

MEDICAL SCHOOL HOTLINE

An Online, Quantitative Community Health Needs Assessment of Hale'iwa and Waialua, O'ahu, Hawai'i

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In 1993, the Medical School Hotline was founded by Satoru Izutsu PhD (former vice-dean UH JABSOM), it is a monthly column from the University of Hawai'i John A. Burns School of Medicine and is edited by Kathleen Kihmm Connolly PhD; HJH&SW Contributing Editor.

Introduction

The University of Hawai'i John A. Burns School of Medicine's Department of Family Medicine and Community Health (DFMCH) seeks to promote "health status and health education in the communities we serve."¹ The DFMCH was founded in 1992, and in 1994 the department began a family medicine residency program at Wahiawā General Hospital.¹ The residency program includes a clinic in Mililani that provides outpatient primary care services to surrounding underserved communities.² To support DFMCH's mission, a community health needs assessment (CHNA) was conducted online, leveraging social networking, in the communities of Hale'iwa and Waialua towns. These areas, which fall within the DFMCH residency clinic service area, lack specific health data and do not contain federally qualified health centers (FQHC).

ACHNA is a "health assessment that identifies key health needs and issues through systematic, comprehensive data collection and analysis."³ The information collected "can help develop a community health improvement plan by justifying how and where resources should be allocated to best meet community needs."³ Every 3 years, the Patient Protection and Affordable Care Act of 2010 requires tax-exempt hospital facilities to complete a CHNA, and the Health Resources & Service Administration requires FQHCs to update or complete a CHNA.^{4,5} In Hawai'i how a CHNA is conducted and reported back to the community is not regulated and varies greatly. For example, in 2018 a CHNA was conducted by Healthcare Association of Hawai'i for the entire state,⁶ whereas for the community of Waialua, a graduate nursing student completed a CHNA utilizing "windshield surveys and key informant interviews" as part of their coursework.⁷ Since mostly qualitative data based on focus group theme analyses are reported in prior Hawai'i CHNAs,⁶ statistical differences between communities cannot be analyzed.

Hale'iwa and Waialua towns, adjacent rural communities, are located on the North Shore of O'ahu, Hawai'i, as seen in Figure 1. According to the 2010 Census data, the 2 communities are similar (Table 1).⁸ Both Hale'iwa and Waialua

are primary care Health Provider Shortage Areas (HPSA), as demonstrated by the elevated HPSA scores of the FQHCs that serve these communities.^{9,10} There are no medical or dental services within Waialua town, while Haleiwa town has both medical and dental services.¹¹ Two FQHCs provide services to patients from Hale'iwa and Waialua: Ko'olauloa Health Center (KHC) in Kahuku and Hau'ula, and Wahiawā Center for Community Health (WCCH) in Wahiawā. Ko'olauloa is a federally designated medically underserved area, as well as a partially rural service area, see Figure 1.^{12,13}

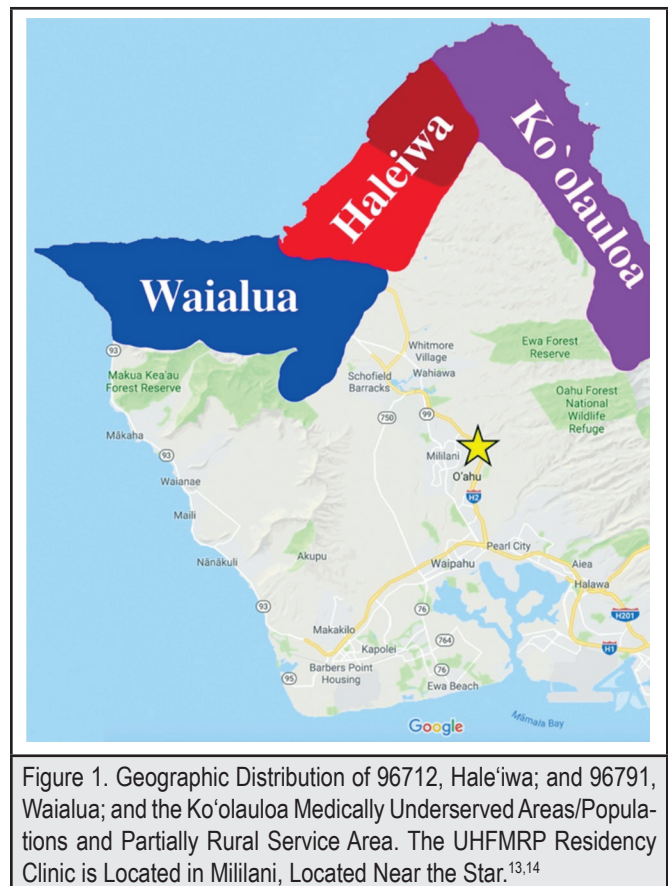


Figure 1. Geographic Distribution of 96712, Hale'iwa; and 96791, Waialua; and the Ko'olauloa Medically Underserved Areas/Populations and Partially Rural Service Area. The UHFMRP Residency Clinic is Located in Mililani, Located Near the Star.^{13,14}

Table 1. 2010 Census Data for the Communities of Hale‘iwa and Waialua. ¹		
Zip Code - Town	96712 – Hale‘iwa	96791 - Waialua
Population	3,970	3,860
Median Age	37.2	40.4
Percent Male	52.3%	51.4%
Racial Identity: Native Hawaiian or Other Pacific Islander	10.4%	3.2%
Racial Identity: Native Hawaiian Alone or in Combination with Other Races	31.9%	22.5%
Median Household Income	\$64,432	\$69,837

In Hale‘iwa and Waialua there are no inpatient medical centers nor specialty medical providers. The 2 critical access hospitals located nearest are Wahiawā General Hospital and Kahuku Medical Center, both approximately 9.5 miles away from Hale‘iwa and Waialua towns.¹⁴ Both facilities provide emergency medical services and limited inpatient adult medical services.^{15,16} The closest comprehensive adult inpatient services is Pali Momi Medical Center, about 19 miles away from Hale‘iwa and Waialua towns.^{14,17} The closest labor and delivery services is at The Queens Medical Center in Honolulu,^{14,18} and the closest comprehensive pediatric inpatient services is Kapi‘olani Medical Center for Women and Children also located in Honolulu, both about 30 miles from Hale‘iwa and Waialua.^{14,19}

As required to complete a CHNA every 3 years, both KHC and WCCHC FQHCs have previously completed CHNAs on the communities of Hale‘iwa and Waialua.⁴ KHC’s CHNAs are not publicly available. WCCH CHNAs are available from 2012, 2015, and 2017, but included minimal participation, with fewer than 35 participants from Hale‘iwa and Waialua combined.^{7,20,21} The 2018 Healthcare Association of Hawai‘i’s CHNA for the entire state does not provide specific data about Hale‘iwa or Waialua, as data are grouped by island.⁶ Consequently, lacking are public data regarding the health needs of Hale‘iwa and Waialua.

Because past data may not accurately reflect community needs, this project aims to (1) determine whether online survey distribution for a CHNA improves participation, (2) determine whether online survey distribution results in participation that better reflects the demographics of the communities, and (3) determine whether collecting and analyzing data specific to rural adjacent communities can more accurately identify health needs.

Methods

The research protocol was submitted to and approved by the University of Hawai‘i Office of Research Compliance Human Studies Program, protocol number 2018-00289. Questions used in the survey instrument were based on questions used in prior CHNAs completed in Hawai‘i as well as topics recommended by the Centers for Disease Control and Prevention and Catholic Health Charities.^{3,7,20-22} Between June 4, 2018, and

January 31, 2019, the CHNA questionnaire (see Appendix 1) was made available electronically to residents via the “North Shore Community Hub” Facebook group, which in 2018 was an open group but on January 1, 2019, became a closed group with more than 18350 members.²³ This group was chosen as it is moderated by board members of the North Shore Neighborhood Board and “posts must be relevant to the North Shore.”²³ A link to the survey instrument was posted to the entire group 4 times during the data collection period. Participants remained anonymous. Similar to other Hawai‘i CHNA methodologies resident status within the community was self-reported.^{7,20,21} A hard copy of the survey instrument was also distributed at local coffee shops, church functions, and among neighbors throughout the data collection period.

Collected data were preprocessed using Microsoft Excel, version 16.16.6 (Microsoft Corporation, Redmond, WA), then analyzed using IBM SPSS, version 26 (IBM Corp, Armonk, NY). Pearson Chi-Square and Multivariate Analysis of Variance (MANOVA) were used to analyze group differences using IBM SPSS, version 26 (IBM Corp, Armonk, NY). In these analyses, city of residence, Hale‘iwa versus Waialua, were the independent variables and the item responses were the dependent variables (Appendix 1).

Results

Ninety-nine community members from Hale‘iwa and Waialua completed the CHNA questionnaire, 89 electronically and 10 via paper copies. Waialua participants’ median age range, 30 – 39 years old, is near the 2010 Census median age of 40.4 years; however, the Hale‘iwa participants’ median age, 60 – 69 years old, is older than the expected 2010 Census median age of 37.2 years old (Table 2).²⁴ No significant differences were found between participants regarding ethnicity identification, $X^2(2, N=99)=8.61, P=.197$, educational achievement, $X^2(2, N=99)=9.225, P=.324$, or health insurance type, $X^2(2, N=99)=3.910, P=.689$. Seventy percent of participants had private insurance.

Of the Hale‘iwa participants, 52% use medical services outside their community exclusively, 33% use a combination of medical services within and outside their community, and 15% use

Table 2. Demographic Information for All Participants from Hale'iwa and Waialua			
	96712 & 96791 – Hale'iwa & Waialua	96712 – Hale'iwa	96791 – Waialua
Gender			
Female	74 (75%) ^a	42 (70%) ^c	32 (82%) ^c
Male	24 (24%) ^a	17 (28%) ^c	7 (18%) ^c
Other	1 (1%) ^a	1 (2%) ^c	0 (0%) ^c
Current Age (years)			
18 - 29	17 (17%) ^a	14 (23%) ^c	3 (8%) ^c
30 - 39	16 (16%) ^a	5 (8%) ^c	11 (28%) ^c
40 - 49	11 (11%) ^a	4 (7%) ^c	7 (18%) ^c
50 - 59	22 (22%) ^a	13 (22%) ^c	9 (23%) ^c
60 - 69	30 (30%) ^a	23 (38%) ^c	7 (18%) ^c
70 - 79	2 (2%) ^a	0 (0%) ^c	2 (5%) ^c
80 - 89	1 (1%) ^a	1 (2%) ^c	0 (0%) ^c
Ethnic Identity			
Asian	11 (11%) ^a	5 (8%) ^c	6 (15%) ^c
Caucasian	52 (53%) ^a	36 (60%) ^c	16 (41%) ^c
Filipino	11 (11%) ^a	4 (7%) ^c	7 (18%) ^c
Hispanic	3 (3%) ^a	2 (3%) ^c	1 (3%) ^c
Native Hawaiian	13 (13%) ^a	6 (10%) ^c	7 (18%) ^c
Other	6 (6%) ^a	4 (7%) ^c	2 (5%) ^c
Pacific Islander	3 (3%) ^a	2 (3%) ^c	1 (3%) ^c
Highest Level of Education Achieved			
No GED / High School Diploma	2 (2%) ^a	0 (0%) ^c	2 (5%) ^c
GED / High school diploma	10 (10%) ^a	6 (10%) ^c	4 (10%) ^c
Some college	14 (14%) ^a	8 (13%) ^c	6 (15%) ^c
Trade school certification	3 (3%) ^a	2 (3%) ^c	1 (3%) ^c
Associate level degree	12 (12%) ^a	8 (13%) ^c	4 (10%) ^c
Bachelor level degree	39 (39%) ^a	27 (45%) ^c	12 (31%) ^c
Masters level degree	14 (14%) ^a	5 (8%) ^c	9 (23%) ^c
Doctorate / Professional level degree	4 (4%) ^a	3 (5%) ^c	1 (3%) ^c
Other	1 (1%) ^a	1 (2%) ^c	0 (0%) ^c
Health Insurance Type			
Medicaid	14 (13%) ^b	8 (12%) ^b	6 (14%) ^b
Medicare	13 (12%) ^b	8 (12%) ^b	5 (11%) ^b
Private insurance	77 (70%) ^b	47 (71%) ^b	30 (68%) ^b
Tricare / Veterans Affairs ^d	4 (4%) ^b	1 (2%) ^b	3 (7%) ^b
Uninsured	2 (2%) ^b	2 (3%) ^b	0 (0%) ^b

^a Percentage calculated out of total number of participants in both zip codes, 99 participants.

^b Some participants had multiple types of healthcare insurance, therefore percentage calculated out of 110 total health insurance types; 66 total in 96712 and 44 total in 96791.

^c Percentage calculated out of total number of participants in respective zip code, 60 and 39 participants, respectively.

^d Veterans Affairs was added to the Tricare option during analysis as one participant submitted this option under 'other.'

medical services in their community exclusively. Of the Waialua participants, 97% reported using medical services outside their community exclusively. Results indicated a significant relationship between city of residence and location of medical services used $X^2(2, N=99) = 23.504, P < .001$, likely due to the lack of available medical and dental services in Waialua.¹¹

Sixty-two percent of Hale‘iwa participants reported using dental services outside of their community exclusively, 33% use dental services within their community exclusively, and 5% reported not using dental services. Ninety percent of Waialua participants use dental services outside their community exclusively, and 7% reported not using dental services. Results demonstrated a significant relationship between city of residence and location of dental services used $X^2(2, N=99) = 13.394, P = .001$.

There were no statistically significant differences found between participant responses to the community health problems, $F(18, 80) = .789, P = .189$. Respondents from both areas identified the top 4 community health problems: affordable housing, drug use, mental health, and obesity.

There were statistically significant differences between participant responses to the identified community needs, $F(16, 82) = .741, P = .046$. Analysis of the univariate results found that the reported need for dental care, $F(16, 82) = 7.271, P = .008$, and transportation to health care providers, $F(16, 82) = 4.951, P = .036$, were responsible for the differences, likely due to the lack of dental care services and limited public transportation routes in Waialua.^{11,25} Respondents from Hale‘iwa, $M = 4.30, SD = .944$, and Waialua, $M = 4.13, SD = .923$, both identified mental healthcare as a high need service.

Only 2 of the health conditions on the survey differed significantly between participants. Obesity was more prevalent among Waialua participants, 28%, compared to Hale‘iwa, 12%, $X^2(1, N=99) = 4.346, P = .037$. High cholesterol was more prevalent for Hale‘iwa participants, 37%, than those of Waialua, 18%, $X^2(1, N=99) = 3.998, P = .046$. The top 3 health conditions across participants were high cholesterol, 29%, high blood pressure, 25%, and asthma, 24%.

The majority of participants responded that they had seen a dentist within the last 2 years: 92% of Hale‘iwa residents and 82% of Waialua residents. Similarly, 98% of Hale‘iwa residents and 92% of Waialua residents reported seeing a physician within the last 2 years. Although most participants had seen a physician in the recent past, the most prevalent response, reported by 33%, for why they may have delayed the visit was the inability to get an appointment in a timely manner. The next most prevalent response, 18%, was cost.

Discussion

The first aim of this project was to determine whether an online survey distribution for a CHNA improves community participation. Ninety-nine participants completed surveys from Hale‘iwa and Waialua, more than doubling the number of participants of prior CHNAs. The electronic distribution of the survey resulted in 89 responses and the distribution of paper copies of the survey resulted in 10 responses. The electronic distribution of a CHNA survey instrument showed potential improvement in community participation when resources to conduct hard copy distribution of the CHNA are limited.

The second aim, to determine whether an online survey distribution results are a better reflection of the demographics of the communities, cannot be determined due to a lack of prior published data. However, data can be used to compare future CHNAs. In contrast to the 2010 US Census data, study results showed participants to be predominantly Caucasian, a higher percentage of female, the majority being private health insurance holders, and more than half having level of education of bachelor’s degree or higher. This is important as these demographics can be compared to future CHNAs of Hale‘iwa and Waialua towns to achieve a more accurate reflection of demographics of the communities.

The third aim was whether quantitative statistical data analysis can demonstrate important information regarding adjacent communities that lack specific data and are combined with larger areas. Statistical analysis was useful in determining differences in participant demographics and determining key differences between the community participants regarding parameters, such as location and ability to access medical care. Other important community factors, such as a perception of insufficient transportation options, were able to be quantified.²⁵ Inclusion of survey questions in a CHNA that can be analyzed for statistical significance can be useful in identifying problems for FQHCs and community leaders to address.

Limitations

Ninety-nine people participated in this CHNA. The small sample size was not powered to achieve a 95% confidence interval; therefore, a 9.8% margin of error resulted from this CHNA. Using the “North Shore Community Hub” targeted community members who are active on Facebook, which may have also introduced a sampling bias. There was also no way to verify participants’ addresses and no system in place to prevent participants from submitting duplicate surveys. Regarding demographics, participants were able to select only 1 racial identity, however, allowing multiple options would have allowed

the survey to align better with the options given in the Census survey instruments. This CHNA did not include qualitative data from focus groups due to limited human resources. The University of Hawai‘i institutional review board would not allow data collection on specified mental health conditions, such as depression and schizophrenia, which would be a better indicator of health needs, as mental health was identified as a community health problem.

Conclusion

This project successfully completed a CHNA of the rural communities of Hale‘iwa and Waialua, demonstrating successful implementation of an online method of distribution via a social networking platform. Results of the survey identified important areas of need within these communities: chronic disease management, transportation services, and access to both dental and medical care. Targeted distribution of hard copies and a more diverse distribution of the online version of the CHNA survey instrument may result in a participant pool that is more reflective of the demographics of the communities’ residents. However, with limited resources available to collect CHNAs, the use of an online survey via a social networking platform resulted in a greater number of participants than in past years. With greater participation and more specific results for the rural communities of Hale‘iwa and Waialua in the CHNA, the authors hope that the DFMCH and the FQHCs of KHC and WCCH, along with community leaders, can better provide services to meet the health needs of these individual communities.

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Appendix 1. Hale‘iwa and Waialua Community Health Needs Assessment Questionnaire

1. Zip code of residence? (Mark only one oval.)
 - a. Hale‘iwa – 96712
 - b. Waialua – 96791
2. Your current age? (Mark only one oval.)
 - a. 18 – 29 years old
 - b. 30 – 39 years old
 - c. 40 – 49 years old
 - d. 50 – 59 years old
 - e. 60 – 69 years old
 - f. 70 – 79 years old
 - g. 80 – 89 years old
 - h. 90 – 99 years old
3. What is your gender identity? (Mark only one oval.)
 - a. Female
 - b. Male
 - c. Other
4. What race do you identify with, out of those listed below? (Mark only one oval.)
 - a. African American
 - b. Asian
 - c. Caucasian
 - d. Filipino
 - e. Hispanic
 - f. Native American
 - g. Native Hawaiian
 - h. Pacific Islander
 - i. Other
5. What is your highest level of education? (Mark only one oval.)
 - a. No high school diploma
 - b. GED/High school diploma
 - c. Some college
 - d. Associate level degree (eg, AA, AS)

- e. Bachelor level degree (eg, BA, BS)
 - f. Trade school certification
 - g. Masters level degree (eg, MA, MS, MBA, MEd)
 - h. Doctorate/Professional Level Degree (eg, PhD, JD, MD, DO, DC, DDS)
 - i. Other
6. What type of health insurance do you have? (Check all that apply.)
- a. Private Insurance (eg, HMSA, HMA, Kaiser, UHA)
 - b. Medicare
 - c. Medicaid (eg, Med-QUEST Aloha Care, HMSA, Kaiser, 'Ohana, United Healthcare)
 - d. Tricare
 - e. Uninsured
 - f. Other
7. Where do you go for medical care? (Check all that apply.)
- a. Kapolei/Ewa
 - b. Hale'iwa
 - c. Honolulu
 - d. Kahuku/Hau'ula
 - e. Mililani
 - f. Waialua
 - g. Wahiawā
 - h. Waipi'o
 - i. Waipahu
 - j. Pearl City/Aiea
 - k. Kāne'ohe
 - l. Other
8. Where do you go for dental care? (Check all that apply.)
- a. Kapolei/Ewa
 - b. Hale'iwa
 - c. Honolulu
 - d. Kahuku/Hau'ula
 - e. Mililani
 - f. Waialua
 - g. Wahiawā
 - h. Waipi'o
 - i. Waipahu
 - j. Pearl City/Aiea
 - k. Kāne'ohe
 - l. Other
9. Do you get healthcare from one of the following facilities? (Check all that apply.)
- a. CareVan
 - b. Kalihi - Palama Health Center (Kalihi)
 - c. Ko'olauloa Health Center (Kahuku and Hauula)
 - d. Wahiawā Center for Community Health (Wahiawā)
 - e. Military Facilities (Schofield, Tripler)
 - f. Waianae Coast Comprehensive Health Center (multiple sites)
 - g. None of the above
10. Please rank, from 1 to 5, what you believe to be the top health and/or social service PROBLEMS in this community. 1 – not a problem, 3 – unsure, and 5 – large problem.
- a. Affordable Child Care
 - b. Affordable Housing
 - c. Asthma
 - d. Chronic Disease Management
 - e. Cultural Issues
 - f. Diabetes (Type 2)
 - g. Disease Prevention/Health Promotion
 - h. Doctors Do Not Accept Insurance/Uninsured
 - i. Heart Disease
 - j. Illicit Drug Use
 - k. Jobs
 - l. Mental Health
 - m. Obesity
 - n. Recreational Sites
 - o. Translation Services
 - p. Transportation
11. Please rank, from 1 to 5, what you believe to be the top 5 health SERVICES needed in the community. 1 – not needed, 3 – unsure, and 5 – very much needed.
- a. Care Coordination Services
 - b. Case Management Services
 - c. Dental Care
 - d. Health Education
 - e. Health Support Groups
 - f. Immunizations
 - g. Job Training/Education
 - h. Mental Health Care
 - i. Nutritional Health Education
 - j. Obstetrics and Gynecology
 - k. Orthopedic Surgery
 - l. Primary Care
 - m. Physical Therapy
 - n. Social Work
 - o. Sports Medicine
 - p. Transportation to Health Provider
12. When was your last visit to a doctor for a checkup or physical exam? (Mark only one oval.)
- a. Less than 1 year ago
 - b. 1 to 2 years ago
 - c. 2 to 5 years ago
 - d. More than 5 years ago
 - e. Never
 - f. Do not remember
13. Was there a time in the past 12 months when you needed to see a doctor but could not because of cost? (Mark only one oval.)
- a. Yes
 - b. No
14. Have you delayed getting medical care for any of the following reasons in the past 12 months? (Check all that apply.)
- a. I couldn't get through on the telephone
 - b. I couldn't get an appointment soon enough
 - c. Once I got to the clinic, I had to wait too long to see the doctor
 - d. The clinic wasn't open when I got there
 - e. No, I did not delay getting medical care/did not need medical care
15. Has a healthcare provider ever told you that you may have or have had any of the following? (Check all that apply.)
- a. Angina/Coronary Artery Disease
 - b. Arthritis/Rheumatoid Arthritis/Gout/Lupus
 - c. Asthma
 - d. COPD/Chronic Bronchitis/Emphysema
 - e. Cancer, Skin
 - f. Cancer, All Others
 - g. Diabetes (Type 1 or 2)
 - h. High Cholesterol
 - i. High Blood Pressure/Hypertension
 - j. Kidney Disease
 - k. Mental Health Condition
 - l. Myocardial Infarction/Heart Attack
 - m. Overweight/Obese
 - n. Stroke
 - o. Other
16. Do you smoke cigarettes? (Mark only one oval.)
- a. Yes, currently, DO NOT plan on quitting
 - b. Yes, currently, DO plan on quitting
 - c. No, PREVIOUSLY smoked cigarettes
 - d. No, NEVER smoked cigarettes
17. When was the last time you visited a dentist or dental clinic? Including dental specialists and orthodontists. (Mark only one oval.)
- a. Less than 1 year ago
 - b. 1 to 2 years ago
 - c. 2 to 5 years ago
 - d. More than 5 years ago
 - e. Never
 - f. Do not remember
18. When was the last time you had your teeth cleaned by a dental hygienist?
- a. Less than 1 year ago
 - b. 1 to 2 years ago
 - c. 2 to 5 years ago
 - d. More than 5 years ago
 - e. Never
 - f. Do not remember
19. If you are willing to participate in a focus group regarding the health needs in the Waialua and Hale'iwa, O'ahu, communities, please provide a means of contact below: