver's behavior	10	0.8	1.03	0.5	0	3
Ease of following safety rules	10	1.4	0.97	2	0	2
Safeness of walk	10	0.3	0.48	0	0	1
Pleasantness of walk	10	0.6	1.07	0	0	3

From the surveys it was noted that the area around the Mobil and 76 stations is more difficult to walk due to the high traffic and bad driver behavior. The observers also noted in many areas of the village walking would be safer if there were painted cross walks in the street intersections and/or traffic lights.

Fast Food Observations: No Fast Food Restaurants in Sinajana or Agana Heights

B. Physical Activity Resources

Assessment of Parks and Physical Activity Facilities

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 the 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.

In Sinajana and Agana Heights, a total of 2 parks were assessed. The assessment includes four parts: (A) setting, parking, and amenities; (2) sports features; (3) parks features and amenities; and (4) incivilities. The following sections describe the findings of the surveyed parks.

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 Sinajana and Agana Heights there were 2 parks with this information. Between the 2 parks, all were a public park, 1 was adjacent to a school, and none shared sports features with an adjacent school.

A total of 2 of the parks had on-site parking, while 2 of the parks had an on-site parking with overhead lighting, and none had bicycle parking. 1 had sidewalks leading up to the entrance of the park and 1 of the parks had sidewalks with overhead lighting.

Observation on park amenities included whether it had closing time signage, restrooms, showers, and beverage vending machine. Between the 2 parks assessed, none had closing time signage. Both had restrooms, 1 had showers; however, none had beverage vending machines.

Park Setting	Number
Public Parks	2
Parks are next to school	1
Park and school share sport features	0
Features present in park	
Parking on site	2
Lighted Parking	2
Sidewalk on street	1
Sidewalk lighting	1
Bicycle parking	0
Closing time signage	0
Restrooms	2
Showers locker rooms	1
Drinks found in park	
Beverage vending machine	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. Between the 2 parks surveyed in Sinajana and Agana Heights, both didn't have an entrance fee. Among these parks none had signage indicating the park name and signage stating that public use of the park was limited to specific times. Neither had information on whether there is signage indicating that the park was private or has restricted access at all times. Neither of the 2 parks had a signage restricting access and none of the parks had a locked fence or other physical barrier around the perimeter.

Access signage and barriers to entry displayed	
Entrance fee	0
Park or School name on signage	0
Public use is limited	0
Area is restricted	0
Locked fence around	0

Park 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.

- **Field, Football:** A field should have the appropriate layout, markings, and/or equipment in order to be identified as a football field.
- **Field, Baseball:** A field should have the appropriate layout, markings, and/or equipment in order to be identified as a baseball field.

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

Condition of the Feature

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

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

Survey Results for Sports Features

Across the 2 parks surveyed in Sinajana and Agana Heights, there were a total of 4 features, of which all were rated as ok/good.

Baseball fields and basketball courts were the most frequent features and all had lighting. The following table summarizes the number of each sports feature, the conditions of the feature, and whether lighting was present for the feature across all 2 parks in Sinajana and Agana Heights.

Features Present in Parks	Number	Condition of the feature			Has lighting
		OK/Good	Poor	Could not rate	
Multi use fields	0	0	0	0	0
Football fields	0	0	0	0	0
Baseball fields	2	2	0	0	2
Soccer fields	0	0	0	0	0
Basketball courts	2	2	0	0	2
Tennis courts	0	0	0	0	0
Volleyball courts	0	0	0	0	0
Multi use courts	0	0	0	0	0
Running tracks	0	0	0	0	0
Pools more than 3ft deep	0	0	0	0	0
Wading pools	0	0	0	0	0
Playground areas	0	0	0	0	0
Skateboarding facilities	0	0	0	0	0
Exercise stations with signage	0	0	0	0	0
Exercise stations without signage	0	0	0	0	0
Rock climbing wall present	0	0	0	0	0

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

Feature or Amenity Descriptions

- **Green Space:** This includes natural or landscaped space not specifically designated for physical activity
- **Beaches:** This includes natural or man-made beaches on the edge of water features such as lakes, rivers, and lagoons, as well as beaches at coastal parks.
- **Beaches Swimmable:** This includes any beach area with minimal shore break for a 3-5 year old to swim in.
- **Beaches Recreational:** This includes any beach with facilities for family picnics, barbecues, sports, water-sports, etc.
- **Beaches with Lifeguard:** This may be a swimmable beach, recreational beach, or both wherein lifeguards are present to monitor activities and to alert families of changing currents.
- **Other Water Features:** This includes natural or man-made bodies of water that may be present, including streams, creeks, rivers, ponds, lakes, lagoons, and in case of coastal parks, ocean.
- **Shelters:** This refers to a permanent structure with a roof to protect users from rain or sun. Walls are not required. Cloth or lattice canopies over picnic tables or exercise equipment and pergolas are not included.
- **Picnic Tables, Shaded:** This refers to a table top with benches, including outdoor lunch tables. Shade can be provided by tree or a structure.
- **Picnic Tables, not Shaded:** This refers to a tabletop 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. metal, plastic, or paper/plastic bags. They may be stand-alone or attached to abuilding.
- **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

Between the 2 parks in Sinajana and Agana Heights, there were a total of 11 features and amenities, of which 9 were rated as ok/good and 2 were rated as poor. The most common features and amenities present were green space, shelters, benches, trash bins, and fences. The following table summarizes the total number and condition of each individual feature/amenities assessed.

Features & Amenities	Percent Present	Condition of Surface or Feature		
		Poor	OK/Good	Could not rate
Green Space	2	0	2	0
Beaches, Swimmable	0	0	0	0
Beaches, Recreational	0	0	0	0
Beaches, with Lifeguard	0	0	0	0
Other Water Features	0	0	0	0
Shelters	2	0	2	0
Picnic Tables Shaded	1	1	0	0
Picnic Tables Not shaded	0	0	0	0
Benches	2	1	1	0
Drinking Fountains	0	0	0	0
Decorative Water Fountains	0	0	0	0
Trash Containers	2	0	2	0
Grills/Fire Pits	0	0	0	0
Fence	2	0	2	0
Trails	0	0	0	0

Incivilities

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

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

Staff looked for incivilities throughout the park and assigned a score for each incivility type based upon the amount that was present across the park settings. The possible ratings were: none (0), a little (1), some (2), and a lot (3). For the community, average rating for each of the item was used. No incivilities were found in both parks in Sinajana and Agana Heights.

Observations of Schools' Settings and Amenities

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

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

School Setting, Parking, Sidewalks, and Amenities

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

Observations on school setting included whether it was adjacent to a park. In Sinajana and Agana Heights, there were 4 schools with this information. Among the 4 schools, 4 had information on whether the school was adjacent to a park. Out of those 4 schools, 1 was adjacent to a park, and none shared sports features with an adjacent park.

All schools had on-site parking and on-site parking with overhead lighting. None of the schools had bicycle parking. Two of the schools had a sidewalk leading up to the entrance of the school, while 2 schools had sidewalks with overhead lighting.

Observations on school amenities included whether it had closing time signage, restrooms, showers, and beverage vending machines. Among the 4 schools with such information, 1 had closing time signage, 4 had restrooms, and none had beverage vending machines. Only 1 out of 4 schools had showers.

School Setting	Number
Public parks	0
Parks next to school	1
Park and school share sport features	0
Features present	
Parking on site	4
Lighted Parking	4
Sidewalk on street	2
Sidewalk lighting	2
Bicycle parking	0
Closing time signage	1
Restrooms	4
Showers locker rooms	1
Drinks found	
Beverage vending machine	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 4 schools surveyed in Sinajana and Agana Heights, all 4 schools had information on signage indicating the school name and stating that public use of the school was limited to specific times (e.g., after school). All 4 schools had signage indicating the school name, while 1 school had signage stating that public use of the school was limited to specific times, and 3 of the schools had a locked fence or other physical barrier around the perimeter.

Access signage and barriers to entry displayed	
Entrance fee	
Park or School name on signage	4
Public use is limited	1
Area is restricted	0
Locked fence around	3

School Features and Amenities

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

Condition of the Feature

Staff rated the condition and the presence of lighting for each feature item. The condition of a feature could be recorded as “poor”, “okay/good”, or “not rated”. When there was more than one of a particular feature, each was evaluated for condition while the presence of lighting was assessed across all

features. For example, if a school had 3 basketball courts and 2 were in okay condition, 1 was in poor condition, and 1 of them had lighting, then the staff would record the number of basketball courts as 3, 2 of which were rated okay/good, 1 was rated as poor, and that this school had lighting for this feature.

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

Out of the 4 schools observed in Sinajana and Agana Heights, 4 had green space, 1 was rated poor and the 3 were rated as ok/good. Three schools had shelters, which was rated as ok/good. Two had shaded picnic tables rated as ok/good. All 4 schools had benches, water fountains, and trash containers rated as ok/good. Three schools had a fence rated as ok/good.

Features & Amenities	Present	Condition of Surface or Feature		
		Poor	OK/Good	Could not rate
Green Space	4	1	3	
Beaches, Swimmable	0			
Beaches, Recreational	0			
Beaches, with Lifeguard	0			
Other Water Features	0			
Shelters	3		3	
Picnic Tables Shaded	2		2	
Picnic Tables Not shaded	0			
Benches	4		4	
Drinking Fountains	4		4	
Decorative Water Fountains	0			
Trash Containers	4		4	
Grills/Fire Pits	0			
Fence	3		3	
Trails	0			

Survey Results for Sports Features

Across the 4 schools surveyed in Sinajana and Agana Heights, there were a total of 15 sports features, of which 15 were rated as ok/good.

Playgrounds were the most frequent features (7), followed by basketball courts (3), volleyball courts (2), soccer fields (2), and multiuse fields (1). There was 1 volleyball court, 1 basketball court, and 1 multi use court that had lighting. The following table summarizes the number of each sports feature, the conditions of the feature, and whether lighting was present for the feature across all 4 schools in Sinajana and Agana Heights.

Features present on school grounds	Number	Condition of the feature			Has lighting
		OK/Good	Poor	Could not rate	
Multi use fields	1	1	0	0	0
Football fields	0	0	0	0	0
Baseball fields	0	0	0	0	0
Soccer fields	1	0	0	0	0
Basketball courts	3	3	0	0	1
Tennis courts	0	0	0	0	0
Volleyball courts	2	2	0	0	1
Multi use courts	1	1	0	0	1
Running tracks	0	0	0	0	0
Pools more than 3ft deep	0	0	0	0	0
Wading pools	0	0	0	0	0
Playground areas	7	7	0	0	0
Skateboarding facilities	0	0	0	0	0
Exercise stations with signage	0	0	0	0	0
Exercise stations without signage	0	0	0	0	0
Rock climbing wall present	0	0	0	0	0

Observations of Churches' Settings and Amenities

In Sinajana and Agana Heights, a total of 2 churches were assessed. The assessment includes four parts: (1) setting, parking and amenities; (2) sports features; (3) school features and amenities; and (4) incivilities. The following sections describe the findings of the facilities surveyed.

Settings, Parking and Amenities

Staff assessed both churches for areas for sports (indoor or outdoor). Both churches had outdoor settings for sports.

Setting	Number
Indoor only	0
Outdoor only	2
Both	0

Staff assessed each church for amenities present. Between the 2 churches surveyed in Sinajana and Agana Heights, both had an area for sports, were adjacent/near a school, park, or store, had parking on site with lights, had sidewalks leading to the entrance with lighting, had restrooms, had church sign name, was open to the public, had limited hours, and required permission to use. One church had a sport feature, and one church had a vending machine that sold water, 100% juice, regular soda, and diet soda.

Amenities Present & Signage	Number
Area for sports	2
Sport features	1
PA programs for congregation	0
Adjacent or near (1/4 miles) to a school, homes, park, small garden, plantation, food store, etc.	2
Parking On-Site	2
Lighted Parking	2
Sidewalk on street leading to entrance	2
Sidewalk Lighting	2
Bicycle Parking	0
Closing Time Signage	0
Restrooms/Port-o-lets	2
Showers/Locker Rooms	0
Beverage Vending Machines	1
Plain Bottled Water	1
100% Juice	1
Regular Soda	1

Amenities Present & Signage	Number
Diet Soda	1
Other Sweetened Drinks	0
Access and barriers to entry signage indicates church name	2
Area open to public	2
Entry open to church members only	0
Area is limited to specific hours/period of day/night	2
Use the area with permission	2
Supervision needed	0
Area is private or restricted access at all times (e.g. no trespassing)	0
Fence around the perimeter	0

Church Sport Features

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

Between the two churches surveyed in Sinajana and Agana Heights, there was a total of 1 basketball outdoor sports feature with no lighting and was rated as poor.

Feature	Number	Condition of the feature			Has lighting
		OK/Good	Poor	Could not rate	
Multi use fields	0	0	0	0	0
Football fields	0	0	0	0	0
Baseball fields	0	0	0	0	0
Soccer fields	0	0	0	0	0
Basketball courts	1	0	1	0	0
Tennis courts	0	0	0	0	0
Volleyball courts	0	0	0	0	0
Multi use courts	0	0	0	0	0
Running tracks	0	0	0	0	0
Pools more than 3ft deep	0	0	0	0	0
Wading pools	0	0	0	0	0
Playground areas	0	0	0	0	0
Skateboarding facilities	0	0	0	0	0
Exercise stations with signage	0	0	0	0	0

Feature	Number	Condition of the feature			Has lighting
		OK/Good	Poor	Could not rate	
Exercise stations without signage	0	0	0	0	0
Rock climbing wall present	0	0	0	0	0

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

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

Between the 2 churches in Sinajana and Agana Heights, both had information on amenities. There were a total of 4 amenities, of which all were rated as ok/good. The amenities present in both churches were green space, shelters, and trash containers. One church had benches.

Features & Amenities	Percent Present	Condition of Surface or Feature		
		Poor	OK/Good	Could not rate
Green Space	2	0	2	0
Beaches, Swimmable	0	0	0	0
Beaches, Recreational	0	0	0	0
Beaches, with Lifeguard	0	0	0	0
Other Water Features	0	0	0	0
Shelters	2	0	2	0
Picnic Tables Shaded	0	0	0	0
Picnic Tables Not shaded	0	0	0	0
Benches	1	0	1	0
Drinking Fountains	0	0	0	0
Decorative Water Fountains	0	0	0	0
Trash Containers	2	0	2	0
Grills/Fire Pits	0	0	0	0
Fence	0	0	0	0
Trails	0	0	0	0

Church Incivilities: None found

Community Walkability Survey

For Sinajana and Agana Heights community, we assessed a total of 3 number of community walks. The assessment includes four parts: (1) surface area, (2) condition of path, (3) safety and (4) aesthetics.

Total Walkability Score	Community Walkability
1-5	It's a disaster for walking!
6-10	It needs lots of work.
11-15	Okay, but it needs work.
16-20	Celebrate a little. Your neighborhood is pretty good.
21-25	Celebrate! You have a great neighborhood for walking.

Rating Scale for Each Walking Feature

1 = awful
2 = many problems
3 = some problems
4 = good
5 = very good
6 = excellent

The rating scores of Sinajana and Agana Heights are summarized in the table below.

Total Walking Rating	17.66				
Walking Features	**Number of Observation**	**Average Score**	**Median**	**Min.**	**Max.**
Room to walk	3	3.33	4	1	5
Ease of crossing street(s)	3	3.33	4	1	5
Ease of following safety rules	3	3.33	4	1	5
Pleasantness of walk	3	3.66	5	1	5
Driver's behavior	3	4	5	1	6

Each community walk was ranked (1 to 6) under five categories and an average (mean) was calculated for each category. The village total score 17.66 is the sum of these category averages. According to the table above the total score for the walking environment in Sinajana and Agana Heights, 17.66 ranks as **"Celebrate a little. Your neighborhood is pretty good".**

C. Food Cost Survey (FCS)

The CHL Food Cost Survey (FCS), adapted from the Alaska Food Cost Survey, was conducted in all the CHL jurisdictions in March 2014. Given the link between childhood obesity and food security particularly in low-income households, CHL conducted this timely survey of communities in the CHL jurisdictions. Three stores in Sinajana and Agana Heights were assessed to determine the cost and availability of market foods in Sinajana and Agana Heights.

The FCS is based on a meal plan, in particular the USDA Thrifty Food Plan (TFP). The Thrifty Food plan, based on a national survey of dietary habits, is designed to meet the nutritional needs at low cost for a family of four with school age children (USDA, 1999). It assumes that the food items are bought at a store and are prepared at home. This menu is made of foods in 10 categories. The categories include fruits, vegetables, meats, legumes, dairy, egg, fats/oils, grain, sweets/beverages, and spices. We can report the percent of each category towards the Thrifty Food Plan cost. Included in the report is the percent of each category towards the Thrifty Food Plan cost. The TFP is also used as the basis for determining food assistance levels provided in programs such as school lunch.

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

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

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

Results for Sinajana and Agana Heights

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

In Sinajana and Agana Heights the weekly food cost for the Thrifty Food Plan menu for a family of four was $247.23. In the CHL region, the average cost was $215.18, with a minimum of $173.97 and a maximum of $286.30. The cost in Portland, USA was $142.37. Sinajana and Agana Heights' costs for the same or comparable food items of the Thrifty Food Plan are 173.6% of their cost in Portland, Oregon.

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

Age, Sex Groups	Weekly	Monthly
INDIVIDUALS		
Child, 6-8 years	$51.81	$224.52
Child, 9-11 years	$61.48	$266.43
Male, 20-50 years	$69.99	$303.32
Female, 20-50 years	$63.93	$277.06
FAMILY		
Family of 2, 20-50 years	$147.36	$638.55
Family of 4, Couple, 20-50 years and children, 6-8 and 9-11 years	$247.23	$1,071.33

Figure 1. Weekly Thrifty Food Plan Costs for Family of 4 by Food Category in Sinajana and Agana Heights

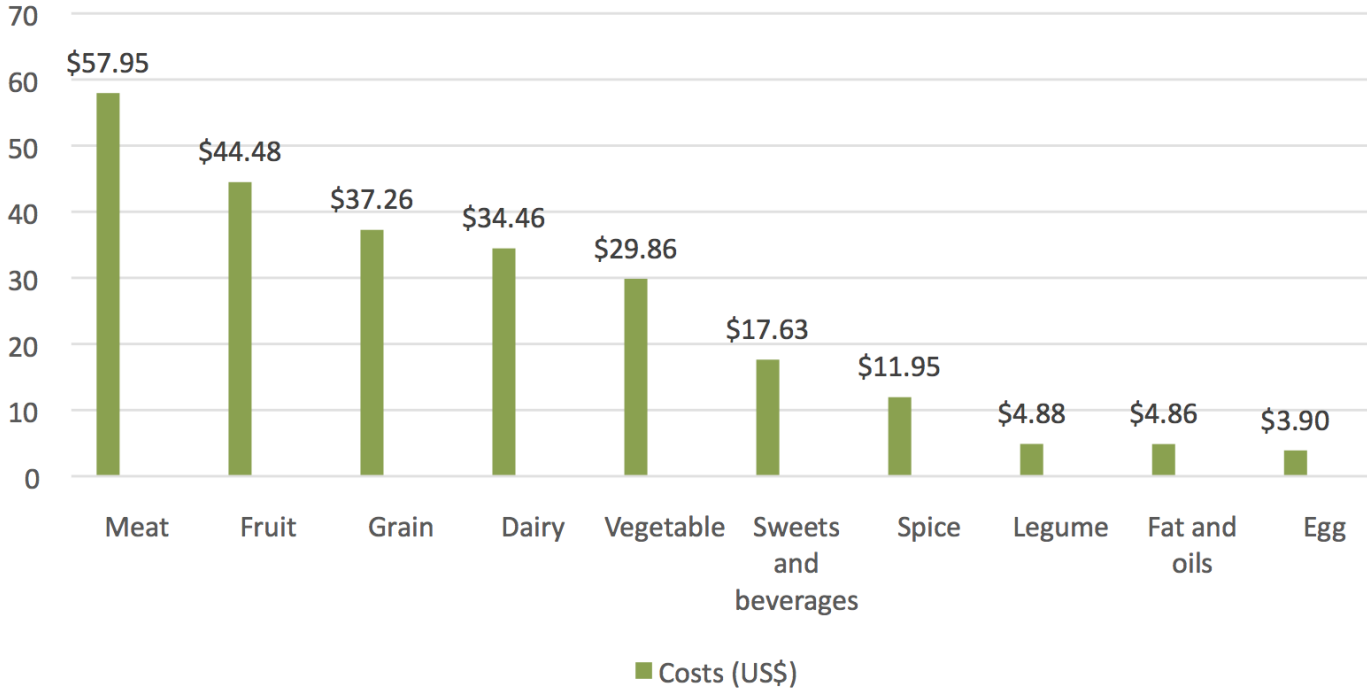


Table 2. Top 10 Most Costly Food Items in Sinajana and Agana Heights

Food	Cost	Percent of total costs %
Beef, ground, lean (16 to 23% fat)	$21.41	9%
Milk, 1% milk fat	$21.31	9%
Orange juice, frozen concentrate	$16.53	7%
Fish, flounder, cod, tilapia or similar, frozen	$13.24	5%
Potatoes, any variety	$10.67	4%
Bagels, plain, enriched	$10.50	4%
Milk, whole	$9.71	4%
Fruit drink, refrigerated, any flavor	$9.55	4%
Oranges, any variety (bagged or loose)	$9.37	4%
Turkey breast	$6.17	2%
Total	**$128.46**	**52%**

Summary

The CHL food cost survey found the cost of food for a family of four, using the TFP, to be $247.23 per week which is 173.6% higher than the weekly food cost for a family of four in Portland, Oregon. In comparison to the average of the CHL region ($215.98), the weekly food cost in Sinajana and Agana Heights was 31.25% higher.

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