

CHILDREN'S HEALTHY LIVING PROGRAM



For Remote Underserved Minority
Populations In The Pacific Region



United States Department of Agriculture
National Institute of Food and Agriculture
Agriculture and Food Research Initiative (AFRI)
No. 2011-88001-30335







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

Nanakuli Prevalence Survey Results



United States Department of Agriculture
National Institute of Food and Agriculture
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Executive Summary



I. Executive Summary

Introduction to the Report

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

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

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

Children's Healthy Living Program



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 Hawai'i at Mānoa with contracts to the University of Guam, University of Alaska Fairbanks, American Samoa Community College, Northern Marianas College, and fees for nutrition analysis and biostatistical services conducted at the University of Hawaii Cancer Center.

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

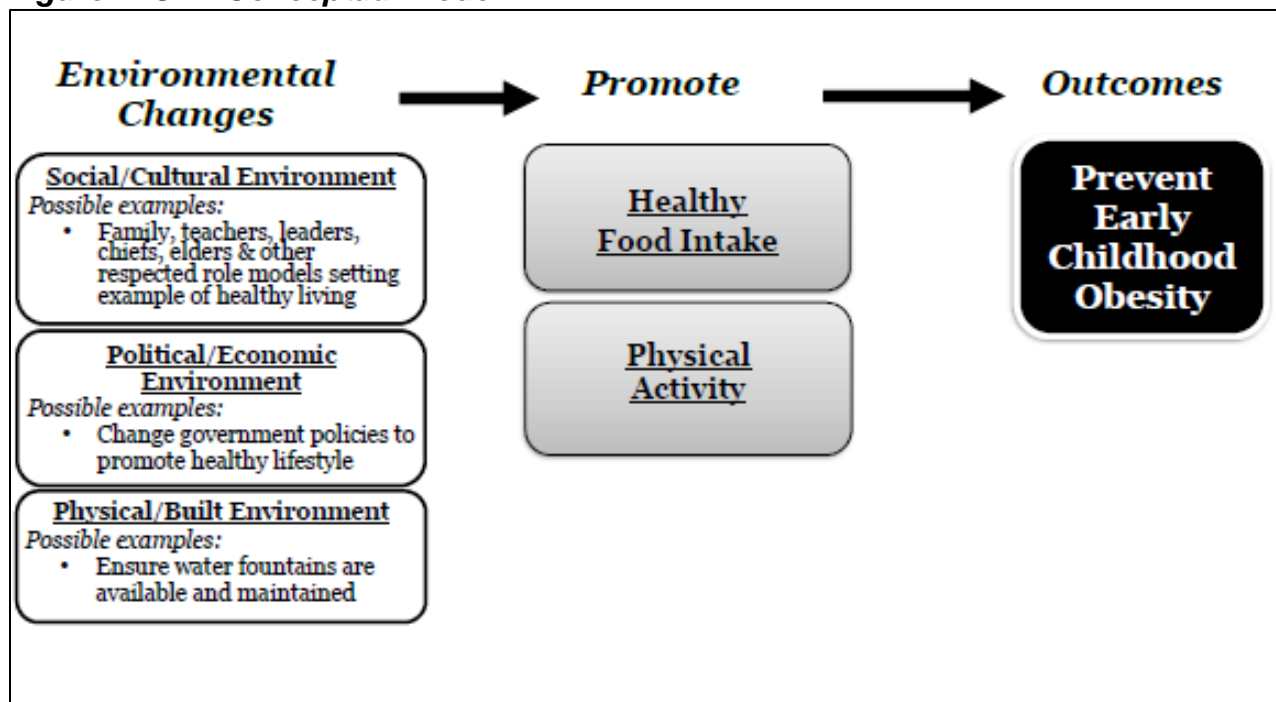
CHL strived for the following behavior targets:

- 1) Lower prevalence of excess weight and waist circumference for height
- 2) Increased sleep
- 3) Reduced consumption of sugar-sweetened beverages (SSB)
- 4) Higher fruit and vegetable intake

- 5) Higher water intake
- 6) Reduced TV/video viewing
- 7) Increased physical activity
- 8) Lower prevalence of acanthosis nigricans (AN)

Figure 1 illustrates CHL's model to influence multiple aspects of the environment to promote healthy food intake and physical activity in young children ages two to eight years old (Braun et al., 2014).

Figure 1. CHL Conceptual Model



The CHL Training Program



III. The CHL Training Program

Training Program Objectives

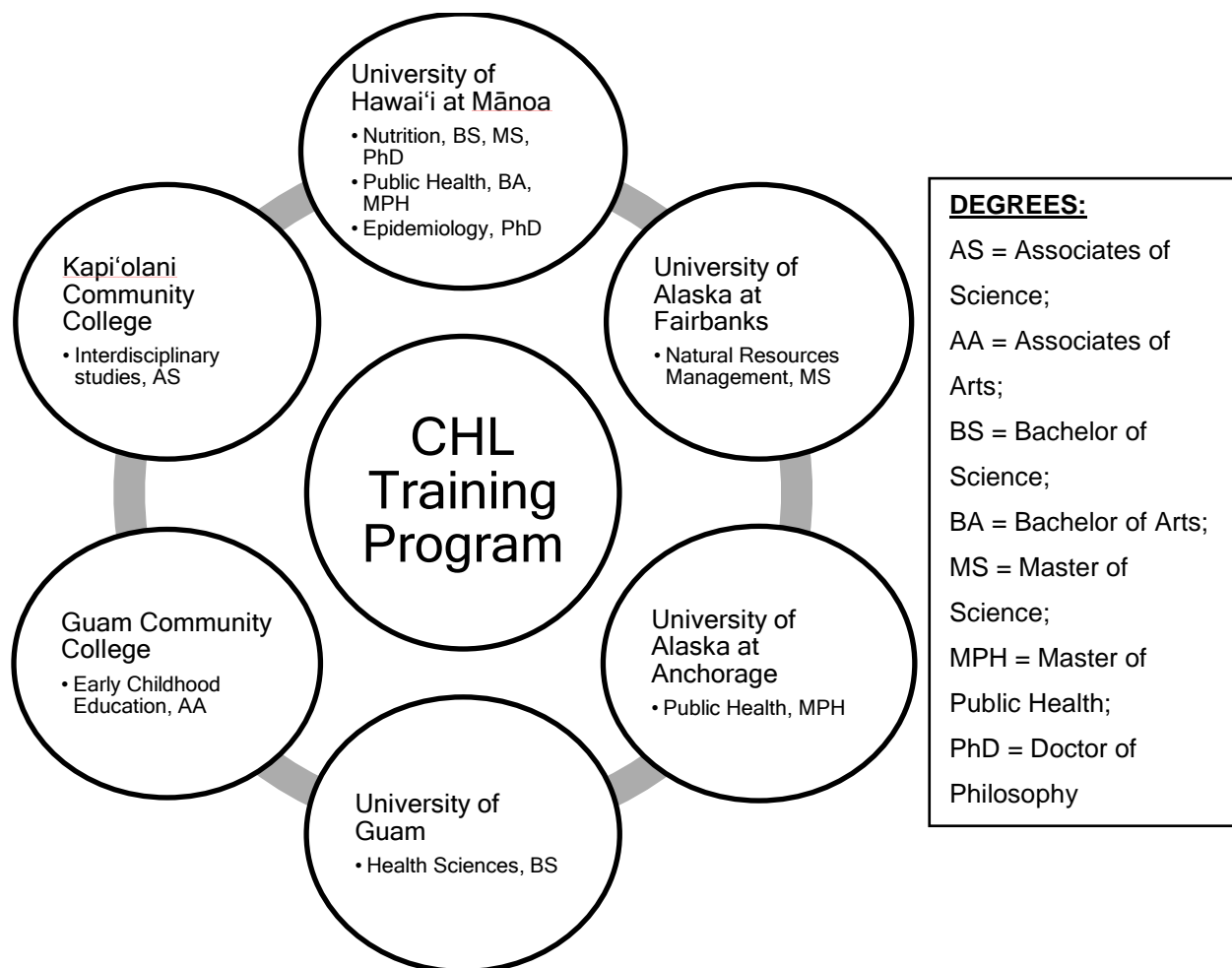
The development of the CHL Training Program (CHL-TP) was an essential component of CHL's multilevel approach to prevent childhood obesity. Approximately one third of the program's resources were invested in training. The CHL-TP's first objective was to train 22 United States Affiliated Pacific Region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

Training Program Partnerships

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

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

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



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

Training Program Accomplishments

The CHL-TP developed a series of six 1-2 credit seminars that addressed the multiple causes of obesity and provided evidenced-based strategies for childhood obesity prevention. Conducting seminars using an online collaborative approach provided an opportunity for all the CHL trainees to engage in distance learning together while

strengthening their bond as a cohort and their ties to CHL and the region. The CHL-TP also partnered with the University of Hawai'i at Mānoa Public Health Program to allow CHL Trainees to take an indigenous health seminar as a part of their CHL seminar experience.

In addition to the CHL-TP seminar curriculum, CHL modified curriculum for the Food Science and Nutrition (FSHN) course, The Science of Human Nutrition (FSHN 185), offered both through the University of Hawai'i at Mānoa and the University of Hawai'i Outreach College. FSHN 185 utilized an online platform, which allowed for flexible and adaptive nutrition education delivery across the vast region of the Pacific and beyond. The modifications broadened the curriculum to reflect the unique environment and cultural diversity of the Pacific region. New modifications incorporate nutrition education with aspects of commonly consumed food and their significance in societal structure. To further support this Pacific adapted introductory nutrition course, a Pacific Food Guide was developed to help students enrolled in FSHN 185, to better connect the traditional foods of the Pacific with concepts of nutrition (Fialkowski et al, 2016).

<http://manoa.hawaii.edu/ctahr/pacificfoodguide/>

Other curriculum and educational materials developed by the CHL-TP included a comprehensive workshop to provide standardized measurement training to staff and field workers conducting measurements in anthropometry, dietary intake, physical activity, and acanthosis nigricans. The measurement training workshops conducted by CHL were successful in standardizing over 100 anthropometric 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 is part of future curriculum being planned.

Students accepted into the CHL-TP conducted a CHL project in their home jurisdictions that supported childhood obesity prevention. Students at the graduate level blended

these projects with their theses and dissertations. All trainees presented their projects and budgets to a selected project committee for approval prior to implementation. Upon completion of their project all students submitted a formal write up and conducted an oral presentation. Examples of projects completed by graduates of the CHL-TP are outlined in Table 1.

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

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

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

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

Long-term Plans

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

information on the career trajectory of graduates.

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

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

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

CHL Community Intervention



IV. CHL Community Intervention

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
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.

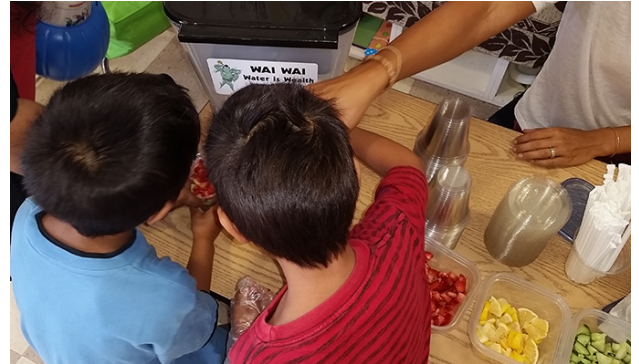
Based on these data, CHL jurisdictions agreed to engage in **six strategies** to promote the target behaviors.

1. Introduce, enhance, and support policy for healthy eating and physical activity of 2-8- 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

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 change
3. Promote the CHL message
4. Train trainers (capacity building)



Children making fruit-infused drinking water

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 activities conducted in Nanakuli 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 (Activities) | Target Behavior Addressed |
|--|---|---|
| 1) Review Assessment Data for the Policy and Physical Environment related to the 6 CHL behaviors | | |
| a) Review preschool (Head Start) wellness policy assessment data to identify training needs. | 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) |
| i) Review preschool wellness policy assessment data to identify policy gaps | | |
| ii) Address policy gaps with preschool administration | Preschool Wellness Policies & trainings | All behaviors |
| iii) Assess policy implementation quality identify 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 toolkit) data related to the physical environment to identify areas for advocacy. | Community Gathering Spaces | Increase fruit & vegetable consumption Increase physical activity Increase water consumption Decrease sugar sweetened beverages |
| i) Assess the physical environment using the CAT | | |
| ii) Review CAT data related to the physical environment to identify areas for improvements and advocacy | Alliance; Community Gathering Spaces | Increase fruit & vegetable consumption Increase physical activity Increase water consumption Decrease sugar sweetened beverages |
| iii) Improve CAT-indicated physical activity environments | Community Gathering Spaces | Increase fruit & vegetable consumption Increase physical activity Increase water consumption Decrease sugar sweetened beverages |
| iv) Advocate (with partners, stakeholders, role models, coalitions, etc.) for CAT-indicated physical activity environment changes | Alliance; Community Gathering Spaces | Increase fruit & vegetable consumption Increase physical activity Increase water consumption Decrease sugar sweetened beverages |
| 2) Partner and Advocate for Environmental Change | | |
| a) Work with existing community organizations and coalitions and/or form new coalitions to advocate for: | Alliance; Community Gathering Spaces | Increase physical activity |
| i) Better access to parks that are safe and inviting | | |
| ii) Better access to clean water | Alliance; Community Gathering Spaces | Increase water consumption |

| Cross-Cutting Function | Area of Focus (Activities) | Target Behavior Addressed |
|---|---|--|
| iii) Safer environments for walking, biking, etc. (e.g., bike lanes/racks, sidewalks, greenways) | Alliance; Community Gathering Spaces | Increase physical activity |
| iv) Better food placement in stores | Alliance; Community Gathering Spaces | Increase fruit & vegetable consumption Increase Water consumption Decrease sugar sweetened beverages |
| v) Gardens and hydroponics | Alliance; Community Gathering Spaces | Increase fruit & vegetable consumption |
| b) Partner with existing entities to purchase or obtain sponsorship for: | | |
| i) Water in the preschools and childcare centers | | |
| ii) Gardening supplies for preschool kids | Community Gathering Spaces | Increase fruit & vegetable consumption |
| iii) Sports/play equipment for preschool kids | | |
| iv) Campaigns and messages | Na Ki'i Ola | All behaviors |
| 3) Promote the CHL Message | | |
| a) Support Role Models to deliver CHL messages in various ways (using the CHL role model curriculum as a guide) | Support Community Role Models | All behaviors |
| b) Enhance existing social marketing campaigns in the intervention communities, and/or develop low-cost local social marketing campaigns related to the 6 CHL behaviors | Na Ki'i Ola | All behaviors |
| c) Advertise CHL or other activities that promote 6 CHL target behaviors | All areas of focus | All behaviors |
| 4) Train the Trainers | | |
| a) Train individuals to promote gardening in preschools and communities | Workshops | Increase fruit & vegetable consumption |
| b) Train individuals to lead interactive, hands-on sessions to promote the 6 CHL behaviors | Workshops | 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.) | Workshops; Community Gathering Spaces | All behaviors |
| d) Provide Technical Assistance (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 |
| f) Train role models (community champions, role celebrities, role models) | Support Community Role Models | All behaviors |

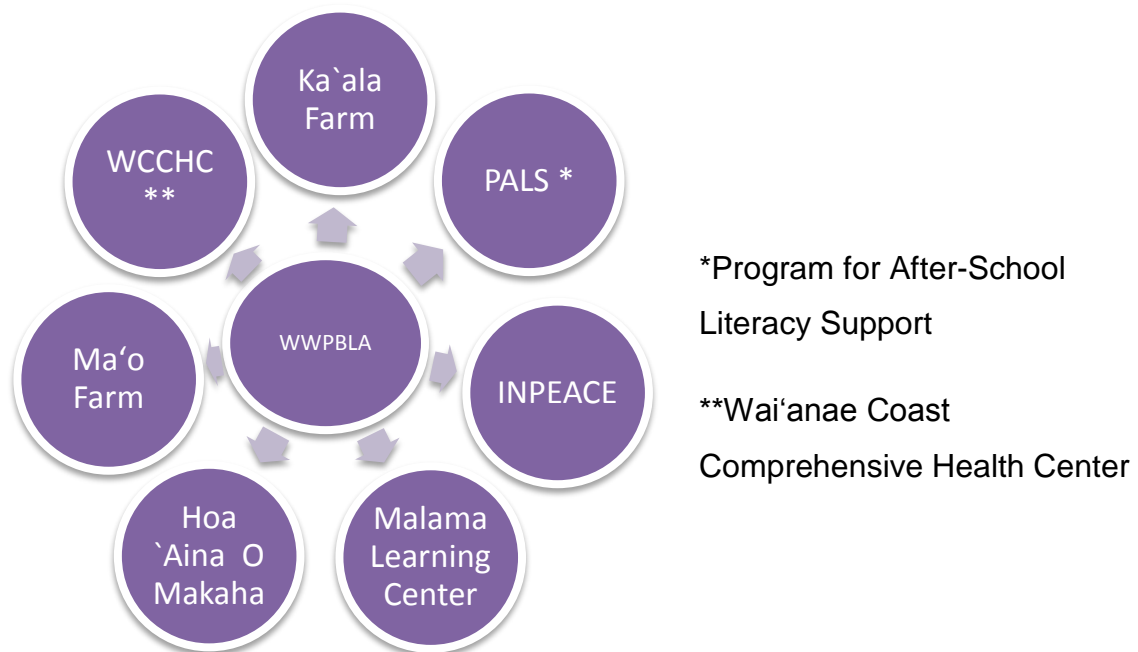
Nanakuli Intervention Activities

CHL aimed to put the health and well-being of young children in the forefront of the community and have the community move together to create an environment that enhances the health and well-being of young children.

To tailor intervention efforts to the needs and resources of Nanakuli CHL sought to:

- Make Hawaiian culture and values integral to CHL activities.
- Work hand in hand with Ka'ala Farm, supporting Ka'ala Farm's leadership of many activities for children and families.
- Support the Wai'anae Place-Based Learning Alliance, a coalition of community partners whose mission and activities aligned with CHL and which is a strong advocate for positive changes (Figure 3.)

Figure 1. Wai'anae Wellness & Place-Based Learning Alliance (WWPBLA)



CHL leadership staff and members of the Hawai'i Local Advisory Committee did additional networking and convening. These connections helped to:

- Place the health and well-being of young children in the forefront of decisions and actions
- Unite groups on the Coast
- Increase awareness of activities being conducted in the community

To place the CHL Intervention into a cultural context, an analogy can be made comparing the CHL Intervention strategy to the ahupua'a.

Wai (water) flowed from source through the au wai (the man-made water system) to the sea. It was utilized to nourish and enrich the land and enabled plants to flourish. Each ahupua'a had a marae (gathering space) where information was shared.

This flow and nourishment to the community theme ran through the CHL Intervention strategy as shown in the following areas:

1. Strengthened the Wai'anae Place-Based Learning Alliance (Source of the wai)

- Provided leadership in guiding the Alliance's strategy and mission
- Clarified mission and how it affects the health and well-being of young children
- Aligned efforts behind mission

2. Supported Community Role Models (Aha Kane/Aha Wahine/Aha 'Ohana)

- Provided technical assistance when needed
- Provided or guided role models to workshops
- Established lines of communication between role models
- Linked role models to other groups and/or activities that target young children

3. Supported and built on workshops on the health of children and families (Community au wai)

- Promoted and helped advertise workshops
 - Assisted with workshops when requested
 - Provided resources for workshops when needed
 - Provided or guided partners to trainings
4. Assisted in the development of community gathering spaces that promote CHL target behaviors (Marae)
- Worked with Nanakuli Intermediate and High Schools to create community gathering locations
 - Promoted the Wai‘anae Farmer’s Market to families and partners
 - Promoted family gardens and training at Ka‘ala Farm
5. Preschool wellness policies and related trainings (Community au wai)
- Conducted workshops with Honolulu Community Action Program (HCAP) Head Start teachers
 - Provided policy evaluation and technical assistance to other preschools
 - Partnered with the Ka Pua Initiative and the Kamehameha Community Learning Center at Ma‘ili
6. Used Na Ki‘i Ola figures and cards to promote the CHL target behaviors in a cultural context (Guides)
- Promoted cards in Head Start classrooms to help implement wellness policies
 - Promoted use and adoption by Alliance
 - Used in social marketing campaign materials
7. Networked with organizations and groups that have direct and indirect impact on young children
- Attended meetings and promoted CHL goals
 - Brought outside awareness of health activities being accomplished in community

- Looked for funding opportunities to continue CHL efforts on the Wai‘anae Coast (i.e. Hawai‘i Community Foundation, Office of Hawaiian Affairs (OHA), private foundations)

These areas of focus have the promise of bringing sustainable change to the Wai‘anae Coast by addressing the health and well-being of young children, just as a well-managed ahupua‘a sustains the needs of the human community. The table below shows how each area of focus fit with the recommended CHL activities and the target behaviors. The appendix contains more specific information about activities conducted in each cross-cutting function.

Long-term Plans

To create lasting impact, CHL worked to:

- Convene, facilitate, and unite people, groups, and organizations concerned about the health and well-being of young children to support obesity prevention strategies in their work.
- Increase community readiness and capacity to advocate and make environmental and policy changes to enhance the health and well-being of young children.
- Identify, empower, and support the role models and change agents in the community.

The Nanakuli intervention was built on the existing strengths in the community; encompassed the CHL target behaviors and activities; and was designed with sustainability and impact as guiding principles. The CHL intervention aimed to put the health and well-being of young children in the forefront of the community and for the community to move together to create healthier environments for young children.

The CHL team would like to thank the Hawaii Advisory Council for their guidance and support. Members of the Hawaii Advisory Council:

Shelli Aiona
Kalei Arinaga
Maenette Benham
Lynn Cabato
Kay Fukuda
Maria Gallo
J. Kenneth Grace
Lola Irvin
Joseph Kaholokula

Terry Kelly
Matthew Loke
Gordon Morris
May Okihiro
Sue Uyehara
Malia Waits
Trisha York
Halina Zaleski
Julia Zee

The CHL intervention could not have been conducted without the support of groups and organizations located on the Waianae Coast, in particular the support and dedication of Ka'ala Farm staff.

Mahalo nui loa, to all our partners and friends who work tirelessly to make the Waianae Coast a better place to work, play, and live.

CHL Research Activities



V. Research Activities

CHL Research Aims and Design

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

Research Methods

Study Design

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

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

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

Selection of Communities

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

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

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

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

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

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

Selection of Participants

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

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

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

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

| Freely Associated States | |
|---|------------------|
| Jurisdiction Communities | Number Consented |
| Pohnpei <i>Nett, Mand, Sekere, Wenik</i> | 212 |
| Republic of the Marshall Islands <i>Majuro, Ebeye (Kwajalein atoll), Ailinglaplap</i> | 218 |


| | |
|---|--------------|
| Palau <i>Koror, Ngaraard, Melekeok, Airai</i> | 214 |
| Yap <i>Rull, Tomil, Weloy, Ulithi</i> | 205 |
| Kosrae <i>Tafunsak, Lelu, Sansrik, Malem, Utwe/Walung</i> | 207 |
| Chuuk <i>Weno (Sapuk, Iras), Tol, Tonoas, Uman</i> | 231 |
| FAS Prevalence Data (total) | 1,287 |
| CHL Total (CHL Intervention + FAS Prevalence) | 5,775 |

Community Report



VI. Nanakuli Community Report

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



Child Demographics



Section 1. Child Demographics

A total of 156 children participated from Nanakuli. Parents / caregivers answered multiple questions about each of their children participating in the CHL research program. The following section reports some of that information collected, including child’s sex, age, race and ethnicity.

Sex: All 156 children that participated had data on sex.

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

| Sex | Number | Percent |
|--------------|---------------|----------------|
| Boys | 75 | 48.1% |
| Girls | 81 | 51.9% |
| Total | 156 | 100% |

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

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

| Age in Years | Number | Percent |
|---------------------|---------------|----------------|
| Age 2 | 6 | 3.9% |
| Age 3 | 52 | 33.3% |
| Age 4 | 59 | 37.8% |
| Age 5 | 5 | 3.2% |
| Age 6 | 13 | 8.3% |
| Age 7 | 8 | 5.1% |
| Age 8 | 13 | 8.3% |
| Total | 156 | 100% |

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

| Age in Years | Number | Percent |
|---------------|--------|---------|
| 2-5 years old | 122 | 78.2% |
| 6-8 years old | 34 | 21.8% |
| Total | 156 | 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, and the 2011 Middle School Youth Risk Behavior Survey.

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

| Race of child of OMB definition | Number | Percent |
|--|--------|---------|
| More than one race | 93 | 59.6% |
| Native Hawaiian or other Pacific Islander | 57 | 36.5% |
| Other (including Asian, American Indian or Alaska Native, and White) | 6 | 3.8% |
| Total | 156 | 100% |

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

| Race of child of Pacific definition | Number | Percent |
|--|--------|---------|
| Native Hawaiian mixed with other race group | 80 | 51.3% |
| Native Hawaiian | 31 | 19.9% |
| Samoan | 8 | 5.1% |
| Native Hawaiian mixed with other Pacific Islanders | 7 | 4.5% |

| Race of child of Pacific definition | Number | Percent |
|--|------------|-------------|
| Marshallese | 6 | 3.9% |
| Mixed within Pacific Islanders | 6 | 3.9% |
| Mixed with Filipino | 5 | 3.2% |
| Other (including American Indian or Alaska Native, Filipino, White and more than one race group) | 13 | 8.3% |
| Total | 156 | 100% |

Child's Birth Place

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

Table S.1.6. Child's Place of Birth

| Birth Place | Number | Percent |
|--|------------|-------------|
| Hawaii | 142 | 91.0% |
| USA (other than Hawaii) | 6 | 3.9% |
| Other (including American Samoa, and Republic of the Marshall Islands) | 8 | 5.1% |
| Total | 156 | 100% |

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

Among the 156 children, 152 had information on this question. Among them, **138 (90.8%) lived their whole life in Nanakuli** and the rest, 9.2%, spent one fifth to three

quarters of their life in Nanakuli.

Language Child Speaks

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

Note: Language responses may total over 152 and 100% because some respondents could speak more than one language.

Table S.1.7. Top Languages Child Speaks

| Top languages child speaks | Number | Percent |
|---|------------|-------------|
| English | 141 | 90.4% |
| English and Marshallese | 5 | 3.2% |
| Other (including Hawaiian, Tuvalu, Samoan, Spanish) | 10 | 6.4% |
| Total | 156 | 100% |

English was the top language spoken at home (93.6%). Other languages children in Nanakuli spoke at home included Marshallese, Samoan, Hawaiian, Spanish and American Sign Language. Eighty-nine percent of children only spoke English at home. **Ten percent of the children spoke English and at least one other language.**

Summary

Among the 156 children, 81 (52%) were girls and 75 (48%) were boys. Furthermore, 122 (78%) were of age group 2-5 years and 34 (22%) were of age group 6-8 years. All 156 children had information on race, of which 96 (61%) were of more than one racial group, 54 (35%) were Native Hawaiian/Pacific Islander (NHPI), 4 (3%) were Asian, 1 (0.5%) was White, and 1 (0.5%) was American Indian/Alaska Native (AIAN).



Child Anthropometric Measurement Results



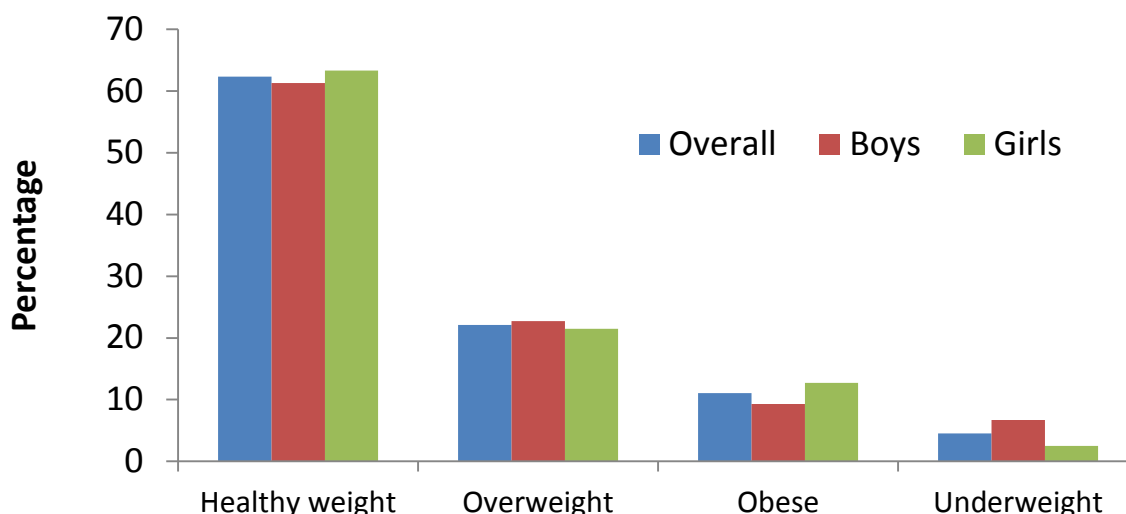
Section 2. Child Anthropometric Measurement Results

Body Mass Index

Among the 156 children who participated in Nanakuli, 154 had valid measurements of Body Mass Index (BMI).

Overweight was defined as the 85th - 94th percentile for BMI (weight, kg/(height, m²)) and obesity was defined as greater than or equal to the 95th percentile for BMI (Centers for Disease Control and Prevention, 2000).

Prevalence of Overweight and Obesity of Study Children in Nanakuli



A total of 154 children were included for this analysis. Among them, 62% were healthy weight, 23% were overweight, 10% were obese, and 5% were underweight. No difference was found between boys and girls, or between children ages 2-5 and those 6-8 years old.

Abdominal Obesity

The International Diabetes Federation (IDF) suggests that children 6 years or older with a waist circumference equal or greater than the 90th percentile be considered as having abdominal obesity (Zimmet, et al., 2007). For children younger than 6 years of age, currently there is insufficient information for such classification. Using children ages 6-8

years in the CHL data set as the reference data, the 90th percentile cutoff value is 71.47cm. The 90th percentile cutoff value reported from the IDF, which uses “a nationally representative sample” of boys and girls, is 67.65 cm for 7-year olds.

Among the 34 participants in Nanakuli between the ages 6-8 years, using either the CHL cutoff or IDF cutoff value, **five (14.7%) of 6-8 year olds were considered as having abdominal obesity.**

Acanthosis Nigricans (AN)

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

Burke’s (1999) quantitative scale was utilized, with scores given for the severity of AN. Among the 156 children who participated, 154 had data on AN, of which 4 (2.6%) screened positive for AN.

Summary

Overall, 33% of children measured in Nanakuli were overweight or obese. Strategies that have found to be effective in the prevention of childhood obesity include: (1) A healthy lifestyle, which encourages children to move more, sleep more and spend less screen time. (2) A healthy diet, which encourages children to drink more water, eat more fruit and vegetables and consume fewer sugar sweetened beverages.



*Child Nutrition
And Diet Reports*



Section 3. Child Nutrition and Diet Reports

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

For Nanakuli, 121 Food and Activity Logs were reviewed by CHL staff and are included in this report.



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

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

| Food description | Nanakuli | |
|------------------|--------------------------|-------------------------|
| | Number of times reported | % of all foods reported |
| #1 White rice | 199 | 5.8% |
| #2 Milk, 2% | 136 | 3.9% |
| #3 Milk, 1% | 112 | 3.2% |
| #4 Apples | 59 | 1.7% |
| #5 Bananas | 49 | 1.4% |

Fruit and Vegetable Intake

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

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

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

In Nanakuli, children ate 1.8 servings of fruits and vegetables per day on average as recorded by parents/caregivers on the two-day food log. The average servings of fruit was 1.0 per day and the average servings of vegetables was 0.8 per day.

43 children (35.5%) in Nanakuli met the U.S. national recommendations for daily fruit consumption.

15 children (12.4%) in Nanakuli met the U.S. national recommendations for daily vegetable consumption.

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

Water

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

92.6 % of parents / caregivers reported on the two-day Food and Activity Log that their

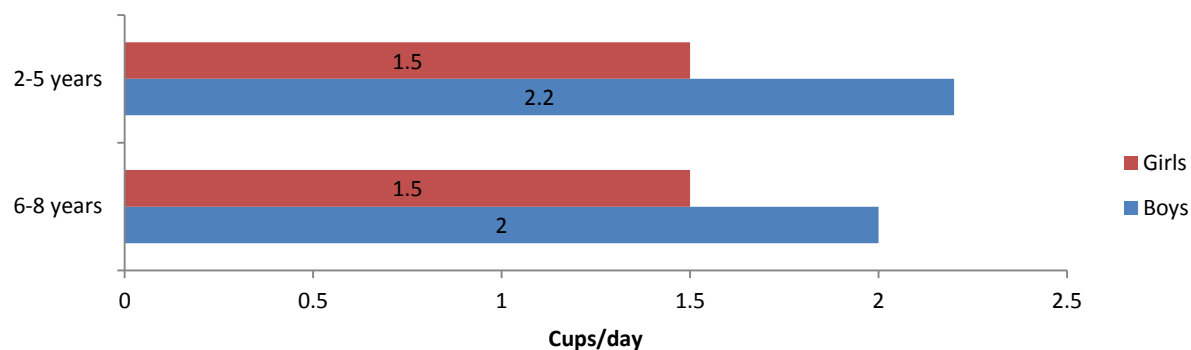
child drank water over these two days.

On average, children in Nanakuli drank 1.8 cups of water daily.

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

| Drinking water intake (cups / day) by sex | Nanakuli | |
|---|-----------|------------|
| | Number | Average |
| Boys | | |
| 2 – 5 years | 29 | 2.2 |
| 6 – 8 years | 34 | 2.0 |
| All | 63 | 2.1 |
| Girls | | |
| 2 – 5 years | 18 | 1.4 |
| 6 – 8 years | 40 | 1.5 |
| All | 58 | 1.5 |

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



Sugar-Sweetened Beverages (SSB)

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

From the two-day food record, 97 (80.2%) of parents/caregivers in Nanakuli reported that their child consumed SSBs.

Children drank 1.1 cups of sugar-sweetened beverages on average daily.

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

Children’s intake of Sugar-Sweetened Beverages (cups/day) for Nanakuli

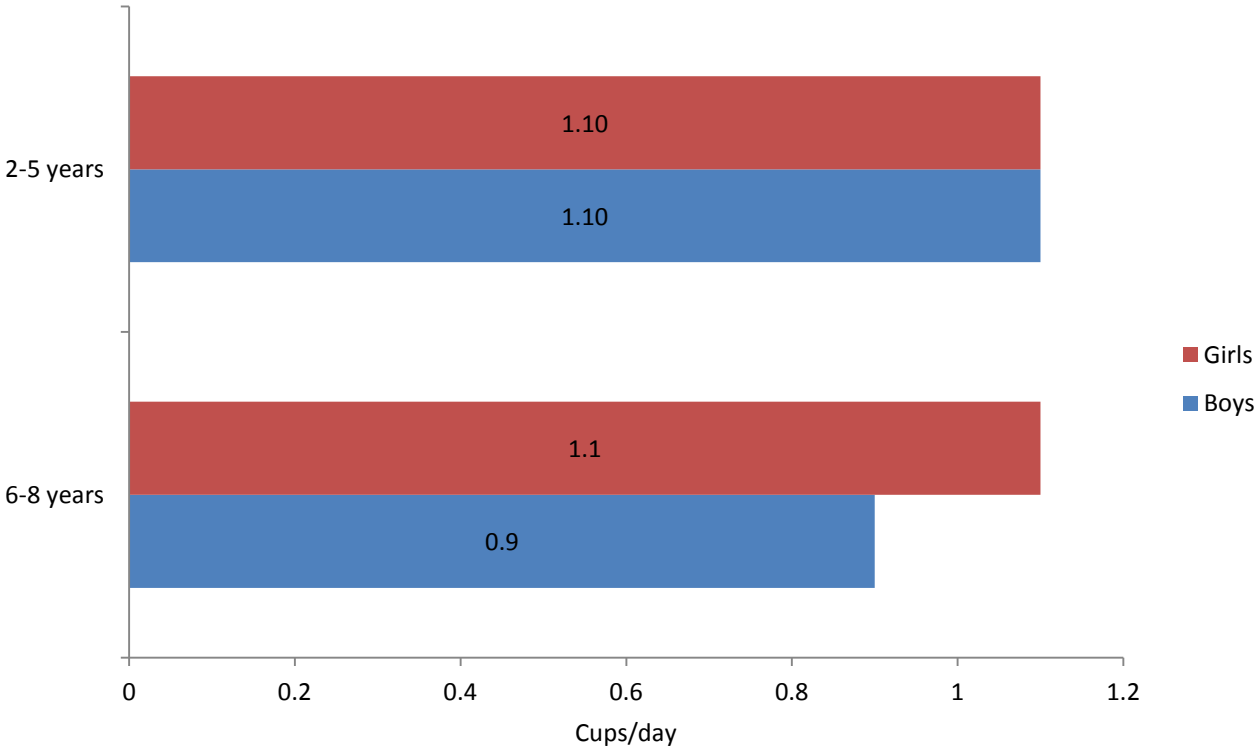


Table S.3.4. Mean SSB intake (cups/day) for all Children and those with SSB's Recorded for Nanakuli

| Mean SSB intake (cups/day) | All children | | SSB Recorded | |
|----------------------------|--------------|-----------|--------------|-----------|
| | Number | Mean (SD) | Number | Mean (SD) |
| Boys | | | | |
| 2 – 5 years | 29 | 0.9 | 20 | 1.3 |
| 6 – 8 years | 34 | 1.1 | 28 | 1.3 |
| All | 63 | 1.0 | 48 | 1.3 |
| Girls | | | | |
| 2 – 5 years | 18 | 1.5 | 17 | 1.6 |
| 6 – 8 years | 40 | 1.1 | 32 | 1.4 |
| All | 58 | 1.2 | 49 | 1.4 |

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

| Proportion of children with SSB consumption greater than 2 cups per day | All children, number (%) | | SSB Recorded, number (%) | |
|---|--------------------------|---------------------|--------------------------|---------------------|
| | 0-2 cups | greater than 2 cups | 0-2 cups | greater than 2 cups |
| Boys | | | | |
| 2 – 5 years | 25 (86.2%) | 4 (13.8%) | 16 (80.0%) | 4 (20.0%) |
| 6 – 8 years | 28 (82.4%) | 6 (17.6%) | 22 (78.6%) | 6 (21.4%) |
| All | 53 (84.1%) | 10 (15.9%) | 38 (79.2%) | 10 (20.8%) |
| Girls | | | | |
| 2 – 5 years | 14 (77.8%) | 4 (22.2%) | 13 (76.5%) | 4 (23.5%) |
| 6 – 8 years | 34 (85.0%) | 6 (15.0%) | 26 (81.2%) | 6 (18.8%) |
| All | 48 (82.8%) | 10 (17.2%) | 39 (79.6%) | 10 (20.4%) |



Physical Activity From Accelerometers



Section 4. Physical Activity from Accelerometers

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

- Sedentary, if $\text{cpm} \leq 40$
- Light, if $41 \leq \text{cpm} \leq 2295$
- Moderate, if $2296 \leq \text{cpm} \leq 6815$
- Vigorous, if $\text{cpm} \geq 6816$

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

Potential outliers with extreme values (defined as those with a value of 3 standard deviations (sd) above or below the mean) were excluded from this report. In Nanakuli, Actical accelerometers from 101 children provided valid data on their physical activity levels. After excluding outliers, on average children spent 11 hours 26 minutes in sedentary activities (sd=1.3 hours).

On average, children in Nanakuli spent 11 hours 24 minutes (sd=1.1 hours) on light activities. On average, children in Nanakuli engaged 1 hour and 9 minutes on moderate or vigorous activities (sd=0.5 hour).

Of the 101 children with accelerometer data, 56 (55.5%) of children in Nanakuli met the U.S. national recommendations for achieving at least 60 minutes of moderate or vigorous activity daily, which is also a CHL behavioral intervention target or goal.

This information can be found in the following table.

Table S.4.1. Hours of Physical Activity by Type

| Physical activity from accelerometer | Mean hours/day (sd) | |
|--|----------------------------|----------|
| Sedentary activities (weighted) | 11.4 (1.3) | |
| Light activities (weighted) | 11.4 (1.1) | |
| Moderate activities (weighted) | 1.08 (0.5) | |
| Vigorous activities (weighted) | 0.07 (0.1) | |
| Moderate and vigorous activities (weighted) | 1.15 (0.5) | |
| | Number | % |
| Met national recommendation of ≥ 60 minutes of moderate or vigorous physical activity daily | 56 | 55.5% |

Summary

In Nanakuli, a total of 101 children had valid accelerometer data. Among those 101 children, daily average minutes of moderate and vigorous physical activity (MVPA) per day were 68.9 (sd=31.2). Mean MVPA was higher in boys (mean=76.8, sd=30.3) than girls (mean=60.8, sd=30.5). No difference was found between the averages of those ages 2-5 and those 6-8 years old. Fifty-five percent of those 101 children met the national recommendation of 60 minutes a day of MVPA. A higher percentage of boys (75%) than girls (36%) met the national recommendation. No difference was found between those ages 2-5 and those 6-8 years old.



Screen Time



Section 5. Screen Time

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

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

Among the 156 children participated in Nanakuli, **time spent on TV watching per day was 2.8 hours/day** (sd=1.6 hour) overall, 2.8 hours/day (sd=1.8) on weekdays, and 2.6 hours/day (sd=1.8) on weekends. The following table summarizes the distribution of duration of TV watching.

Table S.5.1. Hours per day of TV Watching

| Hours per day child watches TV (n=156) | Percent of children | | |
|--|--|-------------|-----------------|
| | Per Day (adjusted for weekday and weekend) | Per Weekday | Per Weekend day |
| 1/2 hour or less | 7.1% | 7.1% | 14.1% |
| More than 1/2 hour up to 2 hours | 33.3% | 40.4% | 36.5% |
| More than 2 hours up to 4 hours | 37.8% | 34.0% | 35.9% |
| More than 4 hours up to 6 hours | 17.3% | 11.5% | 8.3% |
| More than 6 hours up to 7 hours | 4.5% | 7.1% | 5.1% |
| Total | 100% | 100% | 100% |

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

Parents were asked, “On a usual weekdays (Monday to Friday), how long on average a day does your child spend playing INACTIVE video games (DS, Play station, XBOX, Wii

computer games, etc.)?” They were asked the same question about the weekend days.

Among the 156 children participated in Nanakuli, a total of 153 had data on the overall time spent on inactive video games. The **overall average among those 153 children was 0.8 hours/day** (sd=1.18 hour). A total of 151 children had data on weekday or weekend inactive video time. Average inactive video time on weekdays was 0.8 (sd=1.13) and on weekends was 0.7 hours/day (sd=1.0). The following table summarizes the distribution of duration of inactive video playing time.

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

| Hours per day child spent on inactive video games | Percent of children | | |
|---|--|-------------|-----------------|
| | Per Day (adjusted for weekday and weekend) | Per Weekday | Per Weekend day |
| 1/2 hour or less | 60.8% | 64.2% | 64.2% |
| More than 1/2 hour up to 2 hours | 25.5% | 24.5% | 27.8% |
| More than 2 hours up to 4 hours | 10.5% | 9.3% | 7.3% |
| More than 4 hours up to 6 hours | 3.3% | 2.0% | 0.7% |
| More than 6 hours up to 7 hours | 0.0% | 0.0% | 0.0% |
| Total | 100% | 100% | 100% |

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

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

Among the 156 children participated in Nanakuli, a total of 155 had data on the overall time spent on active video games. The **overall average among those 155 children was 0.8 hours/day** (sd=1.2 hour). A total of 154 children had data on weekday active video time. Average active video time on weekdays was 0.8 hours/day (sd=1.2). A total

of 153 children had data on weekend active video time. Average active video time on weekend was 0.7 hours/day (sd=1.2). The following table summarizes the distribution of duration of active video playing time.

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

| Hours per day child spent on active video games | Percent of children | | |
|---|--|-------------|-----------------|
| | Per Day (adjusted for weekday and weekend) | Per Weekday | Per Weekend day |
| 1/2 hour or less | 61.9% | 64.9% | 66.7% |
| More than 1/2 hour up to 2 hours | 24.5% | 22.1% | 23.5% |
| More than 2 hours up to 4 hours | 9.7% | 12.3% | 7.8% |
| More than 4 hours up to 6 hours | 3.9% | 0.7% | 2.0% |
| More than 6 hours up to 7 hours | 0.0% | 0.0% | 0.0% |
| Total | 100% | 100% | 100% |

Screen Time - Overall

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

Among the 156 children participated in Nanakuli, all had data on the overall screen time, which averaged 4.5 hours (sd=3.4). A total of 154 had data on weekday screen time, which averaged 4.5 hours (sd=3.5). A total of 155 had data on weekend screen time, which averaged 4.3 hours (sd=3.2). The following table summarizes the distribution of duration of screen time.

Table S.5.4. Hours per day of Screen Time

| Hours per day child spent on screen time | Percent of children | | |
|--|--|-------------|-----------------|
| | Per Day (adjusted for weekday and weekend) | Per Weekday | Per Weekend day |
| 1/2 hour or less | 5.1% | 5.2% | 11.0% |
| More than 1/2 hour up to 2 hours | 20.5% | 28.6% | 20.7% |
| More than 2 hours up to 4 hours | 32.1% | 26.6% | 31.6% |
| More than 4 hours up to 6 hours | 16.7% | 15.6% | 14.2% |
| More than 6 hours | 25.6% | 24.0% | 22.6% |
| Total | 100% | 100% | 100% |

Summary

A total of 153 children were included in the analysis of screen time. Among them, average screen time such as watching TV, video games, or DVD, or playing active or inactive video games was 4.4 hours (sd=3.2). No difference was observed between the averages of boys and girls, or between those ages 2-5 and those ages 6-8 years old.

While the national recommendation is for each child to spend 2 or less hours of screen time every day, **only 26% (n=42) of our study children met this recommendation.** No difference was found between boys and girls, or between those ages 2-5 and those ages 6-8 years old. A vast majority (74%) of children appear to be spending too much time watching screens! This is an opportunity for both parents and educators to intervene to help children spend less screen time.



Section 6. Sleep

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

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

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

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

| Hours of sleep in 24 hours at night and in naps (on average and from parent / caregiver report) | Number | % |
|---|--------|-------|
| 2 year olds | 6 | 100% |
| Less than 9 hours | 1 | 16.7% |
| 9 hours to less than 11 hours | 3 | 50% |
| 11 hours or more (to 13.5 hours) | 2 | 33.3% |
| 3 – 5 year olds | 113 | 100% |
| Less than 8 hours | 8 | 7.1% |
| From 8 hours to less than 10 hours | 54 | 47.8% |
| From 10 hours to 13.5 hours | 51 | 45.1% |
| 6 – 8 year olds | 31 | 100% |

| Hours of sleep in 24 hours at night and in naps (on average and from parent / caregiver report) | Number | % |
|---|--------|-------|
| Less than 7 hours | 2 | 6.5% |
| From 7 hours to less than 9 hours | 7 | 22.6% |
| From 9 hours to 13.5 | 22 | 71.0% |

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

| Met recommended hours of sleep | Number | % |
|--|--------|-------|
| Two year olds met recommendation of 11 – 14 hours of sleep | 2 | 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).

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

| How long after going to bed does your child usually fall asleep? | Number | % |
|--|--------|-------|
| 0 to less than 15 minutes | 54 | 34.6% |
| 15 to less than 30 minutes | 57 | 36.5% |
| 30 to less than 45 minutes | 32 | 20.5% |
| 45 to less than 60 minutes | 7 | 4.5% |
| 60 minutes and more | 6 | 3.9% |
| Total | 156 | 100 |

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

| The child has difficulty getting to sleep at night (and may require a parent to be present) | Number | % |
|---|------------|-------------|
| This sleep behavior never occurs | 69 | 44.2% |
| The behavior occurs once or twice a month | 34 | 21.8% |
| Occurs one to two times a week | 24 | 15.4% |
| Occurs between three and five nights a week | 11 | 7.1% |
| The sleep behavior happens every night | 18 | 11.5% |
| Total | 156 | 100% |

Table S.6.5. Number and Percent of Children Not Falling Asleep in Own Bed

| Child does not fall asleep in his or her own bed. | Number | % |
|---|------------|-------------|
| This sleep behavior never occurs | 77 | 49.4% |
| The behavior occurs once or twice a month | 25 | 16.0% |
| Occurs one to two times a week | 21 | 13.5% |
| Occurs between three and five nights a week | 4 | 2.6% |
| The sleep behavior happens every night | 29 | 18.6% |
| Total | 156 | 100% |

Table S.6.6. Number and Percent of Children Difficulty Falling Asleep After Wakening

| After waking up in the night, child has difficulty falling asleep again by himself or herself. | Number | % |
|--|------------|-------------|
| This sleep behavior never occurs | 111 | 72.1% |
| The behavior occurs once or twice a month | 30 | 19.5% |
| Occurs one to two times a week | 8 | 5.2% |
| Occurs between three and five nights a week | 2 | 1.3% |
| The sleep behavior happens every night | 3 | 2.0% |
| Total | 154 | 100% |

Table S.6.7. Number and Percent of Children that Sleep some of the Night in Parent’s Bed

| Child sleeps in the parent’s bed at some time during the night | Number | % |
|--|------------|-------------|
| This sleep behavior never occurs | 56 | 36.4% |
| The behavior occurs once or twice a month | 35 | 22.7% |
| Occurs one to two times a week | 18 | 11.7% |
| Occurs between three and five nights a week | 13 | 8.4% |
| The sleep behavior happens every night | 32 | 20.8% |
| Total | 154 | 100% |

Table S.6.8. Number and Percent of Children Needing Parent to Replace a Comforter After Waking in Night

| If child wakes, he or she uses a comforter (e.g. pacifier or binky) and requires a parent to replace it. | Number | % |
|--|------------|-------------|
| This sleep behavior never occurs | 133 | 86.4% |
| The behavior occurs once or twice a month | 7 | 4.6% |
| Occurs one to two times a week | 4 | 2.6% |
| Occurs between three and five nights a week | 5 | 3.3% |
| The sleep behavior happens every night | 5 | 3.3% |
| Total | 154 | 100% |

Table S.6.9. Number and Percent of Children Wanting a Drink During the Night

| Child wants a drink during night (including breast or bottle-feed) | Number | % |
|--|------------|-------------|
| This sleep behavior never occurs | 115 | 73.7% |
| The behavior occurs once or twice a month | 15 | 9.6% |
| Occurs one to two times a week | 17 | 10.9% |
| Occurs between three and five nights a week | 4 | 2.6% |
| The sleep behavior happens every night | 5 | 3.2% |
| Total | 156 | 100% |

Table S.6.10. Number and Percent of Children with Sleeping Difficulties

| Do you think your child has sleeping difficulties? | Number | % |
|--|------------|-------------|
| No | 140 | 90.3% |
| Yes | 15 | 9.7% |
| Total | 155 | 100% |

Summary

A total of 155 children were included in the analysis of sleep duration. The average number of hours of sleep per day among those 163 children were 9.3 (sd=2.1). No difference was found between the averages of boys and girls. The average was higher among ages 2-5 (9.5; sd=2.1) than ages 6-8 years (8.5; sd=2.1).

Among the 122 two to five year olds, 26% met the national recommendation of sleep of between 11-13 hours daily. Another 62% of children slept more than 8 hours but less than 11 hours daily and 12% slept less than 8 hours. About three out of four (73%) of our younger children (2-5 years old) did not meet the national recommendation of 11-13 hours daily of sleep. This is an opportunity for both parents and educators to intervene to help children get more sleep.



Section 7. Medical

Parents answered the question: Does your child have any current medical conditions diagnosed by a doctor? Among the 156 children, 67 (43.0%) reported that their children had a medical conditions diagnosed by a doctor. The top two medical conditions were asthma (59, 37.8%) and eczema (2, 1.3%).



*Early Life & Feeding
Of A Child*



Section 8. Early Life and Feeding of Child

Birth Weight

Among the 156 children participated from Nanakuli, a total of 125 had information on birth weight. The distribution of birth weight into three groups is summarized in the following table.

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

| Birth Size | Number | % |
|--------------------------------------|--------|-------|
| Low birth weight < 2500 g | 10 | 8.0% |
| Healthy birth weight (2500 – 4000 g) | 98 | 78.4% |
| High birth weight > 4000 g | 17 | 13.6% |

Among the 156 children participated in Nanakuli, a total of 90 had information on birth length. Among the 90 children, 2 (2.2%) had birth length below the 5th percentile using the CDC 2000 reference data, which is at 45.57 cm.

Early Feeding Pattern

Among the 156 children participated in Nanakuli, a total of 152 had information on breastfeeding. Among the 152 children, 117 (77.0%) of children were reported to ever have breastfed.

Table S.8.2. Number and Percent of Children ever Breastfed or fed Breast Milk

| Child ever Breastfed or fed Breastmilk | Number | % |
|--|---------------------|-------|
| Yes | 117 | 77.0% |
| No | 35 | 23.0% |
| Total | 152 | 100% |
| If Yes, (about children who were ever breastfed) | | |
| Mean age child stopped breastfeeding or being fed breast milk (months) (n=109) | 9.4 months (sd=8.4) | |

Among the 156 children participated in Nanakuli, a total of 154 had information on formula feeding. Among those 154 children, 131 (85.1%) of children were reported to have ever formula fed. Mean age of children started formula feeding or stopped formula feeding is reported in the following table.

Table S.8.3. Number and Percent of Children ever fed Formula

| Child ever fed formula | Number | % |
|---|-------------------|----------|
| Yes | 131 | 85.1% |
| No | 23 | 14.9% |
| Total | 154 | 100% |
| If Yes, (about children who were fed formula) | | |
| Mean age (sd) child first fed formula (months) (n=123) | 3.1 months (5.6) | |
| Mean age (sd) child completely stopped drinking formula (months) (n=112) | 13.2 months (6.5) | |

A total of 125 out of the 156 children had information on age when the child was fed anything other than breast milk or formula (juice, cow's milk, sugar water, baby food, or anything else, even water). The mean age of this was 8.0 months (sd=5.6).



Household Demographics & Measures



Section 9. Household Demographics and Measures

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

Relationship

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

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

| Relationship | Number | Percent |
|-----------------------|--------|---------|
| Biological mom | 122 | 78.2% |
| Biological dad | 15 | 9.6% |
| Grandmother | 9 | 5.8% |
| Legal guardian, other | 4 | 2.6% |
| Adoptive mom | 3 | 1.9% |
| Step dad | 3 | 1.9% |

Marital Status

A total of 155 out of the 156 participants had marital status information of the respondent (see the following table).

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

| Marital Status | Number | Percent |
|--|--------|---------|
| Married | 71 | 45.8% |
| Single and living with boyfriend, girlfriend, or partner | 49 | 31.6% |
| Single and not living with boyfriend, girlfriend, or partner | 29 | 18.7% |
| Divorced | 2 | 1.3% |
| Separated | 2 | 1.3% |
| Windowed | 1 | 1% |
| Other | 1 | 1% |

Household Size and Multi-generation Households

All 156 children had information on the number of people lived in the same household and their relationship to the child. Among them, 67 (43.0%) were from multi-generation households. Mean size of household was 5, with the minimum of 2 and maximum of 14.

Education

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

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

| Education | Number | Percent |
|--|------------|-------------|
| Never attended school or only kindergarten | 3 | 1.9% |
| Grades 1 up to 8 (elementary to middle) | 3 | 1.9% |
| Grades 9 to 11(some high school) | 10 | 6.4% |
| Grades 12 or GED (high school graduate) | 93 | 59.6% |
| College or technical school 1 to 3 years | 35 | 22.4% |
| College 4 years or more | 12 | 7.7% |
| Total | 156 | 100% |

Employment Status of the Caregiver Participants

Among the 156 children participated in Nanakuli, all had information on whether the respondent was employed for wages/salary, whether he/she was self-employed, whether he/she was out of work for more than a year or less than a year, whether the respondent was a homemaker, a student, or unable to work. A total of 154 out of the 156 had information on whether the caregiver had more than one job.

| Employment | Number | Percent |
|--------------------------------|--------|---------|
| Employed for wages / salary | 67 | 43.0% |
| Self-employed | 6 | 3.9% |
| Out of work (less than 1 year) | 7 | 4.5% |

| | | |
|---------------------------------------|----|-------|
| Out of work (more than 1 year) | 10 | 6.4% |
| Homemaker | 49 | 31.4% |
| Student | 20 | 12.8% |
| Retired | 1 | 0.6% |
| Unable to work | 7 | 4.5% |
| More than one job | 10 | 6.5% |

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

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

Household Income Level

Among the 156 children that participated in Nanakuli, 142 had information on annual Household income from all sources over the past 12 months. The following table summarizes this information.

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

| Annual household income in the past 12 months | Number | Percent |
|--|---------------|----------------|
| Under \$10,000 | 33 | 23.2% |
| From \$10,000 to less than \$20,000 | 28 | 19.7% |
| From \$20,000 to less than \$35,000 | 31 | 21.8% |
| From \$35,000 to less than \$60,000 | 28 | 19.7% |
| From \$60,000 to less than \$75,000 | 11 | 7.8% |
| \$75,000 or more | 11 | 7.5% |
| Total | 142 | 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 was 8

among those participants.

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

| Religion Affiliation | Frequency | Percent |
|--------------------------------------|------------|-------------|
| Christian denomination not specified | 46 | 43.4% |
| Catholic | 22 | 20.8% |
| Pentecostal | 17 | 16.0% |
| Other | 9 | 8.5% |
| Baptist | 5 | 4.7% |
| Mormon/Latter-day Saints | 3 | 2.8% |
| Protestant | 3 | 2.8% |
| Buddhist | 1 | 0.9% |
| Total | 106 | 100% |

*Other including Bahai, Jehovah's Witness and those which cannot be specified.

Food Security / Resource Availability

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

Participants were asked, in the past 12 months, how often money for food or money for utilities runs out before the end of the month. Among the 156 children that participated in Nanakuli, a total of 142 had information on whether money for food runs out or not and a total of 139 had information on whether money for utility runs out or not. The following table presents the answers.

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

| Food Insecurity and Utilities in past 12 months | Number | % |
|--|---------------|----------|
| Money runs out for food before the end of the month. | | |
| Never | 57 | 40.1% |
| Seldom | 20 | 14.1% |
| Sometimes | 28 | 19.7% |
| Most times | 28 | 19.7% |
| Always | 9 | 6.3% |
| Money for household utilities (water, fuel, etc.) runs out before the end of the month. | | |
| Never | 58 | 41.7% |
| Seldom | 29 | 20.9% |
| Sometimes | 29 | 20.9% |
| Most times or always | 14 | 10.1% |
| Always | 9 | 6.5% |

A total of 153 children had information on whether they received assistance to pay food. Among those 153 children, 130 (85.0%) reported they received assistance. The following table summarizes different types of benefits their households received.

Table S.9.8. Number and Percent of Caregivers Who Receive Food Assistance

| Food Assistance Benefits received for those who obtained food assistance | Number | % |
|---|---------------|----------|
| EBT/ SNAP / NAP (formerly called Food Stamps) | 106 | 81.5% |
| Food Assistance (Food Bank / Food Pantries or Commodity foods) | 24 | 18.5% |
| WIC benefits | 77 | 59.2% |
| Free or reduced cost breakfast or lunch at school | 46 | 35.4% |

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

Culture

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

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

| Knowledge of traditional culture & lifestyle | Number | Percent |
|---|---------------|----------------|
| Very knowledgeable | 38 | 24.5% |
| Somewhat knowledgeable | 82 | 52.9% |
| Neutral or no response | 28 | 18.1% |
| Somewhat not knowledgeable | 3 | 1.9% |
| Not at all knowledgeable | 4 | 2.6% |

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

| Involved with traditional culture & lifestyle | Number | Percent |
|--|---------------|----------------|
| Very involved | 22 | 14.3% |
| Somewhat involved | 72 | 46.6% |
| Neutral or no response | 42 | 27.3% |
| Somewhat not involved | 9 | 5.8% |
| Not at all involved | 9 | 5.8% |

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

| Feel towards traditional culture & lifestyle | Number | Percent |
|---|---------------|----------------|
| Very positive | 67 | 44.4% |
| Somewhat positive | 46 | 30.5% |
| Neutral or no response | 35 | 23.2% |
| Somewhat negative | 1 | 0.7% |
| Very negative | 2 | 1.3% |

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

| How often associate with people of your traditional culture & lifestyle | Number | Percent |
|--|---------------|----------------|
| Most of the time | 58 | 37.9% |
| Somewhat often | 51 | 33.3% |
| Neutral or no response | 26 | 17.0% |
| Very little of the time | 13 | 8.5% |
| Not at all | 5 | 3.3% |

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

| Knowledge of U.S. Mainland / Lower 48 culture and lifestyle | Number | Percent |
|--|---------------|----------------|
| Very knowledgeable | 17 | 11% |
| Somewhat knowledgeable | 56 | 36.1% |
| Neutral or no response | 39 | 25.2% |
| Somewhat not knowledgeable | 21 | 13.6% |
| Not at all knowledgeable | 22 | 14.2% |

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

| Involvement with U.S. Mainland / Lower 48 culture and lifestyle | Number | Percent |
|---|--------|---------|
| Very involved | 7 | 4.6% |
| Somewhat involved | 43 | 28.1% |
| Neutral or no response | 49 | 32.0% |
| Somewhat not involved | 20 | 13.1% |
| Not at all involved | 34 | 22.2% |

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

| Feeling towards U.S. Mainland / Lower 48 culture and lifestyle | Number | Percent |
|--|--------|---------|
| Very positive | 9 | 5.8% |
| Somewhat positive | 52 | 33.6% |
| Neutral or no response | 81 | 52.3% |
| Somewhat negative | 5 | 3.2% |
| Very negative | 8 | 5.2% |

Table S.9.16. Number and Percent of Caregiver's Association with U.S. Mainland/Lower 48 Culture and Lifestyle

| How often associate with U.S. Mainland / Lower 48 culture and lifestyle | Number | Percent |
|---|--------|---------|
| Most of the time | 21 | 13.6% |
| Somewhat often | 45 | 29.0% |
| Neutral or no response | 53 | 34.2% |
| Very little of the time | 21 | 13.6% |
| Not at all | 15 | 9.7% |

Community Assessment Results



VII. Community Assessment Results

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

Section 1. Food Resources and Physical Activity Environment

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

- **CX3 Scores for Food outlet**
 - a. Accepts WIC and Food stamps / SNAP/ EBT
 - b. Availability of fresh fruit and quality of fruit
 - c. Availability of fresh vegetable and quality of vegetable
 - d. Other healthful foods
 - e. Unhealthy products
 - f. Nutrition information
 - g. Number of healthy and unhealthy ads present inside and outside the food outlet
 - h. Walkability
- **Fast food**
 - i. Advertisements that promoted price
 - j. Advertisements that included sugar-sweetened beverages
 - k. Number of healthy food options on the menu
 - l. Number healthy beverage options

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

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

Section 2. Assessment of Parks

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

Eligible parks: Local municipal or county park that is open to the public

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

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

Park Setting, Parking, Sidewalks, and Amenities

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

Observations on park setting included whether it was a public park, whether it was adjacent to a school, and whether it shared sports features with a school. In Nanakuli there were 6 parks with this information. Among the 6 parks, all (100%) were a public park, 3 (50%) were adjacent to a school, and 2 (33.3%) shared sports features with an adjacent school.

A total of 5 (83.3%) of parks had on-site parking, while 2 (33.3%) of parks had an on-site parking with overhead lighting, and 0 (0%) had bicycle parking. Five out of the six parks surveyed had information on sidewalks, of which only one (20.0%) park had sidewalks leading up to the entrance of the park and none of the five parks had sidewalks with overhead lighting.

Observation on park amenities included whether it had closing time signage, restrooms, showers, and beverage vending machine. Among the 6 parks with such information, 4 (66.7%) had closing time signage, all 6 (100%) had restrooms, 3 (50.0%) had showers, and 0 (0%) had beverage vending machines.

Table S.2.1. Park Setting (N=6)

| Park Setting | Number | Percent |
|--|---------------|----------------|
| Setting (n=6) | | |
| Public Park | 6 | 100.0% |
| Adjacent to a school | 3 | 50.0% |
| Shares sports features with a school | 2 | 33.3% |
| Parking (n=6) | | |
| Parking on-site available (not including street parking) | 5 | 83.3% |
| Parking has lights | 2 | 33.0% |
| Bicycle parking racks or cages available | 0 | 0.0% |
| Sidewalk (n=5) | | |
| Sidewalks on street lead up to the entrance* | 1 | 20.0% |
| Sidewalks have lighting | 0 | 0.0% |
| Amenities (n=6) | | |
| Park has closing time signage | 4 | 66.7% |
| Restrooms present | 6 | 100.0% |
| Showers present | 3 | 50.0% |
| Beverage vending machines present | 0 | 0.0% |

Park Access and Barriers to Entry

Staff assessed each park for an entrance fee, signage limiting entry and any physical barriers around the perimeter of the park. Among the six parks surveyed in Nanakuli, none had responses on the question of whether there was an entrance fee. Since all 6 parks surveyed are public parks, we can assume there is no entrance fee for each one of them. For the other items, all had information. Among these parks, 3 (50%) had

signage indicating the park name, 4 (67.7%) had signage stating that public use of the park was limited to specific times, none of the parks had signage indicating that the park was private or has restricted access at all times, and none of the parks had a locked fence or other physical barrier around the perimeter.

Table S.2.2. Park Access and Barriers (N=6)

| Access and Barriers | | |
|---|---|-------|
| Signage indicates park name | 3 | 50.0% |
| Signage states public use of area is limited to specific times | 4 | 66.7% |
| Signage states area is private or restricted access at all times | 0 | 0.0% |
| Locked fence or other physical barrier around the perimeter prevents public access | 0 | 0.0% |

Sports Features

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

Feature Descriptions

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

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

Condition of the Feature

Staff rated the condition and the presence of lighting for each feature item. The

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

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

Survey Results for Sports Features

Across the six parks surveyed in Nanakuli, there were a total of 16 features, of which 12 were rated as ok/good, 2 were rated as poor, and 2 were not rated. Among those 14 rated features, 12 (85.7%) were rated as ok/good.

Multiuse fields were the most frequent features (9), followed by basketball courts (6), baseball fields (5), and tennis courts (4). Playgrounds may be of particular interests to families with young children. In Nanakuli there were 2 playgrounds, and one was rated ok/good while the other was rated poor. One park had a playground area with lighting. The following table (Table S.2.3) summarizes the number of each sports feature, the conditions of the feature, and whether lighting was present for the feature across all 6 parks in Nanakuli.

Table S.2.3. Sports Features Across all 6 parks in Nanakuli

| Feature | Total number of the feature | Condition of the Feature | | | Number of features w/ Lighting |
|-------------------|-----------------------------|--------------------------|------|-----------|--------------------------------|
| | | OK/Good | Poor | Not rated | |
| Field multiuse | 9 | 9 | 0 | 0 | 1 |
| Field football | 0 | 0 | 0 | 0 | 0 |
| Field baseball | 5 | 5 | 0 | 0 | 1 |
| Field soccer | 0 | 0 | 0 | 0 | 0 |
| Court basketball | 6 | 5 | 1 | 0 | 2 |
| Court tennis | 4 | 4 | 0 | 0 | 1 |
| Court volleyball | 1 | 1 | 0 | 0 | 1 |
| Court multiuse | 1 | 1 | 0 | 0 | 1 |
| Track | 0 | 0 | 0 | 0 | 0 |
| Pool | 0 | 0 | 0 | 0 | 0 |
| Playground | 2 | 1 | 1 | 0 | 1 |
| Skateboarding | 0 | 0 | 0 | 0 | 0 |
| Exercise Stations | 0 | 0 | 0 | 0 | 0 |
| Rock Climbing | 0 | 0 | 0 | 0 | 0 |

Park Features and Amenities

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

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

Feature or Amenity Descriptions

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

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

Survey Results of Park Features and Amenities

Among the 6 parks in Nanakuli, there were a total of 37 features and amenities, of which 35 were rated as ok/good and 2 were not rated. Among rated features and amenities, all (100%) were rated as ok/good. The most common features and amenities present were green space, drinking fountains, trash bins, and picnic tables. Table S.2.4. summarizes the total number and condition of each individual feature/amenities which was assessed.

Table S.2.4. Park Features and Amenities Across all 6 Parks in Nanakuli

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

Incivilities

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

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

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

Among the six parks in Nanakuli, there was a little bit of incivilities (mean= 0.3; sd=0.2). Across the six parks in Nanakuli, there was no broken glass, no evidence of substance abuse, no sex paraphernalia, no dogs left unattended, and no vandalism. There was, however, on average, a little bit of garbage, graffiti/tagging, evidence of alcohol use, and dog refuse (Table S.2.5).

Table S.2.5. Average Amount of Each Incivility Across 6 Parks in Nanakuli

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

Section 3. Assessment of Schools

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 Nanakuli there were 8 schools with this information. Among the 8 schools, 7 had information on whether the school was adjacent to a park. Out of those 7 schools, 2 (28.6%) were adjacent to a park, and 1 (14.3%) shared sports features with an adjacent park.

All schools had on-site parking, while 4 (50%) of schools had on-site parking with overhead lighting, and 0 (0%) had bicycle parking. Only 4 (50%) of schools had a sidewalk leading up to the entrance of the school, while 2 (25%) 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 8 schools with such information, 1 (12.5%) had closing time signage, all 8 (100%) had restrooms, 1 (12.5%) had showers, and 0 (0%) had beverage vending machines.

Table S.3.1. School Setting (N=8)

| School Setting | Number | Percent |
|---|--------|---------|
| Setting (n=7) | | |
| Adjacent to a park | 2 | 28.6% |
| Shares sports features with a park | 1 | 14.3% |
| Parking (n=8) | | |
| Parking on-site available (not including street parking) | 8 | 100.0% |
| Parking has lights | 4 | 50.0% |
| Bicycle parking racks or cages available | 0 | 0.0% |
| Sidewalk (n=8) | | |
| Sidewalks on street lead up to the entrance | 4 | 50.0% |
| Sidewalks have lighting | 2 | 25.0% |
| Amenities (n=8) | | |
| School has closing time signage | 1 | 12.5% |
| Restrooms present | 8 | 100.0% |
| Showers present | 1 | 12.5% |
| Beverage vending machines present | 0 | 0.0% |

School Access and Barriers to Entry

Staff assessed each school for signage limiting entry and any physical barriers around the perimeter of the school. Among the eight schools surveyed in Nanakuli, 8 (100%) had signage indicating the school name, none had signage stating that public use of the school was limited to specific times (e.g., after school), none of the schools had signage indicating that the school was private or had restricted access at all times (e.g. no trespassing, school use only), and none of the schools had a locked fence or other physical barrier around the perimeter.

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

| Access and Barriers | | |
|---|---|--------|
| Signage indicates school name | 8 | 100.0% |
| Signage states public use of area is limited to specific times | 0 | 0.0% |
| Signage states area is private or restricted access at all times | 0 | 0.0% |
| Locked fence or other physical barrier around the perimeter prevents public access | 0 | 0.0% |

Sports Features

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

Condition of the Feature

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

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

Survey Results for Sports Features

Across the eight schools surveyed in Nanakuli, there were a total of 29 sports features, of which 26 were rated as ok/good, 3 were rated as poor, and 0 were not rated. Among the 29 rated features, 89.7% were rated as ok/good.

Playgrounds were the most frequent features (9), followed by basketball courts (7), baseball fields (3), and volleyball courts (3). Playgrounds may be of particular interest to families with young children. Among the 9 playgrounds In Nanakuli, 8 were rated

ok/good while 1 was rated poor, and one school had a playground area with lighting. The following table (Table S.3.3) summarizes the number of each sports feature, the conditions of the feature, and whether lighting was present for the feature across all 8 schools in Nanakuli.

Table S.3.3. Sports features across all 8 schools in Nanakuli

| Feature | Total number of the feature | Condition of the Feature | | | Number of schools w/ Lighting |
|-------------------|-----------------------------|--------------------------|------|-----------|-------------------------------|
| | | OK/Good | Poor | Not rated | |
| Field multiuse | 1 | 1 | 0 | 0 | 0 |
| Field football | 1 | 1 | 0 | 0 | 1 |
| Field baseball | 3 | 3 | 0 | 0 | 1 |
| Field soccer | 1 | 1 | 0 | 0 | 1 |
| Court basketball | 7 | 6 | 1 | 0 | 2 |
| Court tennis | 1 | 0 | 1 | 0 | 0 |
| Court volleyball | 3 | 3 | 0 | 0 | 2 |
| Court multiuse | 1 | 1 | 0 | 0 | 0 |
| Track | 1 | 1 | 0 | 0 | 1 |
| Pool | 0 | 0 | 0 | 0 | 0 |
| Playground | 9 | 8 | 1 | 0 | 1 |
| Skateboarding | 0 | 0 | 0 | 0 | 0 |
| Exercise Stations | 1 | 1 | 0 | 0 | 1 |
| Rock Climbing | 0 | 0 | 0 | 0 | 0 |

School Features and Amenities

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

or feature. These features are the same as those included in the assessment of parks.

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

Survey Results of School Features and Amenities

Among the 8 schools in Nanakuli, there were a total of 47 features and amenities, of which 45 were rated as ok/good, 2 were rated as poor, and 0 were not rated. Among rated features and amenities, 95.7% were rated as ok/good. The most common features and amenities present were drinking fountains (8), trash bins (8), shelters (7), benches (7), and fences (7). Table S.3.4. summarizes the total number and condition of each individual feature/amenity which was assessed.

Table S.3.4. Features and Amenities Across all 8 Schools in Nanakuli

| Feature | Total Number of the feature | Condition of the Feature | | |
|-------------------------|-----------------------------|--------------------------|------|-----------|
| | | OK/Good | Poor | Not rated |
| Green Space | 6 | 5 | 1 | 0 |
| Beach for swimming | 0 | 0 | 0 | 0 |
| Beach, recreational | 0 | 0 | 0 | 0 |
| Beach with lifeguard | 0 | 0 | 0 | 0 |
| Waterpark | 0 | 0 | 0 | 0 |
| Shelters | 7 | 7 | 0 | 0 |
| Picnic Tables w/ Shade | 3 | 3 | 0 | 0 |
| Picnic Tables w/o Shade | 1 | 1 | 0 | 0 |

| | | | | |
|----------------------------|---|---|---|---|
| Benches | 7 | 7 | 0 | 0 |
| Drinking fountain | 8 | 7 | 1 | 0 |
| Decorative fountain | 0 | 0 | 0 | 0 |
| Trash bins | 8 | 8 | 0 | 0 |
| Grills | 0 | 0 | 0 | 0 |
| Fence | 7 | 7 | 0 | 0 |
| Trails | 0 | 0 | 0 | 0 |

Incivilities

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

Amount of Incivilities

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

Among the eight schools in Nanakuli, there was a little bit of each type of incivility, except for evidence of alcohol use which had none (Table S.3.5).

Table S.3.5. Average Amount of Each Incivility Across 8 Schools in Nanakuli

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

Section 4. Assessment of Physical Activity Facilities

Method: The tool used to assess physical activity (PA) facilities is modified from the Bridging the Gap Program, University of Illinois at Chicago, PA Facility Observation Form (See APPENDIX for form used). The purpose of this survey is to improve our understanding of the availability and quality of physical activity features that are located on PA facility grounds in CHL communities. A complete list of PA facilities that were located within the community boundary, or on the periphery, and their locations was compiled for each community by local staff. Staff then assessed up to ten PA facilities per community or assessed all of them when there were fewer than ten PA facilities in a community. Staff were instructed to spend about 30 minutes walking through each PA

facility grounds to survey its setting, amenities, sports fields (e.g., soccer, football, baseball), courts (e.g., tennis, basketball, volleyball), other features (e.g. track, pool, and playground) and incivilities.

Eligible PA Facilities:

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

For Nanakuli, 4 facilities were listed on the inventory and 4 were assessed.

PA Facility Setting and Fees

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

Observations on PA facility setting included facility type, the presence of indoor and outdoor sports features, childcare and teen services, and types of fees. In Nanakuli all 4 PA facilities that were assessed had this information. Among the 4 PA facilities, all had information on setting. Out of those 4 PA facilities, 2 (50.0%) were a community recreation center, 1 (25.0%) was a Boys and Girls Club, and 1 (25.0%) was other. Among the 4 PA facilities, 1 (25.0%) had only indoor features and 3 (75.0%) had both indoor and outdoor features. Only 2 facilities had information on the availability of child care and neither was found to offer child care. Only 3 facilities had information on the availability of teen services and 2 (66.6%) offered teen services. Only 1 facility had information on fees for entrance and this one facility offered a daily fee, discount for low-income, and a discount for youth. Table S.4.1 summarizes this information.

Table S.4.1. PA Facility Setting (N=4 unless otherwise noted)

| PA Facility Setting | Number | Percent |
|-------------------------------|---------------|----------------|
| Setting | | |
| Community Recreation Center | 2 | 50.0% |
| Boys and Girls Club | 1 | 25.0% |
| Church Community Center | 0 | 0.0% |
| YMCA/YWCA | 0 | 0.0% |
| For-Profit PA Facility | 0 | 0.0% |
| Other | 1 | 25.0% |
| Sport feature location | | |
| Indoor | 1 | 25.0% |
| Outdoor | 0 | 0.0% |
| Both Indoor and Outdoor | 3 | 75.0% |
| Services | | |
| Childcare (n=2) | 0 | 0% |
| Teen activities (n=3) | 2 | 66.7% |
| Fees (n=1) | | |
| Daily Fees | 1 | 100.0% |
| Fee discount for low-income | 1 | 100.0% |
| Fee discount for youth | 1 | 100.0% |

PA Facility Parking, Sidewalks and Amenities

Staff assessed each PA facility for on-site parking, parking overhead lighting, bicycle parking, a sidewalk leading up to the entrance, and sidewalk overhead lighting. Among the four PA facilities surveyed in Nanakuli, 4 (100%) had on-site parking, 4 (100%) had parking overhead lighting, and 2 (50%) had bicycle parking. A total of 3 (75%) had a sidewalk leading up to the entrance. Only one facility had information on whether there was sidewalk overhead lighting and sidewalk overhead lighting was not present.

Observations on PA facility amenities included whether it had restrooms, showers, and beverage vending machines both inside and outside. Among the 4 PA facilities, 2 (50%) had restrooms inside. Only 3 PA facilities had information on showers and beverage vending machines, of which 1 (33.3%) had showers and 0 (0%) had a beverage vending machine present inside. On the outside, 3 (75%) of the facilities had restrooms, 1 (25%) had showers, and 0 (0%) had a beverage vending machine. Table S.4.2 summarizes this information.

Table S.4.2. PA Facility Amenities (N=4 unless otherwise noted)

| | | |
|--|---|--------|
| Access and Barriers | | |
| Parking | | |
| Parking on-site available (not including street parking) | 4 | 100.0% |
| Parking has lights | 4 | 100.0% |
| Bicycle parking racks or cages available (n=2) | 0 | 0.0% |
| Sidewalk | | |
| Sidewalks on street lead up to the entrance | 3 | 75.0% |
| Sidewalks have lighting (n=1) | 0 | 0.0% |
| Amenities | | |
| Restrooms present inside | 2 | 50.0% |
| Showers present inside (n=3) | 1 | 33.3% |
| Beverage vending machines present inside (n=3) | 0 | 0.0% |
| Restrooms present outside | 1 | 25.0% |
| Showers present outside | 1 | 25.0% |
| Beverage vending machines present outside | 0 | 0.0% |
| Restrooms present inside or outside | 3 | 75.0% |
| Showers present inside or outside (n=3) | 2 | 66.7% |
| Beverage vending machines present inside or outside (n=3) | 0 | 0.0% |

Sports Features

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

Condition of the Feature

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

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

surface.

Survey Results for Indoor Sports Features

Across the four PA facilities surveyed in Nanakuli, there were a total of 5 indoor sports features, of which all 5 (100%) were rated as ok/good.

Multipurpose rooms were the most common feature (3), followed by multipurpose court (1), and exercise machine area (1). Among the 3 multipurpose rooms In Nanakuli, all 3 were rated ok/good. The following table (Table S.4.3) summarizes the number of each sports feature and the conditions of the feature across all 4 PA facilities in Nanakuli.

Table S.4.3. Indoor Sports Features Across all 4 PA Facilities in Nanakuli

| Feature | Total number of the feature | Condition of the Feature | | |
|------------------------|-----------------------------|--------------------------|------|-----------|
| | | OK/Good | Poor | Not rated |
| Field soccer | 0 | 0 | 0 | 0 |
| Court basketball | 0 | 0 | 0 | 0 |
| Court tennis | 0 | 0 | 0 | 0 |
| Court volleyball | 0 | 0 | 0 | 0 |
| Court racquetball | 0 | 0 | 0 | 0 |
| Court multiuse | 1 | 1 | 0 | 0 |
| Multipurpose room | 3 | 3 | 0 | 0 |
| Exercise machine area | 1 | 1 | 0 | 0 |
| Gymnastics facilities | 0 | 0 | 0 | 0 |
| Running/ Walking track | 0 | 0 | 0 | 0 |
| Pool >3 feet deep | 0 | 0 | 0 | 0 |

| | | | | |
|----------------------|---|---|---|---|
| Skateboarding | 0 | 0 | 0 | 0 |
| Rock Climbing | 0 | 0 | 0 | 0 |

Survey Results for Outdoor Sports Features

Across the four PA facilities surveyed in Nanakuli, there were a total of 10 outdoor sports features, of which all 9 (90.0%) were rated as ok/good and 1 (10.0%) was rated as poor. None of the facilities had lighting on outdoor features.

The most common features were basketball courts (3) and playgrounds (3), followed by multiuse fields (2). Playgrounds may be of particular interest to parents of young children. Among the 3 playgrounds in Nanakuli, 2 were rated OK/good and 1 was rated poor. The following table (Table S.4.4) summarizes the number of each sports feature and the conditions of the feature across all 4 PA facilities in Nanakuli.

Table S.4.4. Outdoor Sports Features Across all 4 PA Facilities in Nanakuli

| Feature | Total number of the feature | Condition of the Feature | | | Number of facilities w/ Lighting |
|-----------------------|-----------------------------|--------------------------|------|-----------|----------------------------------|
| | | OK/Good | Poor | Not rated | |
| Field multiuse | 2 | 2 | 0 | 0 | 0 |
| Field football | 0 | 0 | 0 | 0 | 0 |
| Field baseball | 0 | 0 | 0 | 0 | 0 |
| Field soccer | 0 | 0 | 0 | 0 | 0 |
| Court basketball | 3 | 3 | 0 | 0 | 0 |
| Court tennis | 0 | 0 | 0 | 0 | 0 |
| Court volleyball | 0 | 0 | 0 | 0 | 0 |
| Court multiuse | 1 | 1 | 0 | 0 | 0 |
| Running/walking track | 1 | 1 | 0 | 0 | 0 |
| Pool <3 feet deep | 0 | 0 | 0 | 0 | 0 |
| Pool wading | 0 | 0 | 0 | 0 | 0 |
| Playground | 3 | 2 | 1 | 0 | 0 |
| Skateboarding | 0 | 0 | 0 | 0 | 0 |
| Exercise Stations | 0 | 0 | 0 | 0 | 0 |
| Rock Climbing | 0 | 0 | 0 | 0 | 0 |

PA Facility Amenities

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

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

Among the 4 PA facilities in Nanakuli, 4 had information on amenities. Among these three facilities there were a total of 10 amenities, of which 9 (90.0%) were rated as ok/good, 1 (10.0%) was rated as poor, and 0 were not rated. The amenities present were benches (4), trash containers (3), indoor drinking fountains (2), and an outdoor drinking fountain (1). Table S.4.5 summarizes the total number and condition of each individual feature/amenity which was assessed.

Table S.4.5. Amenities Across all 4 PA Facilities in Nanakuli

| Feature | Total Number of the feature | Condition of the Feature | | |
|---------------------------|-----------------------------|--------------------------|------|-----------|
| | | OK/Good | Poor | Not rated |
| Drinking fountain indoor | 2 | 2 | 0 | 0 |
| Drinking fountain outdoor | 1 | 1 | 0 | 0 |
| Trash container | 3 | 3 | 0 | 0 |
| Benches | 4 | 3 | 0 | 0 |

Incivilities

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

These incivilities are the same as those included in the assessment of parks. Staff looked for incivilities throughout the PA facility and assigned a score for each of 9 incivility types based upon the amount that was present across the PA facility ground.

The possible ratings were: none (0), a little (1), some (2), and 3 (a lot). For the community, an average rating for each item was used.

Among the four PA facilities in Nanakuli, the mean rating across all the incivility types was 0.16. There was a little bit of garbage, broken glass, graffiti/tagging, and dogs unattended (Table S.4.6). However, there was no evidence of alcohol use, evidence of substance abuse, sex paraphernalia, dog refuse, or vandalism.

Table S.4.6. Average Amount of Each Incivility Across 4 PA Facilities in Nanakuli

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

Section 5. Assessment of Fast Food Outlets

Method: The tool used by CHL to assess fast food outlets (FFO) is modified from the Bridging the Gap Program (BTG), University of Illinois at Chicago. The BTG-COMP Fast Food Observation Form was designed to assess a variety of attributes in the fast food outlet environment, including advertising and marketing, availability of nutritional information and healthy options, availability and pricing of specific food and beverage items, as well as other characteristics of the facility. (See APPENDIX for CHL form used.) The purpose of this data collection is to characterize the away-from-home food environment, with a focus on fast-food outlets and pizzerias, which are often popular destinations for youth.

Eligible Fast Food Outlets:

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

For Nanakuli, 11 outlets were listed on the original inventory, 11 were visited, at which time 5 were determined to be ineligible, and 6 had a complete assessment and were included in this analysis.

Outlet Type and Shared Space

Upon entering the outlet, staff assessed the outlet type according to the main cuisine or type of food/beverages on the menu board and whether it shared space with another business.

The outlet type was selected from a list, or other could be selected. All 6 fast food outlets in Nanakuli had information on the outlet type. Among them, 2 (33.3%) were a Plate Lunch/Lunch Truck outlet, 2 (33.3%) were a Chinese/Pan-Asian outlet, 1 (16.7%) was a Burger and Fries outlet, and 1 (16.7%) was in the other category and described as having multiple cuisine types including Burger and Fries, Mexican/Latin American, Fried Chicken/Fried Fish, Sandwich or Sub Shop, and Plate Lunch/Lunch Truck options.

Each outlet was assessed for whether it had its own building /exterior or whether it shared spaced with a food court, grocery store, gas station, or other restaurant. All 6 fast food outlets in Nanakuli had information on shared space. Among them, none shared space with a food court. A total of 2 (33.3%) shared space with a grocery store. A total of 2 (33.3%) shared space with a gas station. Lastly, 1 (16.7%) shared space with another restaurant. Table S.5.1 summarizes this information.

Table S.5.1. Outlet Type and Shared Space (N=6)

| Outlet Setting | Number | Percent |
|---------------------------------|---------------|----------------|
| Outlet Type | | |
| Burger and Fries | 1 | 16.7% |
| Mexican/Latin American | 0 | 0.0% |
| Fried Chicken/Fried Fish | 0 | 0.0% |
| Sandwich or Sub Shop | 0 | 0.0% |
| Sandwich/Pastry | 0 | 0.0% |
| Pizzeria/Italian | 0 | 0.0% |
| Plate Lunch/Lunch Truck | 2 | 33.3% |
| Chinese/Pan-Asian | 2 | 33.3% |
| Other, SPECIFY: | 1 | 16.7% |
| Shared Space | | |
| Food Court | 0 | 0.0% |
| Grocery Store | 2 | 33.3% |
| Gas Station | 2 | 33.3% |
| Other Restaurant | 1 | 16.7% |

Outlet Parking, Sidewalks, and Exterior Amenities

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

Among the 6 fast food outlets surveyed in Nanakuli, 6 (100%) had on-site parking, none had bicycle parking, and 4 (66.7%) had parking overhead lighting. A total of 3 (50%) had a sidewalk leading up to the entrance and 3 (50%) had sidewalk lighting.

Observations on outlet amenities included whether it had outdoor seating, bars on the windows, an exterior play area, an indoor play area visible from the outside, and a drive-thru window. Among the 6 fast food outlets in Nanakuli, 1 (16.7%) had outdoor seating, 2 (33.3%) had bars on the windows, none had an exterior play area, none had an indoor play area that was visible from the outside, and 1 (16.7%) had a drive-thru window. This information is summarized in Table S.5.2.

Table S.5.2. Parking, Sidewalks, and Exterior Amenities (N=6 unless otherwise noted)

| Exterior Feature | Number | Percent |
|---|---------------|----------------|
| Parking | | |
| Parking on-site available (not including street parking) | 6 | 100.0% |
| Parking has lights | 4 | 66.7% |
| Bicycle parking racks or cages available (n=2) | 0 | 0.0% |
| Sidewalk | | |
| Sidewalks on street lead up to the entrance | 3 | 50.0% |
| Sidewalks have lighting | 3 | 50.0% |
| Outdoor seating | 1 | 16.7% |
| Bars on windows | 2 | 33.3% |
| Exterior play area | 0 | 0.0% |
| Indoor play area visible from outside | 0 | 0.0% |
| Drive thru window | 1 | 16.7% |

Staff also assessed the number of external walls visible from the street and the level of graffiti and garbage that was present. Among the 6 fast food restaurants in Nanakuli, 4 outlets had information about the number of walls visible from the street. Among these, 2 (50%) had one visible wall, 1 (20%) had two visible walls, and 1 (20%) had three

visible walls. None of the outlets had all four walls visible. This question was intended to give a sense of the size/layout of the restaurant property and the number of sides on which advertisements can be placed.

Staff rated each fast food outlet as having none, a little, some, or a lot of graffiti and garbage. All 6 fast food outlets in Nanakuli had information on the level of graffiti and garbage that was present. Among them, 4 (66.7%) had no graffiti present and 2 (33.3%) had some graffiti. Furthermore, 4 (66.7%) had a little garbage, 1 (16.7%) had a lot, and 1 (16.7%) had none. This information is summarized in Table S.5.3.

Table S.5.3. Exterior (N=6 unless otherwise noted)

| Exterior Feature | Number | Percent |
|--|--------|---------|
| Walls visible from street (n=4) | | |
| 0 | 0 | 0% |
| 1 | 2 | 50.0% |
| 2 | 1 | 20.0% |
| 3 | 1 | 20.0% |
| 4 | 0 | 0.0% |
| Graffiti | | |
| None | 4 | 66.7% |
| A little | 0 | 0.0% |
| Some | 2 | 33.3% |
| A lot | 0 | 0.0% |
| Garbage | | |
| None | 1 | 16.7% |
| A little | 4 | 66.7% |
| Some | 0 | 0.0% |
| A lot | 1 | 16.7% |

Exterior Marketing

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

Ads on the Building Exterior or Property

The number of advertisements at least 8½ x 11 inches in size that were posted on the

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

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

Among the 6 fast food outlets in Nanakuli, 5 were assessed for ads on the building exterior. Among these 5 outlets, there were a total of 52 ads, 3 ads for price promotion, 41 food ads, 14 beverage ads, and 2 soda ads. The mean and standard deviation (sd) for the number of ads on the building exterior of fast food outlets in Nanakuli is 10.4 (sd=13, min=2, max=33). The mean number of ads for a price promotion was 0.6

(sd=0.9, min=0, max=2). The mean number of ads for food was 8.2 (sd=14.0, min=0, max=33). The mean number of ads for beverages was 2.8 (sd=4.1, min=0, max=10). Among the 6 fast food outlets in Nanakuli, none of the outlets had ads on the property. Table S.5.4 summarizes this information. The presence of specific types of ads at each outlet is presented in table S.5.5. The type of ad most commonly observed at FFOs in Nanakuli was a food ad (n=4, 80%), followed by a beverage ad (n=3, 60%), price promo ad (n=2, 40%), and a soda ad (n=1, 20%).

None of the fast food outlets in Nanakuli were assessed for ads on the property.

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

| Location | # surveyed | Type of Ad | | | | |
|----------|------------|------------|-------------|---------|-------------|---------|
| | | Total | Price Promo | Food Ad | Beverage Ad | Soda Ad |
| Exterior | 5 | 52 | 3 | 41 | 14 | 2 |
| Property | 0 | - | - | - | - | - |

Other Ads on the Exterior

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

All 6 fast food restaurants in Nanakuli had this information. Among them, only 1 (16.7%) had a dollar menu ad, 1 (16.7%) had a cartoon ad, 1 (16.7%) had a celebrity ad, 1 (16.7%) had a kids' meal toy ad, and none had health ads or other child-directed marketing. Table S.5.5 summarizes this information.

Table S.5.5. Presence of Ads by Type (N=6 unless otherwise noted)

| Type of Ad | Number | Percent |
|--|--------|---------|
| External (n=5) | | |
| Price Promo | 2 | 40.0% |
| Food Ad | 4 | 80.0% |
| Beverage Ad | 3 | 60.0% |
| Soda Ad | 1 | 20.0% |
| Property (n=0) | | |
| Price Promo | - | - |
| Food Ad | - | - |
| Beverage Ad | - | - |
| Soda Ad | - | - |
| Dollar menu | 1 | 16.7% |
| Health claim | 0 | 0.0% |
| Cartoon character(s) | 1 | 16.7% |
| TV/ movie star/sports star/youth celebrity | 1 | 16.7% |
| Kids' meal toy | 1 | 16.7% |
| Other child-targeted marketing | 0 | 0.0% |

Counter Service and Restaurant Interior

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

None of the fast food outlets in Nanakuli were a drive-in only restaurant, and so they were all assessed for restaurant interior characteristics. Only 4 outlets had information about whether food was ordered at the counter, and among these, food was ordered at the counter in 3 (75%) of the outlets. All 6 (100%) of outlets had food pick up and payment at the counter. Staff counted the number of cash registers inside of the restaurant and found that 5 (83.3%) of the outlets had one register and 1 (16.7%) of the outlets had three registers. None of the outlets had a glass or Plexiglas divider between customers and a cash register in the restaurant interior.

Regarding other interior characteristics, 5 (83.3%) of the fast food outlets had indoor seating, 1 (16.7%) had bathrooms available to customers, 1 (16.7%) had a toy display and this was recorded at being less than 3 and a half feet or less from the ground (at eye level of children). Regarding specific food and beverage items, 2 (33.3%) outlets had sweets—such as cookies and candy—near the cash register, none had self-serve fountain drinks, 1 (16.7%) had free water, and none had self-serve salads.

Table S.5.6. Counter Service and Restaurant Interior (N=6 unless otherwise noted)

| Restaurant Feature | Number | Percent |
|--|---------------|----------------|
| Drive-in only | 0 | 0.0% |
| Counter Service | | |
| Ordering food (n=4) | 3 | 75.0% |
| Picking up food | 6 | 100.0% |
| Paying for food | 6 | 100.0% |
| Interior Register Count | | |
| 1 register | 5 | 83.3% |
| 2 registers | 0 | 0.0% |
| 3 registers | 1 | 16.7% |
| Divider between customer and cash register | 0 | 0.0% |
| Indoor Seats | 5 | 83.3% |
| Restrooms | 1 | 16.7% |
| Indoor displays for kids' meal toys | | |
| Any ad or display | 1 | 16.7% |
| Toy display 3½ feet or less from the ground | 1 | 16.7% |
| Sweet snacks near counter | 2 | 33.3% |
| Self-serve fountain drinks | 0 | 0.0% |

| | | |
|-------------------------|---|-------|
| Free water | 1 | 16.7% |
| Self-serve salad | 0 | 0.0% |

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

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

Among the 6 fast food outlets in Nanakuli, 1 (16.7%) had a dollar menu, with fruit, dessert, a drink, fries, and entrée each on the dollar menu. Only 1 outlet had information on the availability of a combo meal, a salad, and low-fat dressing, and this outlet offered all three.

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

Three outlets in Nanakuli were assessed for vegetables and fruit. Across the menus of these 3 outlets, there were a total of 5 vegetables, 1 fresh fruit, and zero other fruit options. Across these 3 outlets, 2 (66.7%) had 1-2 vegetables items, 1 (33.3%) had 2-4 vegetable items, 2 (66.7%) had zero fruit items, 1 (33.3%) had 1-2 fruit items, and all 3 (100%) had no other fruit items.

Staff looked for signage indicating food as low calorie, low fat, low sodium, or healthy. Among the 6 fast food outlets in Nanakuli, 1 (16.7%) had signage for low fat and 1 (16.7%) had signage for low sodium food. None of the outlets had signage for low calorie or healthy food items. None of these fast food outlets had liquor on the menu. This information is summarized in Table S.5.7.

Table S.5.7. General Menu Items (N=6 unless otherwise noted)

| Menu Feature | Number | Percent |
|-------------------------------------|---------------|----------------|
| Dollar Menu | 1 | 16.7% |
| Fruit on Dollar Menu | 1 | 16.7% |
| Dessert on Dollar Menu | 1 | 16.7% |
| Drink on Dollar Menu | 1 | 16.7% |
| Fries on Dollar Menu | 1 | 16.7% |
| Entrée on Dollar Menu | 1 | 16.7% |
| Combo meal (n=1) | 1 | 100.0% |
| Salad as an entrée (n=1) | 1 | 100.0% |
| Low-fat salad dressing (n=1) | 1 | 100.0% |
| Vegetable Items Count | | |
| none | 0 | 0.0% |
| 1-2 | 2 | 66.7% |
| 2-4 | 1 | 33.3% |

| | | |
|----------------------------|---|-------|
| 5 or more | 0 | 0.0% |
| Fruit Items Count | | |
| none | 2 | 66.7% |
| 1-2 | 1 | 33.3% |
| 2-4 | 0 | 0.0% |
| 5 or more | 0 | 0.0% |
| Signage on the menu | | |
| Low calorie | 0 | 0.0% |
| Low fat | 1 | 16.7% |
| Low sodium | 1 | 16.7% |
| Healthy | 0 | 0.0% |
| Liquor | 0 | 0.0% |

Beverage Item Assessment

Staff assessed the posted menu board for the availability and price of specific beverage items—such as soda, juice, milk, water, coffee, and shakes—commonly found in fast food establishments. A total of 5 fast food outlets in Nanakuli had information on beverage items, except for the assessment of flavored milk, which was only collected in 4 outlets. The most commonly available drinks were packaged soda (n=4, 80%) and bottled water (n=4, 80%). This information is presented in Table S.5.8.

Table S.5.8. Beverage Items (N=5 unless otherwise noted)

| Beverage | Number | Percent |
|--|---------------|----------------|
| Fountain drink (n=5) | 3 | 60.0% |
| Packaged soda | 4 | 80.0% |
| 100% Juice | 1 | 20.0% |
| Milk, skim or 1% fat (unflavored) | 0 | 0.0% |
| Milk, whole/Vit D or 2% fat (unflavored) | 1 | 20.0% |
| Bottled Water | 4 | 80.0% |
| Flavored Coffee Drinks (hot or iced) | 3 | 60.0% |
| Shakes or Malts | 1 | 20.0% |
| Flavored Milk (e.g., chocolate, strawberry) (n=4) | 0 | 0.0% |

Food Item Assessment

Staff assessed the posted menu board for the availability and price for specific food items commonly found in fast food establishments and pizzerias. Among the 6 fast food outlets in Nanakuli, the most commonly available food item from the list of specific foods was French fries (n=2, 33.3%) followed by cheeseburger, chicken sandwich, entrée salad, and fried chicken which were each available in 1 (16.7%) of the outlets in Nanakuli. This information is presented in Table S.5.9.

Table S.5.9. Food Items (N=6 unless otherwise noted)

| Food | Number | Percent |
|--|---------------|----------------|
| French fries | 2 | 33.3% |
| Cheeseburger | 1 | 16.7% |
| Chicken Sandwich, with roasted or grilled chicken | 1 | 16.7% |
| Entrée salad, with roasted or grilled chicken | 1 | 16.7% |
| Fried chicken – legs, drumstick, and thigh | 1 | 16.7% |
| Cheese pizza, thin crust | 0 | 0.0% |
| Taco with ground beef | 0 | 0.0% |
| Sub sandwich, with turkey and cheese | 0 | 0.0% |

Children’s Menu Assessment

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

Among the 6 fast food outlets in Nanakuli, 1 (16.7%) had a kids’ menu or meal available. Furthermore this outlet had an unflavored skim/1% milk, 100% juice, or bottled water option on the board and when asked. This outlet had a fruit, vegetable (only non-fried vegetables w/o added fat), salad or yogurt option on the board and when asked. This outlet offered a free toy with the kids’ meal and a toy for an additional charge. This information is summarized in Table S.5.10.

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

| Menu Feature | Number | Percent |
|---|---------------|----------------|
| Kids' menu or meal | 1 | 16.7% |
| Unflavored skim/1% milk, 100% juice, or bottled water (listed or shown on board) | 1 | 16.7% |
| Unflavored skim/1% milk, 100% juice, or bottled water (available when asked) | 1 | 16.7% |
| Fruit, vegetable (only non-fried vegetables w/o added fat), salad or yogurt (listed or shown on board) | 1 | 16.7% |
| Fruit, vegetable (only non-fried vegetables w/o added fat), salad or yogurt (available when asked) | 1 | 16.7% |
| Free toy with kids' meal | 1 | 16.7% |
| Toy for additional charge | 1 | 16.7% |

Section 6. Food Availability and Marketing Form

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

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

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

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

store has fewer than 20 employees and 3 or less cash registers.)

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

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

The following table is a breakdown of the store types surveyed in Nanakuli. Among the 8 stores assessed, the most common store types in Nanakuli were small market (3) and convenience stores (3).

Table S.6.1. Type of Store

| Type of Store | Number | Percent |
|----------------------------|--------|---------|
| Supermarket chain | 1 | 12.5% |
| Large grocery store | 1 | 12.5% |
| Small market | 3 | 37.5% |
| Convenience | 3 | 37.5% |
| Other | 0 | 0% |

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

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

eligible, low-income individuals and families.

Stores were also assessed on whether or not they display signage saying “We Accept WIC” and “We Accept Food Stamps/EBT” (electronic benefit transfer). Among the 8 stores surveyed, 7 stores had information on participating in WIC or Food Stamps/EBT. Among those 7 stores, 7 (100%) accept WIC and 7 (100%) accept Food Stamps/EBT. Among the 7 stores with information on signage, 4 (57.2%) display signage for WIC being accepted and 4 (57.2%) display signage for Food Stamps/EBT being accepted.

Table S.6.2. Benefits

| Federal Benefits | Number | Percent |
|---|--------|---------|
| Accepts WIC | 7 | 100.0% |
| Accepts Food Stamps or a SNAP vendor | 7 | 100.0% |
| “We Accept WIC” signage displayed | 4 | 57.2% |
| “We Accept Food Stamps/EBT” signage displayed | 4 | 57.2% |

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 8 stores with this data in Nanakuli, 3 (37.5%) had a wide variety of fruit and 3 (37.5%) had a wide variety of vegetables.

Table S.6.3. Variety of Fruits and Vegetables

| Variety | Number | Percent |
|------------------|--------|---------|
| Fruits | | |
| None | 2 | 25% |
| Limited | 2 | 25% |
| Moderate variety | 1 | 12.5% |
| Wide variety | 3 | 37.5% |

| Vegetables | | |
|-------------------------|---|-------|
| None | 2 | 25% |
| Limited | 2 | 25% |
| Moderate variety | 1 | 12.5% |
| Wide variety | 3 | 37.5% |

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

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

The quality was rated as:

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

Of the 8 stores in Nanakuli assessed for quality, 4 (50%) had good quality for fruit and 4 (50%) had good quality for vegetables.

Table S.6.4. Quality of Fruit and Vegetables

| Quality | Number | Percent |
|------------------|--------|---------|
| Fruit | | |
| None | 2 | 25% |
| Poor | 0 | 0 |
| Mixed Poor | 1 | 12.5% |
| Mixed Good | 1 | 12.5% |
| Good | 4 | 50% |
| Vegetable | | |
| None | 2 | 25% |
| Poor | 0 | 0 |
| Mixed Poor | 0 | 0 |
| Mixed Good | 2 | 25% |
| Good | 4 | 50% |

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 6 stores in Nanakuli had data on the availability of these produce. The most commonly available fruits were apples and oranges which were each in 3 (50%) of stores. Bananas were in 2 (33.3%) of stores. Among vegetables carrots, tomato, and cabbage were each in 2 (33.3%) of stores, while broccoli was in only 1 (33.3%) of stores.

Table S.6.5. Availability of Selected Fruits and Vegetables

| Availability | Number | Percent |
|---------------------------|--------|---------|
| Selected fruit | | |
| Apple | 3 | 50% |
| Banana | 2 | 33.3% |
| Orange | 3 | 50% |
| Selected vegetable | | |
| Carrot | 2 | 33.3% |
| Tomato | 2 | 33.3% |
| Broccoli | 1 | 16.7% |
| Cabbage | 2 | 33.3% |

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

Stores were specifically assessed for a variety of items considered to be low/reduced fat dairy or soy drinks, lean meat protein, non-meat protein, whole-grain, canned/frozen fruit or vegetables, and baby food. Of the 8 stores assessed in Nanakuli 6 (75%) had at least one low/reduced fat dairy or soy beverage, 8 (100%) had at least one lean meat protein, 7 (87.5%) had at least one non-meat protein, 5 (62.5%) had at least one whole-grain item, 7 (87.5%) had at least one canned/ frozen fruit or vegetable, and 5 (62.5%) had at least one baby food.

Table S.6.6. Availability of Other Healthy Foods in Stores

| Other Healthy Foods | Number | Percent |
|---|--------|---------|
| Low/reduced fat dairy or soy beverage | 6 | 75% |
| 1% milk | 5 | 62.5% |
| 2% milk | 6 | 75% |
| Skim milk | 4 | 50% |
| Mozzarella | 5 | 62.5% |
| Flavored soy beverage | 3 | 37.5% |
| Plain soy beverage | 2 | 25% |
| Lean meat protein | 8 | 100% |
| Ground beef or turkey, lean (85% or higher) | 2 | 25% |
| Whole chicken | 2 | 25% |
| Tuna (light) canned in water | 8 | 25% |
| Salmon canned in water | 4 | 50% |
| Sardines canned in water, tomato, or mustard | 4 | 50% |
| Non-meat protein | 7 | 87.5% |
| Tofu, plain | 3 | 37.5% |
| Beans, dried | 4 | 50% |
| Beans, canned with no added fats, sugar or sweetener | 6 | 75% |
| Whole grain | 5 | 62.5% |

| Other Healthy Foods | Number | Percent |
|--|--------|---------|
| Whole grain bread | 5 | 62.5% |
| Brown rice | 3 | 37.5% |
| High fiber cereal (≥ 3 grams fiber, ≤ 12 grams sugar per serving) | 4 | 50% |
| Oatmeal (plain) | 3 | 37.5% |
| Tortillas, soft corn or whole wheat (no lard) | 2 | 25% |
| Canned/ frozen fruit or vegetables | 7 | 87.5% |
| Any canned fruit packed in 100% fruit juice | 6 | 75% |
| Any canned vegetable with no added fats, sugar, or sweetener | 6 | 75% |
| Any frozen fruit with no added fats, sugar, or sweetener | 3 | 37.5% |
| Any frozen vegetable with no added fats, sugar, or sweetener | 4 | 50% |
| Baby food | 5 | 62.5% |
| Baby food, jarred, single fruit | 5 | 62.5% |
| Baby food, jarred, single vegetable | 4 | 50% |
| Baby food, jarred, single meat | 2 | 25% |

Store Interior Advertisements or Promotions

Stores were assessed for specific ads or promotion themes in the interior of the store. First, staff looked to see if there were health promotion items around the fruit and vegetables display. Of the 8 stores with this data, only 1(12.5%) had a health promotion item. Staff then categorized each health promotion item into one of the following themes:

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

In Nanakuli, there was 1 health promotion item, “Other: Eat Fresh, Eat Local”. Stores were also assessed for ads promoting locally grown produce. Of the 8 stores with this data, 4 (50%) promoted locally grown produce.

Table S.6.7. Advertisements Inside the Store

| Interior Advertisements | n | Percent |
|--|--------------------------|----------------|
| Health promotion around the fruit and vegetable display | 1 | 12.5% |
| 5 A Day signs | 0 | 0% |
| Nutrition information | 0 | 0% |
| Fruit and Veggies: More matters | 0 | 0% |
| Children’s Healthy Living (CHL) or CHL partnership | 0 | 0% |
| Other | 1 (Eat Local, Eat Fresh) | 12.5% |
| Promotion of locally grown produce | 4 | 50% |

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

The healthy products surveyed include the following:

- Granola bars (whole grain, ≥ 2 g fiber, ≤ 1 g saturated fat, ≤ 14 g sugar per serving)
- Bagged Nuts/seeds (does not include honey roasted or w/ added sugar) (next to or below counter/check-out)
- Fresh fruit (next to or below counter/check-out)
- Bottled water (next to or below counter/check-out)

- Other: specify (such as dried fruit, trail mix, 100% juice, etc.)

The unhealthy products surveyed include the following:

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

Among the 8 stores surveyed all had information on the marketing near the main check-out area. Looking at ads for healthy food products, 7 stores had 0 ads and 1 store had ads for 1-2 items. Looking at ads unhealthy food products, 3 stores had 0 ads, 4 stores had ads for 1-2 items, and 1 store had ads for 3-4 items. More stores had at least one ad for unhealthy food products compared to healthy food products near the main check-out area (5 versus 1).

Looking at the presence of healthy food products near the main check-out area, 3 stores had 0 items, 4 stores had 1-2 items, and 1 store had 3-5 items. Looking at the presence of unhealthy food products near the main check-out area, 5 stores had 0 items, 3 stores had 1-2 items, and 0 stores had 3-5 items. More stores had at least one healthy food product compared to unhealthy food product near the main check-out area (5 versus 3).

Table S.6.8. Store Check-out Area Marketing

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

Store Exterior Advertisements on Healthy and Unhealthy Foods

Stores were assessed for ads promoting healthy or unhealthy foods on the exterior of the store. **Unhealthy products** are high calorie, low nutrient foods and beverages that include alcoholic beverages, soft drinks and other sweetened beverages including diet drinks, sweet desserts and highly sugared cereals, chips and other salty snacks, most solid fats, fried foods, and other foods with high amounts of sugar, fat and/or sodium.

Healthy products include minimal or no added fat, sugars, or sweeteners. Examples include fresh or dried fruits and vegetables, whole grain snacks (≥ 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 7 stores that had data on the presence of exterior ads for healthy foods, 0 (0%) had ads on healthy foods. Among the 8 stores that had data on the presence of exterior ads for unhealthy foods, 4 (50%) had ads for unhealthy foods.

Store Exterior Conditions

Stores were assessed for specific exterior conditions for food promotion. Among the 8 stores surveyed, none had produce bins on the sidewalk in front of the store. No stores had other products (e.g., soda, water) displayed on the sidewalk in front of the store or inside the store next to the window so they are clearly visible from the outside. There was no vending machine on the sidewalk in front of any of the 8 stores surveyed. There were no ads on the roof, walls, or anywhere on the store property of any of the 8 stores surveyed. One store (12.5%) had images of both healthy and unhealthy foods and/or beverages painted on doors or windows of the storefront. None of the stores had painted murals of healthy food and/or beverages on the building walls of the store.

Table S.6.9. Store Exterior

| Exterior Conditions | Number | Percent |
|---|---------------|----------------|
| Produce bins on the sidewalk in front of the store | 0 | 0% |
| Products displayed on the sidewalk in front for the store or inside the store next to the window | 0 | 0% |
| Vending machines on the sidewalk in front of the store | 0 | 0% |
| Advertising (banners, posters, temporary signs, etc.) on the roof, walls or elsewhere on the property | 0 | 0% |
| Images of healthy food (e.g. tomato, apple) and/or beverages (e.g. milk) painted on doors or windows of the storefront | 1 | 12.5% |
| Images of unhealthy food (e.g. hamburger, hot dog) and/or beverages (e.g. soda, shake) painted on doors or windows of the storefront | 1 | 12.5% |
| Painted murals of healthy foods and/or beverages anywhere on the building walls | 0 | 0% |

Perceptions of Safety at Store

Store were assessed for perceptions of safety including whether there were bars or chains on the exterior, whether advertisements covered no more than 1/3 of the window area and the cash register could be seen from the outside for stores that sold alcoholic beverages (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 8 stores with this information, 6 (75%) had bars. A majority of stores 7 (87.5%) complied with Lee Law. Only 3 (37.5%) of stores were rated that people feel safe during the walk around or outside of the store. And only 1 store (12.5%) met standards for being located in a safe, walkable environment.

Table S.6.10. Perceived Safety of Store

| Safety | Number | Percent |
|--|---------------|----------------|
| Store has bars or chains on windows or doors | 6 | 75% |
| Store sells alcohol and no more than 1/3 of window area is covered with ads (Lee Law) | 7 | 87.5% |
| People feel safe during the walk around or outside of the store | 3 | 37.5% |
| Store meets standards for being located in a safe, walkable environment | 1 | 12.5% |

Overall Summary of Store Assessments

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

WIC and Food Stamps/SNAP benefits:

- All stores accepted WIC and Food Stamp/SNAP benefits; however signage on the store exterior for accepting these benefits can be improved for the 3 stores which lacked signage.

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

- Of the 8 stores in Nanakuli, only 3 (37.5%) had a wide variety of fruit and only 3 (37.5%) had a wider variety of vegetables. There were 2 stores that did not sell any fruit and 2 stores that did not sell any vegetables.
- For the six stores store that had fruits and vegetables, 2 stores can improve their quality of fruit and 2 stores can improve their quality for vegetables.
- For the six stores store that had fruits and vegetables, stores can improve the availability of common fruits and vegetables.
- Among the 8 stores assessed for Other Healthy Foods, 2 (25%) lacked at least one low/reduced fat dairy or soy beverage, 1 (12.5%) lacked at least one non-meat protein, 3 (37.5%) lacked at least one whole-grain item, 1 (12.5%) lacked at

least one canned/ frozen fruit or vegetable, and 3 (37.5%) lacked at least one baby food.

Ads, Promotions, and Marketing

- Among the 8 stores in Nanakuli, only 1 store had health promotion items around the fruit and vegetables display. However, 4 of them had promotion of locally grown produce.
- Stores in Nanakuli are more likely to have ads for unhealthy food products than healthy food products near the main check out area (7 stores versus 1 store). However, more stores had at least one healthy food product compared to unhealthy food product near the main check-out area (5 versus 3).
- On the store exterior 4 stores had ads for unhealthy foods, while 0 had ads for healthy foods.
- Looking at the store exterior conditions, 0 had produce bins on the sidewalk in front of the store. Only 1 store had images of healthy food and/or beverages painted on doors or windows of the storefront. None of the stores had painted murals of healthy foods and/or beverages anywhere on the building walls.

Perceptions on Safety around the Store

- Of the 8 stores in Nanakuli, 6 had bars or chains on the windows, only 3 stores were rated as people feeling safe around or outside of the store, and only 1 store was in a location deemed to be a safe, walkable environment.
- A majority of stores met the standards of California's Lee Law to limit the amount of space taken by advertisements for alcohol on the store exterior.

Section 7. Walkability Survey

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

needs to be safe and easy.

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

| Rating Scale for Each Walking Feature | Total Walkability Score | Community Walkability |
|---------------------------------------|-------------------------|--|
| 1=awful | 26-30 | Celebrate! You have a great neighbourhood for walking. |
| 2=many problems | 21-25 | Celebrate a little. Your neighbourhood is pretty good. |
| 3=some problems | 16-20 | Okay, but it needs work. |
| 4=good | 11-15 | It needs lots of work. |
| 5=very good | 5-10 | It's a disaster for walking! |
| 6=excellent | | |

The rating scores for Nanakuli are summarized in the table below. For the total score, the number of neighborhoods audited (n) is 2. This is followed by the mean total score (13.5), standard deviation (0.7), median (13.5), minimum (13.0), and maximum (14). According to the mean total score, the walking environment surveyed in Nanakuli needs a lot of work to encourage community walkability.

Table S.7.1. Community Walking Features

| Walking Features | n | mean | sd | med | min | max |
|---------------------------------------|---|------|-----|------|------|-----|
| Total Walking rating | 2 | 13.5 | 0.7 | 13.5 | 13.0 | 14 |
| Room to walk | 2 | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 |
| Ease of crossing street (s) | 2 | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 |
| Ease of following safety rules | 2 | 3.0 | 1.4 | 3.0 | 2.0 | 4.0 |
| Drivers' behavior | 2 | 3.0 | 0 | 3.0 | 3.0 | 3.0 |
| Pleasantness of walk | 2 | 2.5 | 0.7 | 2.5 | 2.0 | 3 |

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

Food Cost Survey (FCS)

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

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. Included in the report is the percent of each category towards the Thrifty Food Plan cost. The TFP is also used as the basis for determining food assistance levels provided in programs such as school lunch.

If a particular item was missing in a local area/ jurisdiction, we used the cost of a similar

item as a substitute for the item that was on the national menu. However, in some cases, items were unavailable and no obvious substitutes were available.

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

It is important to note that the 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 Nanakuli, and its effect on community food costs.

Results for Nanakuli

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

In Nanakuli, the following three foods had no price information: Pork, ground; banana, and catsup. The weekly food cost for the Thrifty Food Plan menu for a family of four in Nanakuli was \$200.20. 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. Nanakuli's costs for the same or comparable food items of the Thrifty Food Plan are 140.6% of their cost in Portland, Ore.

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

| Age, Groups | Weekly | Monthly |
|--|----------|----------|
| INDIVIDUALS | | |
| Child, 6-8 years | \$41.96 | \$181.81 |
| Child, 9-11 years | \$49.79 | \$215.74 |
| Male, 20-50 years | \$56.68 | \$245.62 |
| Female, 20-50 years | \$51.77 | \$224.35 |
| FAMILY | | |
| Family of 2, 20-50 years | \$119.33 | \$517.08 |
| Family of 4 , Couple, 20-50 years and children, 6-8 and 9-11 years | \$200.20 | \$867.53 |

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

- **Thrifty Food Plan, Weekly Food Costs: By Food Category**

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

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

| Food Group | Cost | Percent |
|----------------------|---------|---------|
| Grain | \$32.35 | 16.2% |
| Meat | \$59.49 | 29.7% |
| Fruit | \$43.78 | 21.9% |
| Diary | \$13.40 | 6.7% |
| Vegetable | \$25.23 | 12.6% |
| Sweets and Beverages | \$6.51 | 3.3% |
| Spice | \$7.94 | 4.0% |
| Legume | \$3.54 | 1.8% |
| Egg | \$4.77 | 2.4% |
| Fats and Oils | \$3.19 | 1.6% |

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

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

Table 3. Top 10 Most Costly Food Items in Nanakuli

| Food | Food Group | Price | Percent |
|---|------------|-----------------|--------------|
| Fish, flounder, cod, tilapia or similar, frozen | Meat | \$21.69 | 10.1% |
| Orange juice, frozen concentrate | Fruit | \$21.14 | 10.6% |
| Beef, ground, lean (16 to 23% fat) | Meat | \$15.11 | 7.5% |
| Potatoes, any variety | Vegetable | \$8.81 | 4.4% |
| Milk, 1% milk fat | Dairy | \$7.28 | 3.6% |
| Bagels, plain, enriched | Grain | \$7.16 | 3.6% |
| Oranges, any variety (bagged or loose) | Fruit | \$5.58 | 2.9% |
| Grapes (green or red) | Fruit | \$5.17 | 2.6% |
| Eggs, grade A, large | Egg | \$4.77 | 2.4% |
| Bread, white, enriched | Grain | \$4.72 | 2.4% |
| Total | | \$101.43 | 50.1% |

Summary

The CHL food cost survey found the cost of food for a family of four, using the TFP, to be \$258.94 per week which is 81.9% 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 Nanakuli was 8% lower.

Summary of Prevalence Study



VIII. Conclusion / Summary of Prevalence Study

The purpose of this report is to inform the community of the CHL research that was conducted in Nanakuli 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 policies that increase the health and well-being of young children in Nanakuli.

By decreasing the amount of unhealthy food available at store checkouts; increasing pedestrian access to beach parks; ensuring sidewalks leading to entrance of schools; increasing healthy menu items; and improving pedestrian safety, could all serve to better the health and well-being of young children in the community.

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

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.

References / sources of instruments

1. Braun K, Nigg C, Fialkowski MK, Butel J, Hollyer J, Barber LR, Teo-Martin U, Flemming T, Vargo A, Coleman P, Bersamin A, Novotny R. Using the ANGELO Framework to Develop the Children's Healthy Living Program Multilevel Intervention to Promote Obesity Preventing Behaviors for Young Children in the US Affiliated Pacific Region. *Child Obes.* 2014; 10(6): 474 – 281.
2. Buckworth, J., & Nigg, C. (2004). Physical activity, exercise, and sedentary behavior in college students. *Journal of American College Health*, 53, 28-34.
3. Burke, J. P., Hale, D. E., Hazuda, H. P., & Stern, M. P. (1999). A quantitative scale of acanthosis nigricans. *Diabetes care*, 22(10), 1655-1659.
4. Center for Alaska Native Health Research. Demographic and Medical Screening Questionnaire.
5. Centers for Disease Control and Prevention. (2000). About *BMI for Children and Teens*. Retrieved from:
http://www.cdc.gov/healthyweight/assessing/bmi/childrens_BMI/about_childrens_BMI.html.
6. Centers for Disease Control and Prevention. (2011). 2011 Middle School Youth Risk Behavior Survey. Retrieved from
cdc.gov/healthyyouth/yrbs/pdf/questionnaire/2011_ms_questionnaire.pdf
7. Centers for Disease Control and Prevention. (2011). Behavioral Risk Factor Surveillance System (BRFSS) 2011 survey questions. Retrieved from
cdc.gov/brfss/questionnaires/pdf-ques/2011brfss.pdf
8. Centers for Disease Control and Prevention. (2011). FOOD SECURITY FSQ 2011-2012 TARGET GROUP: HOUSEHOLD survey. Retrieved from
http://www.cdc.gov/nchs/data/nhanes/nhanes_11_12/fsq_family.pdf
9. Centers for Disease Control and Prevention. (2000). CDC race and ethnicity code set version 1.0. Retrieved from cdc.gov/nchs/data/dvs/Race_Ethnicity_CodeSet.pdf
10. Centers for Disease Control and Prevention. Division of Nutrition, Physical Activity, and Obesity. How much physical activity do children need?
<http://www.cdc.gov/physicalactivity/basics/children/>. Updated June 4, 2015.

Accessed August 7, 2015.

11. Chaloupka, F. J., & Johnston, L. D. (2007). Bridging the Gap: research informing practice and policy for healthy youth behavior. *American journal of preventive medicine*, 33(4), S147-S161.
12. Cohen, B. E. (2002). *Community food security assessment toolkit* (pp. 02-013). Washington, DC: US Department of Agriculture, Economic Research Service.
13. Cooperative Extension Service: Alaska food cost survey. Fairbanks, AK: University of Alaska Fairbanks; 2012.
14. Federal Trade Commission. (2012). Demographic information form. Retrieved from ftc.gov/ftc/oed/hrmo/demographicform.pdf
15. Fernández, J. R., Redden, D. T., Pietrobelli, A., & Allison, D. B. (2004). Waist circumference percentiles in nationally representative samples of African-American, European-American, and Mexican-American children and adolescents. *The Journal of pediatrics*, 145(4), 439-444.
16. Fialkowski, M. K., McCrory, M. A., Roberts, S. M., Tracy, J. K., Grattan, L. M., & Boushey, C. J. (2010). Evaluation of dietary assessment tools used to assess the diet of adults participating in the Communities Advancing the Studies of Tribal Nations Across the Lifespan cohort. *Journal of the American Dietetic Association*, 110(1), 65-73.
17. Fialkowski, M., Dunn, M., Delormier, T., Hattori-Uchima, M., Leslie, J. H., Deenik, J. L., & Greenberg, J. (2014). Indigenous Workforce Training by the Children's Healthy Living Program (CHL) to Prevent Childhood Obesity in the Pacific. *Journal of Nutrition Education and Behavior*, 4(46), S122-S123.
18. Ghirardelli, A., Quinn, V., & Foerster, S. B. (2010). Using geographic information systems and local food store data in California's low-income neighborhoods to inform community initiatives and resources. *American journal of public health*, 100(11), 2156-2162.
19. Ghirardelli, A., Quinn, V., & Sugerman, S. (2011). Reliability of a retail food store survey and development of an accompanying retail scoring system to communicate survey findings and identify vendors for healthful food and marketing

- initiatives. *Journal of nutrition education and behavior*, 43(4), S104-S112.
20. Haas, S., & Nigg, C. R. (2009). Construct validation of the stages of change with strenuous, moderate, and mild physical activity and sedentary behaviour among children. *Journal of Science and Medicine in Sport*, 12, 586-591.
21. Kaholokula, J.K., Grandinetti, A., Nacapoy, A.H., & Chang, H.K. (2008). Association between acculturation modes and type 2 diabetes among Native Hawaiians. *Diabetes Care*, 31(4), 698-700.
22. Lee, R. E., Booth, K. M., Reese-Smith, J. Y., Regan, G., & Howard, H. H. (2005). The Physical Activity Resource Assessment (PARA) instrument: evaluating features, amenities and incivilities of physical activity resources in urban neighborhoods. *International Journal of Behavioral Nutrition and Physical Activity*, 2(1), 13.
23. McGreavey, J.A., Donnan, P.T., Pagliari, H.C., & Sullivan, F.M. (2005). The Tayside children's sleep questionnaire: a simple tool to evaluate sleep problems in young children. *Child: Care, Health, and Development*, 31 (5), 539–544. doi: 10.1111/j.1365-2214.2005.00548.x
24. National Health Plan Collaborative. (2008). The National Health Plan Collaborative Toolkit: Chapter 3: What categories of race/ethnicity to use. Retrieved from <http://www.rwjf.org/qualityequality/product.jsp?id=33969>
25. Nigg CR, Hellsten L, Norman G, Braun L, Breger R, Burbank P, et al. Physical activity staging distribution: establishing a heuristic using multiple studies. *Annals of Behavioral Medicine*. 2005;29(Suppl):35–45.
26. Novotny, R., Nigg, C., McGlone, K., Renda, G., Jung, N., Matsunaga, M., & Karanja, N. (2013). Pacific tracker 2—expert system (PacTrac2-ES) behavioural assessment and intervention tool for the pacific kids DASH for health (PacDASH) study. *Food chemistry*, 140(3), 471-477.
27. Pedestrian and Bicycle Information Center (PBIC). Walkability checklist. Retrieved from http://www.pedbikeinfo.org/cms/downloads/walkability_checklist.pdf
28. United States Department of Agriculture, Center for Nutrition Policy and Promotion (1999). *The Thrifty Food Plan, 1999, Administrative Report*, Washington D.C:

October, 1999.

29. United States Census Bureau. (January 2009). *The 2010 Census Questionnaire: Informational Copy*. Retrieved from http://2010.census.gov/2010census/pdf/2010_Questionnaire_Info_Copy.pdf
30. United States Bureau. *Census 2000 Gateway*. Retrieved from census.gov/main/www/cen2000.html
31. Zimmet, P., Alberti, K. G. M., Kaufman, F., Tajima, N., Silink, M., Arslanian, S., ... & Caprio, S. (2007). The metabolic syndrome in children and adolescents—an IDF consensus report. *Pediatric diabetes*, 8(5), 299-306.
32. Braun K, Nigg C, Fialkowski MK, Butel J, Hollyer J, Barber LR, Teo-Martin U, Flemming T, Vargo A, Coleman P, Bersamin A, Novotny R. Using the ANGELO Framework to Develop the Children’s Healthy Living Program Multilevel Intervention to Promote Obesity Preventing Behaviors for Young Children in the US Affiliated Pacific Region. *Child Obes.* 2014; 10(6): 474 – 281.
33. Buckworth, J., & Nigg, C. (2004). *Physical activity, exercise, and sedentary behavior in college students. Journal of American College Health*, 53, 28-34.
34. Nigg CR, Hellsten L, Norman G, Braun L, Breger R, Burbank P, et al. Physical activity staging distribution: establishing a heuristic using multiple studies. *Annals of Behavioral Medicine*. 2005;29(Suppl):35–45.