Healthcare Association of Hawaii

Kauai County
Community Health Needs Assessment

February 28, 2013

Healthy Communities Institute

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Introduction

The Healthcare Association of Hawaii and its member hospitals are pleased to present the 2012-2013 Kauai County Community Health Needs Assessment (CHNA). This CHNA report was developed through a collaborative process and provides an overview of the health needs in Kauai County. The goal of this report is to offer a meaningful understanding of the health needs in the community, as well as help guide the hospitals in their community benefit planning efforts and development of an implementation strategy to address prioritized needs. Special attention has been given to identify health disparities, the needs of vulnerable populations, and unmet health needs or gaps in services. Although this report focuses on needs within the community, it is important to note there are also innumerable community assets and a true *aloha* spirit that provide ample foundation for community health improvement.

Approach

In Fall 2012, the Healthcare Association of Hawaii partnered with Healthy Communities Institute to conduct a CHNA for Kauai County. Our approach followed the public health model of assessing and understanding community health holistically. A framework for analysis was constructed based on determinants of health; the framework included a broad definition of community health that considers extensive secondary data on the social, economic, and physical environments, as well as health risks and outcomes. The influence of *mauka* ("toward the mountains"), or upstream factors, and the resulting *makai* ("toward the ocean"), or downstream impacts, on health is a transcending theme. Key informant interviews with those having special knowledge of health needs, health disparities, and vulnerable populations provided vital information that increased the understanding of the health needs in Kauai County. A small set of community residents provided additional insights on the health needs in Kauai County. It is hoped that this report will provide a foundation for community health improvement efforts and that community health partners will build on this report.

Data Sources and Methods

An extensive array of secondary and primary data was collected and synthesized for this report.

Core Indicators: Secondary data was analyzed using Hawaii Health Matters (www.HawaiiHealthMatters.org), a publicly available data platform with a dashboard of over 100 indicators from over 20 sources; much of the data comes from Hawaii Department of Health, allowing for Hawaii-specific race, age and gender details. This extensive core data was analyzed using a highly systematic and quantitative approach that incorporated multiple benchmarks and comparisons to understand the question: How is Kauai County performing?

Hospitalization Indicators: Eighteen indicators on key preventable causes of hospitalization, analyzed at the sub-county/hospital service area level, supplemented the core indicators. This data was provided by Hawaii Health Information Corporation (HHIC) and enabled valuable insights into utilization patterns, geographic disparities in hospitalization rates, and enhanced the core indicator data for important topic areas.

*Supplemental Informati*on: Recently published reports on Kauai County's health and access to care were reviewed for additional key information on important topics such as health disparities, primary care needs, and mental health.

Key Informant Interviews: Storyline Consulting, a local partner of the project, interviewed 13 key informants who had knowledge of the health needs in Kauai County. The selection of the key informants

was guided by preliminary core indicator data findings and followed a structured nomination and selection process by the HAH Advisory Committee. These 13 Kauai-specific interviews were supplemented by relevant information provided by additional key informants who were interviewed for the State of Hawaii. The input by local key informants was invaluable and greatly enhanced the understanding of health needs and offered insight into health resources and health improvement approaches.

Community Survey: A small sample of community residents, via an online survey, supplemented the key informant interviews. Highlights of these surveys, or "Voices from the Community," are incorporated throughout the report.

Areas of Need

This report provides an overview of Kauai County's community health needs. Community health was assessed for Kauai County as a whole, for race sub-groups, and for sub-geographies. The findings revealed overall or sub-population community needs in the following areas:

- Access to Health Services
- Cancer
- Diabetes
- Disabilities
- Economy
- Education
- Environment
- Exercise, Nutrition, & Weight
- Family Planning
- Heart Disease & Stroke
- Immunizations & Infectious Diseases
- Injury Prevention & Safety
- Maternal, Fetal & Infant Health
- Mental Health & Mental Disorders
- Older Adults & Aging
- Oral Health
- Respiratory Diseases
- Social Environment
- Substance Abuse & Lifestyle
- Transportation

Several overarching themes emerged across the topic areas:

All groups experience adverse health outcomes due to chronic disease and health risk behaviors

Individuals from all geographies, race, gender, and age groups experience poor health outcomes. Evidence from high rates of chronic disease patterns, hospitalizations due to preventable causes, and patterns of unhealthy behaviors compels those seeking to improve health to consider interventions at the structural, policy, and community-wide level in order to positively impact the long term health of as many Kauai County residents as possible. Special consideration for mental health, a chronic condition that significantly influences overall health, is critical for achieving population health goals.

Greater socio-economic need and health impacts are found among certain groups and places in Kauai County

Poverty is unevenly distributed around the county, with the North Shore and northern portion of the East Side most heavily impacted. Poor residents do not have the resources to lead a healthy lifestyle or seek adequate care when they become ill. As both health status and poverty are closely tied to educational attainment, the issues surrounding education in Kauai County—including reduced individualized attention for students and low levels of proficiency in math and English—are especially concerning. Individuals with less education often have lower levels of health and technology literacy, and have fewer job opportunities.

Cultural and language barriers inhibit effective intervention for the most impacted populations

Because of the strong correlation between poverty and race/ethnicity, some of the groups most impacted by health issues often face cultural barriers to health improvement. Language differences, including limited English proficiency, and poor health behaviors that are common within a culture are challenges that must be overcome in order to effectively prevent disease and enhance wellness. Perceptions of Western medical care and the stigmatization of health issues in certain cultures prevent some residents from seeking care when they need it. Key informants repeatedly stressed the need to find culturally-appropriate ways of disseminating health knowledge.

Limited access to care results in greater health impacts

Like the other Neighbor Islands, Kauai County suffers from limited access to various types of care. The Health Resources and Services Administration designated the entirety of the county as "medically underserved." Comprehensive treatment for all types of chronic diseases, including diabetes, heart disease, and cancer is not always available in Kauai; affordable home health care for older adults is a challenge. Substance abuse and mental health is a significant issue, but there are few resources for treatment in Kauai County. Mental health providers are in particularly short supply. The shortage of mental health services means other segments of the health care system, including emergency departments and primary care providers, are overwhelmed by the large need in this area. Certain parts of Kauai also have further difficulties accessing care; most health centers are located around Lihue, requiring residents of other areas to find transportation across the county.

Community health centers and schools are key community assets for effective interventions

Key informants highlighted the primary assets of community health centers and schools as venues that can provide culturally appropriate services and education that promotes healthy lifestyles and health literacy. Community-based clinics and schools can address "human needs" in an integrated manner. Children spend the majority of their waking hours in schools and one of the best chances for improving the health of the next generation is through schools. Childhood obesity can be addressed in school by increasing physical activity time and sports; dental health can be improved by implementing evidence-based strategies that are provided in the school environment.

While Kauai County has existing community health centers, funding is often a limitation of providing services through these venues. Public schools face critical funding challenges that impact their ability to meet the spectrum of student needs. Kauai County is rich with organizations, agencies, and individuals that understand the impact of social determinants of health and seek opportunities to partner or collaborate to improve the health of the community. Despite the rich human capital in Kauai County and true *aloha* spirit, however, there is a shortage of funding to support communities' crucial work in upstream wellness issues.

Selected Priority Areas

Wilcox Health has selected the following two priorities:

1. Access to Health Services
2. Exercise, Nutrition & Weight

Details about the prioritization process can be found in Section 5.

Note to the Reader

Beyond the Executive Summary, readers may choose to study the entire report or alternatively focus on a particular topic area. An overview is provided for each key type of data included in the report: core indicators, hospitalization rates, key informant interviews, and online community survey.

To more deeply understand a topic area, the reader can turn to any of the 20 topic area presentations and find all data for the topic and summary conclusions. Each topic-specific section is organized in the following way:

- Core Indicators and Supplemental Information
- Hospitalization Rates (when available)
- Key Informant Interview Information
- Summary of Topic Area

1 Introduction

1.1 Summary of CHNA Report Objectives and context

The state of Hawaii is unique in that all of its community hospitals and hospital systems joined efforts to fulfill new requirements under the Affordable Care Act, which the IRS developed guidelines to implement. The Healthcare Association of Hawaii (HAH) led this collaboration to conduct state- and county-wide assessments for its members.

1.1.1 Healthcare Association of Hawaii

HAH is the unifying voice of Hawaii's health care providers and an authoritative and respected leader in shaping Hawaii's health care policy. Founded in 1939, HAH represents the state's hospitals, nursing facilities, home health agencies, hospices, durable medical equipment suppliers, and other health care providers who employ about 20,000 people in Hawaii. HAH works with committed partners and stakeholders to establish a more equitable, sustainable health care system driven to improve quality, efficiency, and effectiveness for patients and communities.

1.1.2 Member Hospitals

Twenty-six of 28 Hawaii hospitals,[1] including all Kauai County hospitals, participated in the CHNA project.

Located in Kauai County:

- Samuel Mahelona Memorial Hospital
- West Kauai Medical Center & Kauai Veterans Memorial Hospital
- Wilcox Memorial Hospital

Serve Kauai County residents:

- Kahi Mohala Behavioral Health
- Kaiser Permanente Medical Center
- Kapi`olani Medical Center for Women & Children
- Rehabilitation Hospital of the Pacific
- Shriners Hospitals for Children - Honolulu
- The Queen's Medical Center
- Straub Clinic and Hospital

1.1.3 Advisory Committee

The CHNA process has been informed by hospital leaders and other key stakeholders from the community who constitute the Advisory Committee. The following individuals shared their insights and knowledge about health care, public health, and their respective communities as part of this group.

Howard Ainsley - Hawaii Health Systems Corporation
Bruce Anderson, PhD – Hawaii Health Systems Corporation
Joy Barua – Kaiser Permanente Hawaii
Maile Ballesteros – St. Francis Home Care Kauai
Wendi Barber, CPA, MBA – Castle Medical Center

[1] Tripler Army Medical Center and the Hawaii State Hospital are not subject to the IRS CHNA requirement and were not a part of this initiative.

Rose Choy - Kahi Mohala Behavioral Health
Kathleen Deknis, RN, MPH – Home Health by Hale Makua
Karen Fernandez – Wahiawa General Hospital
Mark Forman, JD – Hawaii Medical Service Association Foundation
Loretta J. Fuddy, ACSW, MPH – State of Hawaii Department of Health
Robert Hirokawa, DrPH – Hawaii Primary Care Association
Mari-Jo Hokama – Kahi Mohala Behavioral Health
Fred Horwitz – Life Care Center of Hilo
Susan Hunt, MHA – Hawaii Island Beacon Community
Richard Keene – The Queen's Health Systems
Jeannette Koijane, MPH – Kokua Mau
Jay Kreuzer - Hawaii Health Systems Corporation
Greg LaGoy, ND, MBA – Hospice Maui
Bernadette Ledesma, MPH – Pearl City Nursing Home
Vince Lee, ACSW, MPH - Hawaii Health Systems Corporation
Wesley Lo - Hawaii Health Systems Corporation
Pat Miyasawa – Shriners Hospitals for Children-Honolulu
R. Don Olden – Wahiawa General Hospital
Quin Ogawa – Kuakini Health System
Jason Paret, MBA – North Hawaii Community Hospital
Ginny Pressler, MD, MBA, FACS – Hawaii Pacific Health
Hilton Raethel, MBA, MHA – Hawaii Medical Service Association
Hardy Spoehr – Papa Ola Lokahi
Jerry Walker - Hawaii Health Systems Corporation
Katherine Werner Ciano, MS, RN – North Hawaii Hospice
Ken Zeri, RN, MSN – Hospice Hawai`i
Lori Miller – Kauai Hospice
Marie Ruhland, RN – Home Healthcare Services of Hilo Medical Center
Neill Schultz – Castle Medical Center
Corinne Suzuka, RN, BNS, MA – St. Francis Home Care
Peter Sybinsky, PhD – Hawaii Health Information Corporation
Ty Tomimoto – Rehabilitation Hospital of the Pacific
Sharlene Tsuda – The Queen's Health Systems
Stephany Vaioleti, LSW, JD - Kahuku Medical Center
Sharon Vitousek, MD – North Hawaii Outcomes Project

1.1.4 Consultants

Healthy Communities Institute

The Healthy Communities Institute (HCI) mission is to improve the health, environmental sustainability and economic vitality of cities, counties and communities worldwide. The company is rooted in work started in 2002 in concert with the Healthy Cities Movement at the University of California at Berkeley.

HCI offers a spectrum of technology and services to support community health improvement. HCI's web-based dashboard system makes data easy to understand and visualize. The web system and services enable planners and community stakeholders to understand all types and sources of data, and then take concrete action to improve target areas of interest. HCI has over 100 implementations of its dashboard for clients in 40+ states.

The HCI team is composed of experts in public health, health informatics, and health policy. The services team provides customized research, analysis, convening, planning and report writing to meet the organizational goals of health departments, hospitals, and community organizations.

To learn more about Healthy Communities Institute please visit www.HealthyCommunitiesInstitute.com.

Storyline Consulting

Storyline Consulting is dedicated to serving and enhancing Hawaii's nonprofit and public sectors. Storyline provides planning, research, evaluation, grant writing, and other organizational development support and guidance. By gathering and presenting data and testimonies in a clear and effective way, Storyline helps organizations to improve decision-making, illustrate impact, and increase resources.

To learn more about Storyline Consulting please visit www.StorylineConsulting.com.

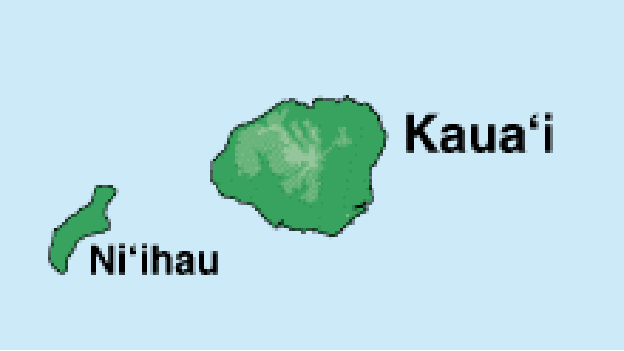
1.2 Hospital Community Benefit Team and Goals

Wilcox Memorial Hospital formed a Community Benefit Team to guide the hospital's CHNA and Implementation Strategy. The Team includes the following internal participants: Chief Executive Officer, Vice President Patient Services/Chief Nurse Executive, Director Ancillary Services, Director Patient Accounting, Director Quality and Patient Safety, Financial Partner, Manager Case Management and Marketing Manager. The work and results will be reported to the Wilcox Memorial Hospital Board. There is an opportunity to work in partnership with the community and other Hawai'i Pacific Health facilities.

1.2.1 Definition of Community + Map

The hospital service area is defined by a geographical boundary of Kauai County, which encompasses the inhabited islands of Kauai and Niihau. Kauai County will serve as the unit of analysis for this Community Health Needs Assessment. Hence, the health needs discussed in this assessment will pertain to individuals living within this geographic boundary. When possible, highlights for sub-geographies within Kauai County are provided. The specific area served by hospital is indicated in Figure 1.1.

Figure 1.1



2 Methods

The starting point for this needs assessment is a summary of secondary or core indicator data, which applies a systematic and quantitative method of comparing the relative severity of health indicators across 20 topic areas. When possible, other data are considered, including rates of hospitalization due to preventable causes, to more closely examine the most severe health needs and their impact on health care utilization. The secondary data findings are further informed by collected primary data. Individuals with special knowledge regarding the health needs of the community, including those with expertise in public health and community health were interviewed through a key informant interview process. An online survey collected additional opinions from community residents. The quantitative, secondary data is then combined with the knowledge of key informants who have awareness of health needs specific to their community and highlighted with resident opinions on community health concerns.

2.1 Core Indicator Summary

2.1.1 Data Sources

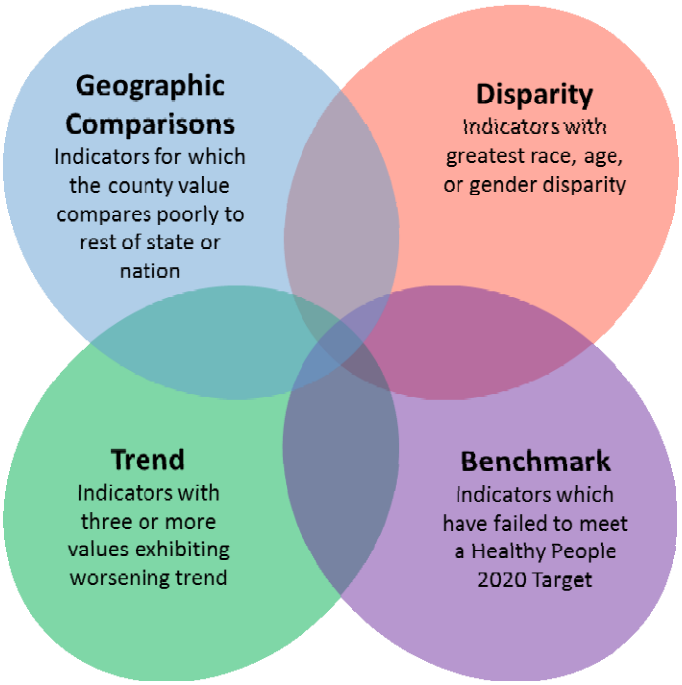
The core indicators included in this summary originated from Hawaii Health Matters (www.HawaiiHealthMatters.org), a publicly available data platform with a dashboard of over 100 indicators from over 20 sources. Hawaii Health Matters (HHM) was developed as a partnership between Hawaii Health Data Warehouse and Hawaii Department of Health, with technology provided by Healthy Communities Institute. The core indicators cover health outcomes, behaviors that contribute to health, and other factors that are correlated with health. The secondary data available on HHM is continuously updated as sources release new data. The data included in this summary is as of October 17, 2012, and may not reflect data currently on the site. Additional data specific to race, gender, and age subgroups was obtained directly from Hawaii Department of Health. Each of the indicators was categorized into one of 20 topic areas, spanning both health and quality of life issues. All indicators, including measurement date, sources and topic area assignment, are included in the Appendix of this report.

2.1.2 Comparisons: Analytic Approach

The status of Kauai County was assessed one indicator at a time using up to four comparison methods.

1. First, Kauai County was compared geographically, to the rest of the state as well as the nation. Comparisons of Kauai County to the United States, the state average, and the county in Hawaii with the best value for the indicator were “averaged” (see Appendix A for more details and an example). This average was used to determine whether Kauai County compares poorly to other geographies.
2. The second comparison examined the trend of the data. A line of best fit was calculated for all available data points, and the slope of the line was used to determine the average percent change per year. If Kauai County’s indicator value had worsened by at least 2.5% of the baseline value per year, the trend for the indicator was considered poor.
3. A third comparison measured disparities among sub-populations in Kauai County. If one sub-population had a value at least four times worse than another for the indicator, then the disparity measurement was considered poor.
4. Finally, the indicator value was compared to nationally recognized Healthy People 2020 (HP2020) benchmarks. The indicator was considered poor if Kauai County had not yet met the target set by the U.S. Department of Health and Human Services (see Appendix A for more information on HP2020 benchmarks).

Figure 2.1: Comparison Methods



As many comparisons as possible were applied to each indicator. The possible comparisons varied for each indicator depending on the availability of data. Geographic comparisons were only possible when national data was available for the same indicator and time period. Trend comparisons were only possible when at least three periods of measure were available to avoid misinterpreting slight changes between two periods. The availability of sub-population data varied by indicator, and so disparity comparisons were incorporated whenever possible. Finally, HP2020 benchmarks only exist for a subset of the indicators included in the summary. Please see Appendix A for more details and examples of this process.

2.1.3 Indicator and Topic Area Scoring

After the status of all possible comparisons was assessed, indicators were aggregated into their respective topic areas. The total number of poor comparisons was divided by the total possible comparisons within the topic area to calculate the topic area score. This score, measuring the proportion of poor comparisons within the topic, ranges from zero to one. Scores were not calculated for topic areas that had one or zero indicators, as these areas were deemed to lack an adequate number of indicators. The top ten topic areas with the highest scores were used to guide primary data collection. Please see Appendix A for more details and an example of this process.

2.1.4 Shortage Area Map

Core indicator data for relevant topic areas was supplemented with maps illustrating the following types of federally-designated shortage populations:

- Medically underserved populations
- Mental health professional shortage areas

Criteria for medically underserved areas and populations can be found at:
http://bhpr.hrsa.gov/shortage/muaps/index.html

Criteria for health professional shortage areas can be found at:
http://bhpr.hrsa.gov/shortage/hpsas/designationcriteria/designationcriteria.html

Maps of shortage areas and populations were based upon shapes generated using the Community Issues Management site's mapping tool: http://www.cim-network.org/CIM/Tools/

Maps were further customized by Healthy Communities Institute.

2.2 Hospitalization Rates

While the Core Indicator Summary included several unadjusted hospitalization rate indicators, further risk-adjusted rates were obtained for comparison between geographies of varying population makeup. Rates were provided by Hawaii Health Information Corporation (HHIC), and are defined by the Agency for Healthcare Research and Quality (AHRQ) as a set of measures that can be used to identify quality of outpatient care that can potentially prevent the need for hospitalization. Risk adjustment attempts to account for differences in indicators across providers and geographic areas that are attributable to variations in patient mix. AHRQ's risk adjustment methodology employs multivariate ordinary least squares regression to estimate an expected value of each indicator an area would exhibit with an "average" case-mix. The model adjusts for patient demographics, including age, sex, all age-sex combinations, All-Payer Refined DRGs (a refinement of CMS's DRGs that additionally classifies non-Medicare cases) and severity-of-illness. HHIC applies AHRQ's risk adjustment methodology to further control for the top four dominant races in Hawaii, as determined by the Hawaii State Department of Health's Hawaii Health Survey. Risk adjustment coefficients are estimated using the Healthcare Cost and Utilization Project's (HCUP) State Inpatient Databases (SID). Rates are risk-adjusted based on the Healthcare Cost and Utilization Project's State Inpatient Databases. Please see http://qualityindicators.ahrq.gov/Modules/pqi_resources.aspx for a complete definition of indicators. Because the area of mental health was not well represented in the Core Indicator Summary, HHIC also provided unadjusted rates of hospitalization for any mental health-related primary diagnosis.

Sub-county hospitalization rates are included for Hospital Service Areas (HSA), which were defined in 1995 by hospital CEOs and are composed of contiguous zip codes surrounding a hospital's self-defined service area. Please see Appendix B for a list of the zip codes contained within each HSA.

Also included in Appendix B are unadjusted rates for age, gender, and race/ethnicity sub-populations. The inclusion of these rates in the Findings discussion is limited due to uncertainties in the comparability of these unadjusted rates with the risk-adjusted rates.

All rates are based upon patient residence, and values were suppressed if there were fewer than 10 cases. Population estimates are based on the U.S. Census Bureau, Population Division, Intercensal Estimates of the Resident Population for Counties of Hawaii and Hawaii State Department of Health, Office of Health Status Monitoring, Hawaii Health Survey. Sub-county demographic counts are based on estimates/projections provided by Pitney Bowes Business Insight, 2008-2011. Population estimates by race were provided by the Hawaii State Department of Health, Office of Health Status Monitoring, Hawaii Health Survey 2009-2010.

Hospitalization rate area maps were created by HCI using HHIC-provided Hospital Service Area maps, where darker shading of Hospital Service Areas reflects higher rates.

2.3 Key Informant Interviews

In order to supplement the quantitative findings, key informants were interviewed to further assess the underlying drivers for health outcomes, current community efforts, and obstacles to health. These key informants were chosen by the HAH Advisory Committee on November 7-8, 2012 through a structured nomination and selection process, which followed a thorough review of the preliminary core indicator data. Advisory members nominated community members with expertise in public health, in the top ten topic areas from the core indicator analysis, as well as in those topic areas where there were data gaps. Key informants were also nominated for their knowledge of vulnerable populations, such as low-income or more adversely impacted racial/ethnic groups. After the nomination process, the advisory members prioritized the list through a voting process.

The key informant interview process was part of a larger state-wide CHNA effort in which a total of 105 community experts were nominated, then prioritized down to a list of 75. The remaining 30 nominated key informants were maintained on an alternate list, in the event that a key informant was not available. Roughly 15 key informants were allotted for each of the four counties and for the overall state perspective. For this Kauai County report, 13 key informants were interviewed for their specific knowledge of the health needs of this community. When certain topic areas were lacking an interview specific to Kauai County, findings from the state-wide perspective were included.

The interviews were conducted by local consultants, Storyline Consulting. The interviews took place between November 19, 2012 and January 2, 2013 and lasted 30-60 minutes in length. Most interviews took place by phone; a few took place in person. Storyline Consulting typed notes from the interviews during the conversation, capturing the bulk of the conversation verbatim. Interview notes were then condensed and entered into a data collection spreadsheet.

The information obtained from these interviews was incorporated into this report in three ways. A summary qualitative analysis tool called a "word cloud" was produced using TagCrowd.com to identify the most common themes and topics. Words or phrases that were mentioned most often display in the word cloud in the largest and darkest font (see Figure 3.6). Next, input from the key informants was included in each relevant topic area in Section 3.2. Lastly, any recommended community programs or resources are referenced in Appendix D: Identified Community Resources.

A Key Informant Interview Guide was developed to guide the interviews. Storyline Consulting adapted the interview guide to best suit Hawaii's context, unique ethnic/racial profile, and culture. The questions used in the guide are listed below:

Q1: Could you tell me a little bit about yourself, your background, and your organization?

Q2: You were selected for this interview because of your specialized knowledge in the area of [topic area]. What are the biggest needs or concerns in this area?

Q3: What is the impact of this health issue on low income, underserved/uninsured persons?

Q4: Could you speak to the impact on different ethnic groups of this health concern?

Q5: Could you tell me about some of the strengths and resources in your community that address [topic area]?

Q6: Are their opportunities for larger collaboration with hospitals and/or the health department that you want us to take note of?

Q7: What advice do you have for a group developing a community health improvement plan to address these needs?

Q8: What are the other major health needs/issues you see in the community?

Q9: Is there anything else you'd like us to note?

2.4 Community Survey

An online survey was used to collect community opinions on the greatest health needs for Kauai County. The survey link was virally distributed by members of the HAH Advisory Committee and was posted on several local websites, including www.HawaiiHealthMatters.org. The survey was open from November 28 to December 24, 2012. Because the survey sample is a convenience sample, it is not expected to be representative of the population as a whole. Survey respondents provided select personal characteristics, including gender, age, sex, and zip code of residence and whether or not the resident works in the health field. Residents were asked to rank the top ten topic areas from the core indicator analysis in order of importance for their community, as well as informing us about other topic areas of concern. Respondents were also asked which racial/ethnic groups they felt experienced more health problems than average. Lastly, there was an open-ended question asking the resident if there was anything else they would like to share with us, in terms of health concerns in their community. Opinions gathered with this survey are included in this report as highlights, called “Voices from the Community,” in describing notable areas of need.

3 Community Health Needs Assessment Findings

3.1 Demographics

The demographics of a community significantly impact its health profile. Different ethnic, age, and socioeconomic groups may have unique needs and take varied approaches to health. This section provides an overview of the demographics of Kauai County, with comparisons to Hawaii and the United States for reference. All estimates are sourced from the U.S. Census Bureau's American Community Survey unless otherwise indicated.

3.1.1 Population

In 2011, Kauai County had a population of 67,701. As measured by the decennial Census, the county had a population density between those of Hawaii and the U.S. While the county is home to just 4.9% of the state's population, Kauai County grew at a faster rate than both the state and nation between 2000-2010.

Table 3.1: Population Density and Change

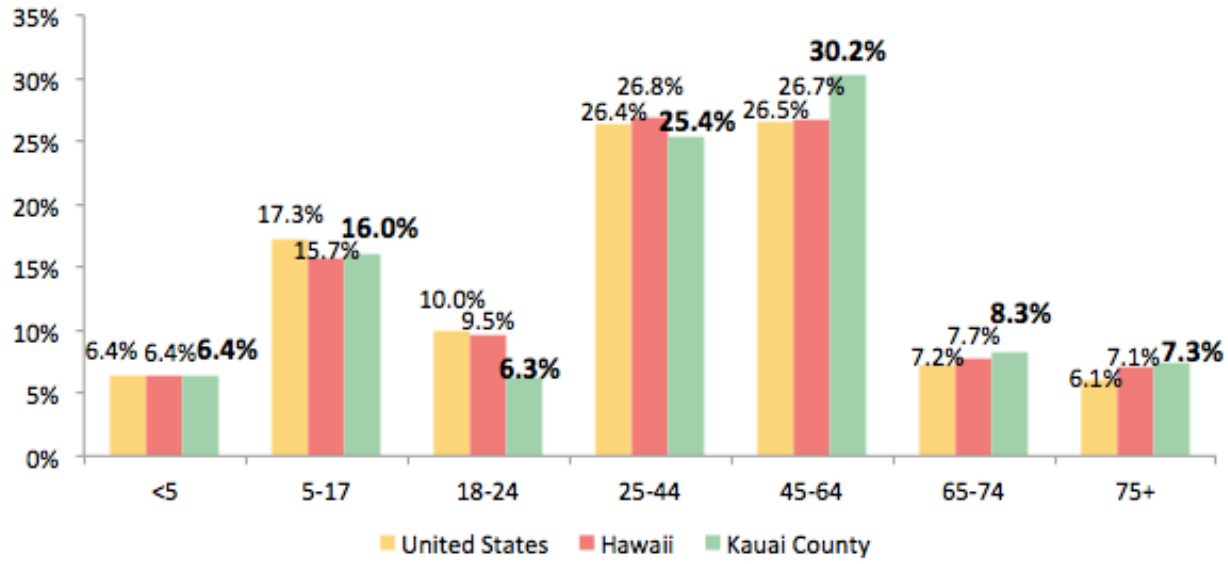
	Kauai County	Hawaii	U.S.
Population density, 2010	108 persons/sq. mi	212 persons/sq. mi	87 persons/sq. mi
Population change, 2000-2010	14.8%	12.3%	9.7%

*2010 U.S. Census

Age

As seen in Figure 3.1, the Kauai County population is older than that of Hawaii and the rest of the country, with a median age of 42.2 (compared to 38.5 for Hawaii and 37.3 for the U.S.). The 18-24 age group in particular is much smaller, at just 6.3% of the total population. Conversely, the county's 45-64 population (30.2%) is quite a bit larger than both the state and the nation.

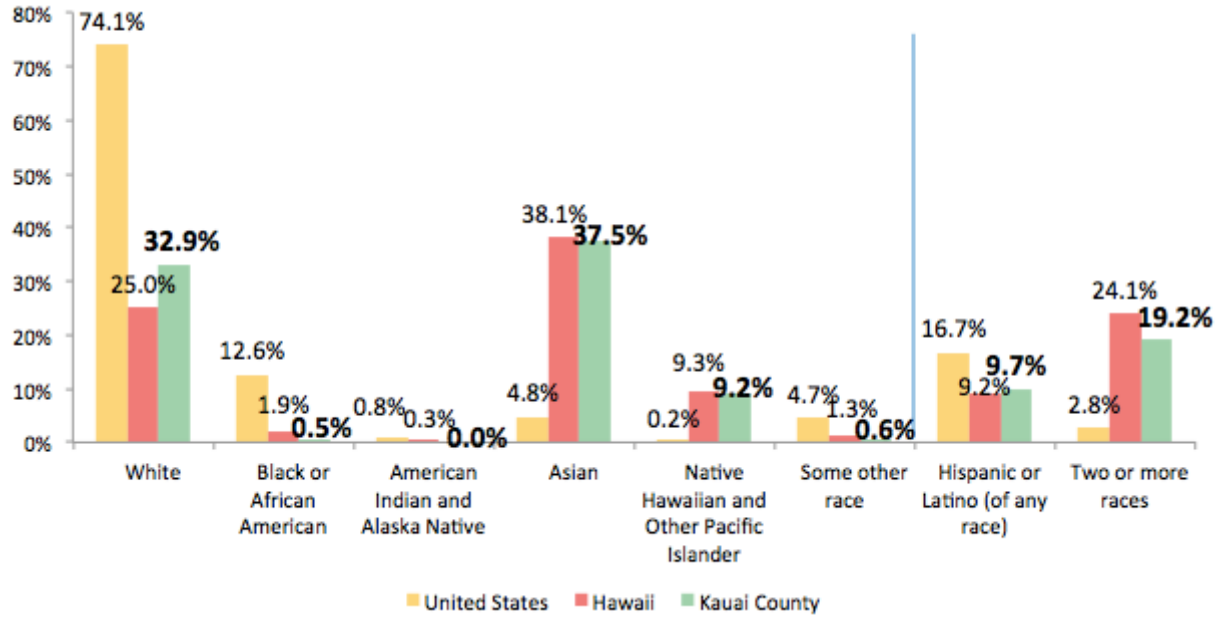
Figure 3.1: Population by Age, 2011



Racial/Ethnic Diversity

Kauai County's racial/ethnic makeup, and that of the state as a whole, differs quite a bit from the rest of the country. In Figure 3.2 below, the race groups displayed to the left of the blue line include residents reporting one race only, while residents reporting two or more races and Hispanic/Latino ethnicity (of any race) are shown to the right of this line. The population in Kauai County reporting a race of White only makes up 32.9% of the population, compared to 25.0% in Hawaii and 74.1% in the U.S. Black/African American, Hispanic/Latino, and Other race/ethnicity groups are also much smaller than the U.S. overall. While the American Indian/Alaska Native population in the U.S. is already small, so few individuals of this group live in Kauai County that their population rounds to 0.0% of the total.

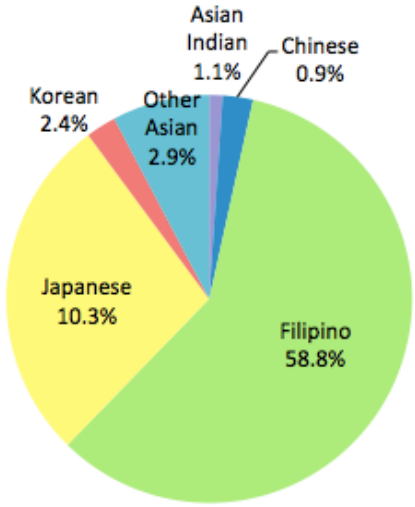
Figure 3.2: Population by Race/Ethnicity, 2011



The largest single race group in Kauai County is Asian at 37.5%. The majority of the Asian population is Filipino, as seen in Figure 3.3 (which includes all residents reporting a race of Asian only regardless of Hispanic/Latino ethnicity). Kauai County also has much larger Native Hawaiian/Other Pacific Islander (9.2%) and multiracial populations (19.2%) than the rest of the country.

A higher percent of Kauai County is foreign-born compared to the U.S., but not to Hawaii. In 2006-2010, 13.7% of Kauai County was foreign-born, compared to 17.7% of Hawaii and 12.7% of the U.S. overall. However, a substantially lower percent of Kauai County households were linguistically isolated compared to both the state and nation: just 2.7% of households reported that all of its members ages 14 and over had some difficulty speaking English, contrasted with 6.2% of households in Hawaii and 4.8% of households in the U.S.

Figure 3.3: Breakdown of Population Reporting Race of Asian Only, 2011

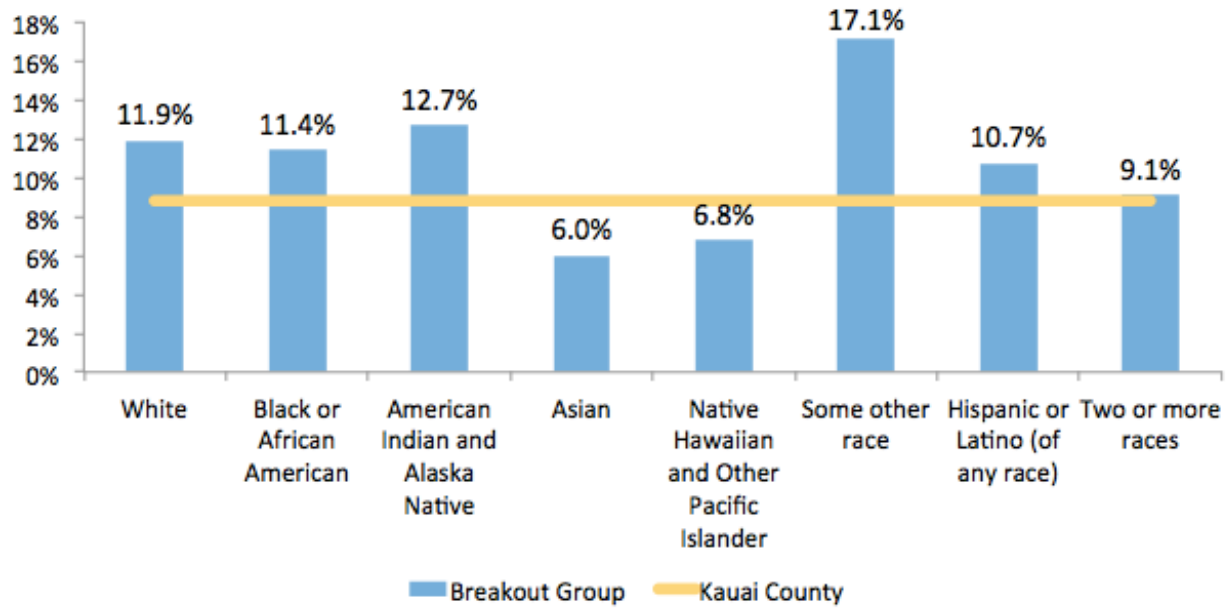


3.1.2 Economy

Median household income in 2006-2010 for Kauai County was $62,531, higher than the national value of $51,914 but lower than the state's $66,420. Per capita income in the county ($26,513) was lower than both those of Hawaii ($28,882) and the U.S. ($27,334).

While income in Kauai County is not as high as that of Hawaii, it is tied with Honolulu County for the lowest levels of poverty in the state (8.8% vs. 9.6% for the state). On the Island of Kauai (the only portion of the county where poverty data is available), poverty is concentrated in the northern part of the island. Certain race/ethnicity groups are also more affected by poverty, as seen in Figure 3.4. The "Other" and American Indian/Alaska Native populations have the highest poverty rates at 17.1% and 12.7% respectively. The two least impoverished groups are Asian (6.0%) and Native Hawaiian/Other Pacific Islander (6.8%). It is important to note that federal definitions of poverty are not geographically adjusted, so the data may not adequately reflect the proportion of Hawaii residents who struggle to provide for themselves due to the high cost of living in the state.

Figure 3.4: Poverty by Race/Ethnicity, 2006-2010



3.1.3 Education

A greater proportion of Kauai County residents aged 25 and older have at least a high school degree (88.3%) compared to the U.S. overall (85.0%). However, the county falls short of meeting the state value of 89.8%. Kauai County also has a lower percentage of adults aged 25 and older who have a bachelor's degree or higher, compared to both the state and the nation, at just 22.7%; 29.4% of Hawaii and 27.9% of the U.S. have at least a bachelor's degree.

3.2 Overview of Needs Assessment

Core Indicator Summary

Ninety-three indicators of health drivers and outcomes were included in the systematic review of secondary data. Table 3.2 shows the weighted ranking scores for each topic area, from most severe to least.

Table 3.2: Core Indicator Summary Scores

Topic Area	Indicators	Score	Rank
Family Planning	3	0.67	1
Substance Abuse & Lifestyle	3	0.60	2
Mental Health & Mental Disorders	3	0.56	3
Education	3	0.50	4
Transportation	3	0.50	4
Access to Health Services	3	0.44	6
Cancer	12	0.32	7
Immunizations & Infectious Diseases	6	0.29	8
Injury Prevention & Safety	10	0.28	9
Maternal, Fetal & Infant Health	8	0.27	10
Environment	3	0.25	11
Economy	13	0.25	11
Oral Health	4	0.23	13
Heart Disease & Stroke	4	0.21	14
Respiratory Diseases	2	0.20	15
Exercise, Nutrition, & Weight	10	0.15	16
Diabetes	1	n/a	n/a
Disabilities	0	n/a	n/a
Older Adults & Aging	1	n/a	n/a
Social Environment	1	n/a	n/a

The ranking of scores for the topic areas provides a systematic way to assess a large number of indicators across many topic areas. Because the absolute and relative scores are influenced by the number of available inputs for the scoring equation, scoring differences can arise due to availability of data, so **it is important to consider the scores in the context of the primary data and the interrelatedness of many of the topic areas**. Findings of both quantitative and qualitative nature are presented below by topic area, along with a discussion of what can be learned from these results. For a complete list of indicators included in the core indicator summary, see Appendix A.

Hospitalization Rates

Risk-adjusted hospitalization rates due to preventable causes in Kauai County for the most recent year available, 2011, are presented in Table 3.3. The specific causes of hospitalization with the three highest overall rates are Mental Health, Bacterial Pneumonia, and Heart Failure. Prevention Quality Indicator (PQI) Composite Rates are a summary of preventable causes as described in the table footnote. Specific causes of hospitalization are further discussed in applicable topic areas below. All hospitalization rates are listed in Appendix B.

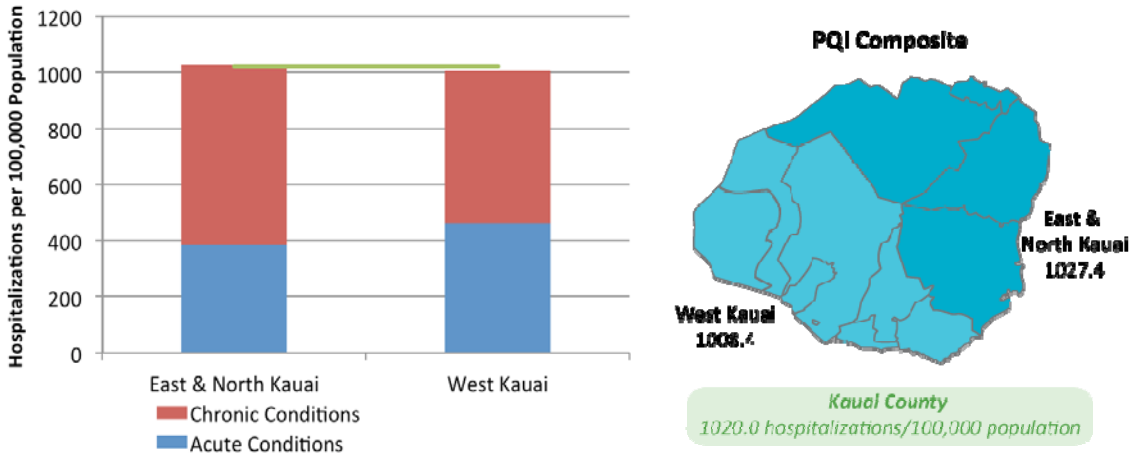
Table 3.3: Hospitalization Rates due to Preventable Causes in Kauai County, 2011

Preventable Cause	Hospitalizations	Risk-Adjusted Rate per 100,000 (95% CI)
Mental Health*	220	413 (358.4-467.5)
Bacterial Pneumonia†	141	247.1 (206.3-287.8)
Heart Failure §	130	225.1 (186.4-263.8)
COPD in Older Adults (Ages 40+) §	111	317.2 (258.2-376.2)
Urinary Tract Infection†	66	118.5 (89.9-147.1)
Diabetes Long-Term Complication §	44	78 (54.9-101)
Low Birth Weight**	42	5.1 (3.5-6.6)
Dehydration†	28	49.6 (31.2-68)
Diabetes Short-Term Complication §	20	38.6 (21.7-55.5)
Perforated Appendix***	20	23.2 (13-33.3)
Hypertension §	16	28.6 (14.6-42.6)
Rate of Lower-Extremity Amputation §	<10	suppressed
Angina Without Procedure §	<10	suppressed
Asthma in Younger Adults (Ages 18-39) §	<10	suppressed
Uncontrolled Diabetes §	<10	suppressed
Composite Hospitalization Rates		
PQI Composite – Acute Conditions	235	415.6 (362.5-468.7)
PQI Composite – Chronic Conditions	342	604.4 (540.3-668.4)
PQI Composite	577	1020 (936.8-1103.2)

* Rate for this cause is unadjusted
**Rate is per 100 live births
***Rate is per 100 appendicitis admissions
† Included in Acute Conditions Composite Rate
§ Included in Chronic Conditions Composite Rate

The rate of hospitalizations due to chronic conditions in 2011 was greater for the East & North Kauai HSA, while the rate due to acute conditions was greater for the West Kauai HSA.

Figure 3.5: PQI Composite Hospitalization Rates



Key Informant Interviews

The word cloud below illustrates the Kauai County needs mentioned most often by key informants, where the size and shading of the word reflects the frequency of its use. The concerns include both those pertaining to the informants' specific areas of expertise, as well as other issues they see in the community as a whole. Interviews are summarized by the topic area covered by the interviewees' expertise in sections 3.2.1 through 3.2.20.

Figure 3.6: Key Informant Interview Word Cloud

Community Survey

During the period of November 28 to December 24, 2012, 224 surveys were completed for Kauai County. As the survey was a convenience sample, it was not expected to be representative of the county population as a whole. Of the respondents, 73.7% were female, 25.9% male. Over half of respondents were between the ages of 45 and 64; 37.5% were under 45 and 4.5% were 65 or older. Most respondents were Community Health or Public Health Professionals (87.1%).

Highest Ranked Topic Areas

- Transportation
- Injury Prevention & Safety
- Maternal, Fetal & Infant Health
- Mental Health & Mental Disorders
- Family Planning

From the topics that scored highest in the core indicator summary, residents ranked the topic areas to the left highest.

From the topic areas that did not score high based on core indicator data, five were selected as also being a concern by at least 50% of respondents.

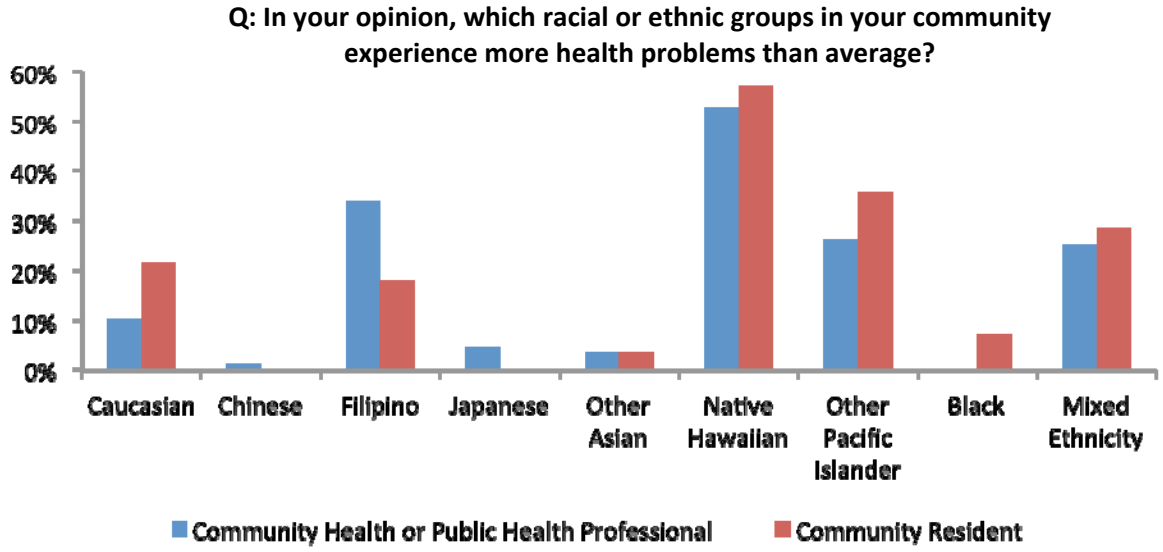
Other Areas of Concern

- Exercise, Nutrition, & Weight
- Diabetes
- Older adults & Aging
- Economy
- Heart Disease & Stroke

As seen in Figure 3.7, the race/ethnic group most commonly reported as experiencing health problems was Native Hawaiians, followed by Other Pacific Islanders. Health professionals were more likely than non-health professionals to include Filipinos as experiencing more health problems than average.

Please see highlights throughout this report of respondent opinions titled "Voices from the Community."

Figure 3.7: High-Risk Race/Ethnicity Groups Identified through Community Survey



The sections below, 3.2.1 - 3.2.20, will describe the findings by topic area in the following format:

Core Indicators and Supplemental Information

This section is more extensive for those topics where need demonstrated in the Core Indicator Summary was greatest. The top ten scoring topic areas include a list of highlights followed by a table including the indicators, most recent value, and how Kauai County fared across the four comparison methods. Green checkmarks indicate that the comparison was good, red X's indicate a poor comparison, and a blank cell indicates no comparison was possible. Further information about core indicators is included in Appendix A. When possible, data is supplemented by additional information obtained from previous needs assessments and reports.

Hospitalization Rates

As applicable, preventable hospitalization rates are compared to values across the State of Hawaii. Rates by Hospital Service Area are presented to identify the sub-county geographies with the highest level of burden. All hospitalization data for Kauai County and a description of the Hospital Service Areas are included in Appendix B.

Key Informant Interviews

The information gleaned from key informants who were interviewed for their expertise in the relevant topic area is summarized in a table. Main points made by interviewees are organized by the needs and concerns for Kauai County; the impact on low-income, underserved or uninsured, and/or race or ethnic groups; and the opportunities and strengths that they have identified in their community.

Summary

All findings are summarized for the topic with a focus on common themes.

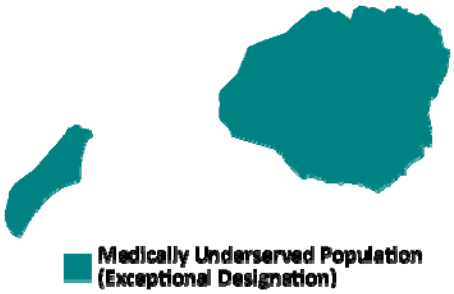
3.2.1 Access to Health Services

Core Indicators and Supplemental Information

Core indicators for Access to Health Services in Kauai County compare poorly to the rest of the state:

- A lower percentage of adults reported having one or more persons they think of as their personal doctor or health care provider than the state average (86.4%)
- Kauai has the highest proportion of adults without health insurance out of all Hawaii counties
- The proportion of children without insurance is twice the state average (2.2%) and increased from 3.5% in 2003 to 4.4% in 2005

Figure 3.8: Federally-Designated Medically Underserved Populations



In addition, the Health Resources and Services Administration has designated the entire county as having a Medically Underserved Population, as illustrated in Figure 3.8.

Table 3.4: Core Indicators – Access to Health Services

Indicator	Kauai County Value	Geographic Comparison	Trend	Disparity	HP2020 Target
Adults with a Usual Source of Health Care (2010)	85.2 percent	X	✓	✓	✓
Adults without Health Insurance (2010)	11.5 percent	X	✓	✓	
Children without Health Insurance (2005)	4.4 percent	X	X		

✓ indicates good comparison, X indicates poor comparison, blank cell indicates no comparison possible. Please see Methods section for cutoffs.
All values and data sources included in Appendix A.

Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Some people are falling through the cracks with spotty health care coverage *After-hours primary care not accessible so people go to the ER *Economy is still adversely affecting people's decisions to undergo elective surgeries that require time off work	*Enough primary care practices on the island, but they no longer accept patients who can't pay *There are language & cultural barriers preventing some groups, such as Native Hawaiians, from accessing certain types of care/ treatment even when they are available	*Good, quality care available and expanding *Radiation & chemo available, though cardiac patients must go to another island *Hospitals have quality staff who are from local communities and are familiar with patient population *Move toward looking at keeping

*In a bad economy, basic needs must be met before addressing other health needs *Homelessness is a big issue *Few psychiatrists and they are all retiring soon		people healthy, instead of making them well

Summary

Although health services are available in Kauai County, financial costs are prohibitive for residents as health insurance coverage lags behind other Hawaii counties. For some groups, language and cultural barriers further impede utilization of available services. Key informants stress that social determinants must be addressed to improve access to care.

Voices from the Community

"So many residents do not understand or are [not] able to communicate their health issues."

3.2.2 Cancer

Core Indicators and Supplemental Information

While there are many drivers of cancer, early detection and steps toward prevention can lessen the burden on a community's health. In Kauai County, this area ranked fifth highest.

Regarding screenings:

- The percent of women aged 40 and over who had a mammogram in the past two years was lower than the state average (76.5%). The HP2020 target of 81.1% was unmet
- The percent of women aged 18 and older who had a pap smear in the past three years was lower than the state average (77.4%). The HP2020 target of 93.0% was unmet
- The proportion of adults ages 50 and older who have had a blood stool test within the past two years decreased from 46.2% in 2003 to 15.6% in 2010, and compares poorly to both the state (24.7%) and the nation (17.2%)

Regarding new cases and mortality rates:

- Cervical Cancer Incidence was higher than the state average (8.2%), and in the worst quartile of U.S. counties
- Prostate Cancer Incidence increased from 110.4 cases/100,000 males in 2003-2007 to 120.5 cases/100,000 males in 2005-2009
- Colorectal cancer incidence has not met the HP2020 target of 38.6 cases/100,000 population. The colon cancer death rate is also higher than the state average (13.5 deaths/100,000 population)
- Liver & bile duct cancer incidence rate increased from 6.8 cases/100,000 population in 2003-2007 to 7.9 cases/100,000 population in 2005-2009
- Melanoma incidence rate for Kauai County is higher than the state average of 20.6 cases/100,000 population

Table 3.5: Core Indicators – Cancer

Indicator	Kauai County Value	Geographic Comparison	Trend	Disparity	HP2020 Target
Mammogram History (2010)	72.4 percent	X	✓	✓	X
Breast Cancer Incidence Rate (2005-2009)	105.6 cases/100,000 females	✓	✓	✓	
Breast Cancer Death Rate (2009-2011)	13 deaths/100,000 females	✓	✓	✓	
Pap Test History (2010)	73.1 percent	X	✓	✓	X
Cervical Cancer Incidence Rate (2005-2009)	10.9 cases/100,000 females	X	✓		
Prostate Cancer Incidence Rate (2005-2009)	120.5 cases/100,000 males	✓	X	✓	
Colon Cancer Screening (2010)	15.6 percent	X	X	✓	
Colorectal Cancer Incidence Rate (2005-2009)	45.4 cases/100,000 population	✓	✓	✓	X
Colon Cancer Death Rate (2009-2011)	18 deaths/100,000 population	X	✓	✓	
Liver and Bile Duct Cancer Incidence Rate (2005-2009)	7.9 cases/100,000 population	✓	X		
Lung and Bronchus Cancer Incidence Rate (2005-2009)	52.6 cases/100,000 population	✓	✓	✓	
Melanoma Incidence Rate (2005-2009)	22.3 cases/100,000 population	X	✓	✓	

✓ indicates good comparison, X indicates poor comparison, blank cell indicates no comparison possible. Please see Methods section for cutoffs.
All values and data sources included in Appendix A.

Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Obesity and environmental factors place people at risk, and should be addressed before cancer develops *High cost when found at late stages *Increasing aging population means increased number of people diagnosed with cancer	*Low-income women fall through the gaps with screening *Native Hawaiian, Pacific Islanders, and Filipino groups have poorer health outcomes and the women have higher breast/cervical cancer mortality rates *Higher incidence of cancer in Micronesians exposed to nuclear testing radiation *Cancer treatment centers are concentrated on Oahu and are costly to access from other islands	*Breast and Cervical Cancer Control Program reaches out to groups with higher mortality rates *Micronesians formed tight organizations and sports programs; when youth come out for sports they talk to them about disease and health *Hawaii has progressive policies to curb cigarette smoking and to provide free screening for colon and breast cancer *American Cancer Society program to improve access by picking up patients and taking them to their appointments; provides materials in Spanish, Tagalog and Ilocano

Summary

Kauai County is burdened by many types of cancer. Incidence rates of cervical cancer and melanoma are higher than the state average. Cancer screening for women has not met national targets, and colon cancer screening has decreased in recent years. Given that Kauai County's population is slightly older than the rest of the state, improving screening is important for reducing the health and financial costs of late diagnoses. Key informants highlight the importance of prevention and early diagnosis, but treatment centers are mostly on Oahu and difficult to get to from Kauai.

3.2.3 Diabetes

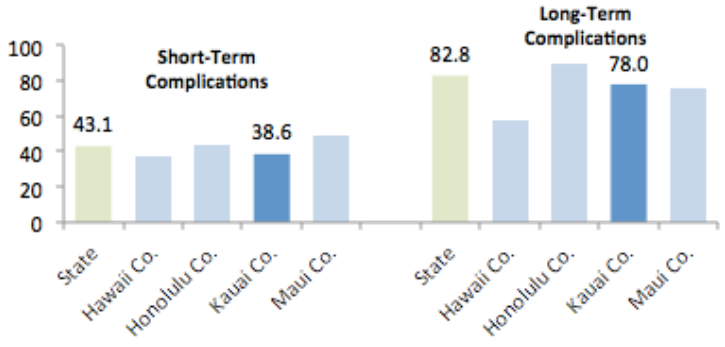
Core Indicators and Supplemental Information

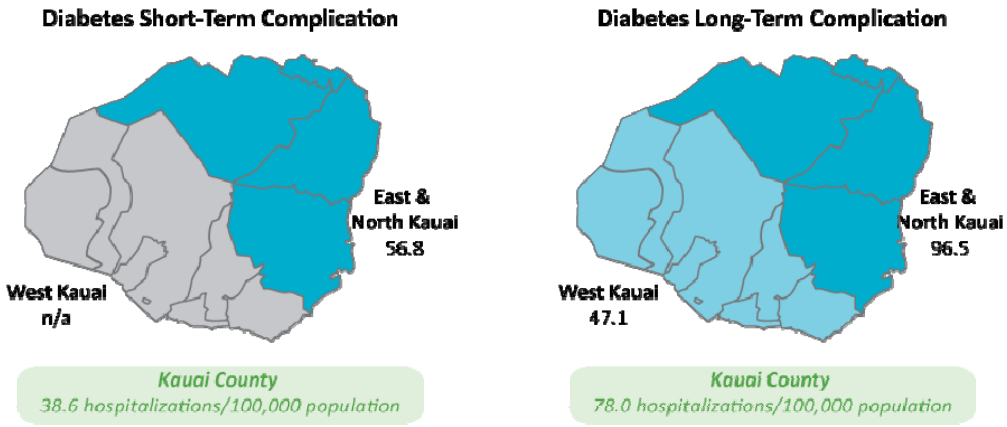
Diabetes as a topic area was not ranked in the Core Indicator Summary due to a limited number of available indicators for the topic. The one indicator available shows that Kauai County has a lower proportion of adults with diabetes (6.1%) than the average for the state (8.3%) and the nation (8.7%). Older adults are much more likely to have diabetes, with a prevalence of 18.4% among ages 65-74.

Hospitalization Rates

Kauai County has lower rates of diabetes-related hospitalizations compared to the state. The rates of hospitalization due to uncontrolled diabetes and lower-extremity amputations in Kauai County have been suppressed due to low case counts in 2011. The East & North Kauai Hospital Service Area had a higher rate of hospitalizations due to long-term complications of diabetes compared to West Kauai in 2011. The Hospitalization rate due to short-term complications in West Kauai has been suppressed due to the low case count in 2011.

Figure 3.9: Hospitalization Rates due to Diabetes, 2011





Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*National trend is that 1 in 3 children will have Type II diabetes; in Hawaii, much higher rate of 1 in 2 children *Childhood obesity will lead to diabetes becoming an even bigger problem in the future; the amount of resources spent on diabetes will double *Diabetes is going undiagnosed in many Hawaii residents	*Native Hawaiians have a higher rate of diabetes, and those living in rural areas have little access to specialists *Higher prevalence for diabetes among Native Hawaiians, other Pacific Islanders, Japanese, and Filipinos and we have such a blend of those bloodlines in Hawaii. *Difficulties in translating messages to Samoan and other Pacific Island languages *The high rates in outlying areas and low-income populations could be due to lack of self-assessment of health conditions and lack of access to critical care	*Work with American Heart and American Cancer Associations to combat obesity *Work with schools to increase physical activity *Can ask legislature to put physical education back in schools

Summary

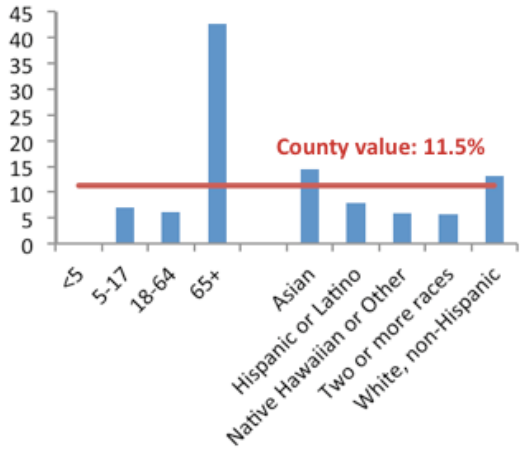
Although less of a burden in comparison to other Hawaii counties, the impact of diabetes is projected to increase in severity due to childhood obesity. Diabetes' greatest impact is on low-income residents with low access to medical care. Key informants also call attention to the need to translate information for non-English speakers in some of the higher-prevalence populations. Hospitalization rates in East & North Kauai suggest poor disease management in these areas leading to more severe disease. Reducing the impact of diabetes in Kauai County will require combatting obesity, which may be effectively done by collaborating with chronic disease and wellness associations and promoting physical activity, especially in schools and among youth.

3.2.4 Disabilities

Core Indicators and Supplemental Information

There was no data included in the Core Indicator Summary specific to Disabilities (please see Section 4.1.2 for a discussion on data gaps). Based on data from the 2011 American Community Survey, 11.5% of Kauai residents have a disability, which is lower than the national average of 12.1%. Of people ages 20 to 64 with a disability in Kauai, 21.7% are living in poverty.[2] The most

Figure 3.10: Percent of Persons with a Disability by Race/Ethnicity: Kauai, 2011[2]



[2] U.S. Census, American Community Survey, 2011 Estimates

common type of difficulty is ambulatory (serious difficulty walking or climbing stairs), as seen in Table 3.6.

A review of the recent statewide report *Maternal and Child Health Needs Assessment Summary* identifies two priorities for children with special health care needs:[3]

- Promote the identification of children with developmental delay
- Promote the transition of adolescents with special health care needs to adult health care

Table 3.6: Percent of Persons with a Disability, 2011[2]

	Kauai County	State
Persons with a Disability	11.5	10.6
Hearing Difficulty	4.5	3.6
Vision Difficulty	1.9	1.7
Cognitive Difficulty (ages 5+)	4.5	4.5
Ambulatory Difficulty (ages 5+)	5.3	5.9
Self-Care Difficulty (ages 5+)	3.3	2.1
Independent Living Difficulty (ages 18+)	4.1	5.2
Children with a Disability	5.0	10.6

Includes all ages unless otherwise indicated

Furthermore, given the large proportion of aging adults 65+ with a disability (42.7%),[2] the living needs (including housing, transportation, health care, and social support) of the aged and disabled population must be strongly considered in community planning.

Summary

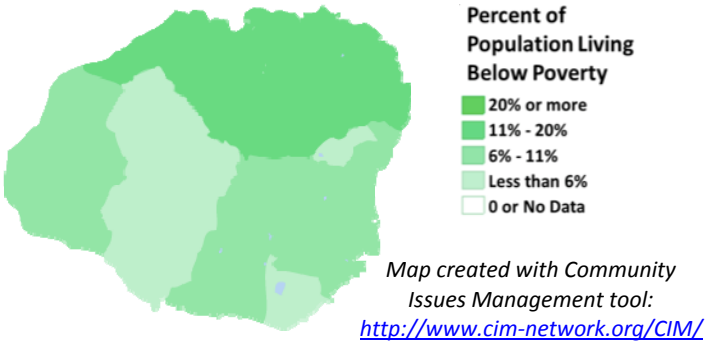
The population of Kauai County with a disability must not be ignored in a needs assessment as their needs may require special attention. Adults with a disability may require special housing, transportation, and health care services. Early identification of needs among children is needed to lessen the burden of disability on their health and wellness, and special focus may be needed to ensure a smooth transition from pediatric to adult health care. Although there are fewer persons living with a disability compared to the nation, a larger percentage of disabled persons live in poverty in Kauai County compared to the population at large. Socioeconomic constraints put this population at further disadvantage.

3.2.5 Economy

Core Indicators and Supplemental Information

Economic conditions are highly correlated with health. Although many economic indicators for Kauai County indicate strength, it should be noted that income inequality in Kauai County is the second worst in the state and some sub-populations are more affected by poverty. Additionally, the proportion of households with cash public assistance income is in the highest quartile of U.S. counties. The unemployment rate was the second highest in the state as of June 2012. Poverty is unevenly distributed in the county, as seen in Figure 3.11. Among the ethnicities represented in Kauai County, the highest poverty levels are found in the "Other" (17.1%) and American Indian/Alaska Native (12.7%) subpopulations.[4]

Figure 3.11: Poverty in Kauai County by Census Tract, 2011[4]



Map created with Community Issues Management tool: http://www.cim-network.org/CIM/

[3] From the Family Health Services Division, Hawaii Department of Health Report: *State of Hawaii Maternal & Child Health Needs Assessment Summary*, November 2010. http://hawaii.gov/health/doc/MCH-NASummary2010

Moreover, 15.7% of children in Kauai County live in households receiving government assistance.[5]

Key Informant Interviews

Although no key informants were interviewed specifically for their knowledge on the economy of Kauai County, the effects of poverty on health were mentioned in several interviews spanning many topics. Please see a discussion of the impact of socioeconomics in Section 4.1.

Summary

The economic disparity in Kauai County drives many of the health disparities discussed throughout this report. Key informants in many other topic areas discussed the effect of socioeconomic factors on health and quality of life for Kauai's residents. Because federal definitions of poverty do not adjust for geographic variations in the cost of living, secondary data may not adequately reflect the proportion of residents who struggle to provide for themselves due to the high cost of living in Hawaii. The necessity of addressing health and quality of life needs among the 5,710 persons who have income below the federal poverty level[6] is critical in order to realize a healthy community.

3.2.6 Education

Core Indicators and Supplemental Information

The education core indicators reflect the disparity that exists in Kauai County for opportunities towards economic and social advancement:

- Although the proportion of adults without a high school degree (3.5%) is lower than the state and national averages, the groups with the highest proportions are Native Hawaiians (3.9%) and Filipinos (3.9%)
- A lower proportion of people have a Bachelor's degree (22.7%) than the state average (29.4%)
- The student-to-teacher ratio (16.5 students/teacher) is higher than any other county in Hawaii and in the worst quartile among all U.S. counties

Table 3.7: Core Indicators – Education

Indicator	Kauai County Value	Geographic Comparison	Trend	Disparity	HP2020 Target
People 18+ without a High School Degree (2010)	3.5 percent	✓	✓	X	
People 25+ with a Bachelor's Degree or Higher (2006-2010)	22.7 percent	X	✓	X	
Student-to-Teacher Ratio (2009-2010)	16.5 students/teacher	X	✓		

✓ indicates good comparison, X indicates poor comparison, blank cell indicates no comparison possible. Please see Methods section for cutoffs.
All values and data sources included in Appendix A.

[4] U.S. Census, American Community Survey, 2006-2010 Estimates
[5] From the Family Health Services Division, Hawaii Department of Health Report: *State of Hawaii Primary Care Needs Assessment Data Book 2012*, July 2012. http://hawaii.gov/health/doc/pcna2012databook.pdf
[6] U.S. Census, American Community Survey, 2006-2010 Estimates

Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*High-quality early childhood education is a critical foundation for later success, but many young children are not mentally stimulated enough *Hawaii does not have universal preschool or mandatory kindergarten *Teen dropouts impact not only their education but also their ability to advocate for their own health and wellness *Teenagers are at risk with alcohol and drug use, chronic diseases like diabetes, and teen pregnancies *Students are graduating unprepared in math and English *Large population of 18-25 year olds that aren't working or going to school *The necessity of education is not fully appreciated, because of history as a plantation community	*Challenges for low-income students include nutrition, adequate sleep, and family dynamics that create depression *Culture is especially important to students who have lost their sense of belonging *More recent immigrants face more challenges, including low education and income in families *Gap between Native Hawaiians and peers at community college level	*Single most important thing to be done today is establishing an early learning base *Many after-school support systems are in place today, which are incredibly important *Groups are making home visits to dropouts to re-engage them in learning *Should develop village-oriented efforts to share success and accountability with community *Prioritize funding for children *Local administrators are making strides with island students by developing themed K-12 educational opportunities to leverage students' interests *Program to support students who weren't planning on attending college by providing tuition, textbook costs, & support services

Summary

Kauai County faces several challenges in education, including a high student-to-teacher ratio and a low rate of higher educational attainment among adults. Key informants note cultural barriers to education, especially for Native Hawaiian and recent immigrant students. Several efforts to promote education are underway, including programs to engage K-12 students and to provide financial and social support for at-risk college students.

3.2.7 Environment

Core Indicators and Supplemental Information

Air quality measures in Kauai County are good, with zero pounds of PBT or Recognized Carcinogens Released into the Air in 2011. However, more beach water quality samples exceeded health standards for the presence of pathogenic organisms in Kauai County than elsewhere in the state in 2011.

Summary

While the environment did not arise as a great need for Kauai County, it should be noted that environmental safety can vary within the county on a more local level for which data is not available. Air and water quality has the strongest health effect on the most vulnerable in the community, including

children and older adults. Pathogens found in recreational water samples can cause a wide variety of acute illnesses, including gastroenteritis, respiratory infection, diarrhea, ear infection, and others.

3.2.8 Exercise, Nutrition & Weight

Core Indicators and Supplemental Information

Healthy activity patterns, diet, and weight have profound effects on chronic disease. With the exception of recreation/fitness facility density and SNAP-certified store density, Kauai County compared favorably to the U.S. and other Hawaii counties for all core indicators. One alarming trend in Kauai County is the growing proportion of Adults who are Obese, which increased from 14.3% in 2003 to 23.0% in 2010.

Furthermore, a recent statewide needs assessment of Maternal and Child Health Needs identified reducing the rate of overweight and obesity in young children ages 0-5 as a priority for children in the state.[7]

Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*People are not getting enough physical activity, largely because of how car-centric society has become *Built environment discourages pedestrians; even when people want to walk they don't have safe options	*Native Hawaiians have higher obesity rates, partly because of culture	*There are many working on policy/advocacy, but the programs are just as important for educating and enlightening *There could be more workplace wellness programs, including healthier food in vending machines and free drinking water *Need to develop safe routes to school to encourage physical activity *Multi-organization partnership brought electronic benefit transfer (EBT) payment systems to farmers markets and, with a county grant, doubled the value of tokens so lower-income population could buy fresh fruits and vegetables *In schools, sugary treats are prohibited while gardens are taking root

Summary

Obesity among adults is a worsening problem in Kauai County, which may be partially attributable to the community's culture and physical environment. Native Hawaiians in the community are more likely to be obese. One key informant notes that while some successful programs have already effected positive

[7] From the Family Health Services Division, Hawaii Department of Health Report: *State of Hawaii Maternal & Child Health Needs Assessment Summary*, November 2010. http://hawaii.gov/health/doc/MCH-NASummary2010

changes in the community's eating habits, other initiatives (e.g. workplace wellness programs, safe routes to school) are necessary to continue improving health.

3.2.9 Family Planning

Core Indicators and Supplemental Information

Family Planning ranked highest among core indicator topic areas, with poor comparisons across all indicators in this area:

- Kauai County has a lower rate of intended pregnancies compared to the state average (52.6%) and has not met the HP2020 target of 56.0%
- The teen birth rate is higher than the state average (29.9%) and is especially high among Native Hawaiian/Pacific Islanders (198.1 births per 1,000 women aged 15-19 years)
- The proportion of infants born to mothers with less than 12 years of education is higher than the state average of 7.3%

Table 3.8: Core Indicators – Family Planning

Indicator	Kauai County Value	Geographic Comparison	Trend	Disparity	HP2020 Target
Pregnancies that are Intended (2009)	51.1 percent	X	✓		X
Teen Birth Rate (2011)	38.7 births/1,000 women aged 15-19 years	X	✓	X	
Infants Born to Mothers with <12 Yrs Education (2011)	8.7 percent	X	✓	X	

✓ indicates good comparison, X indicates poor comparison, blank cell indicates no comparison possible. Please see Methods section for cutoffs. All values and data sources included in Appendix A.

Furthermore, a recent statewide needs assessment of Maternal and Child Health Needs identified reducing the rate of unintended pregnancy (including a focus on teen pregnancy) as a priority for Women and Infants.[8]

Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Drug addiction leads to poor choices about use of protection during sex; babies are neglected or abused or have fetal alcohol syndrome *High teen pregnancy rate *Planned Parenthood closed after hurricane 20 years ago and only re-opened this past year, currently only for one day/week	*Youth in foster care are twice as likely to be pregnant by the time they are 21	*Teenagers that have children can still complete their education through program that allows them to bring infants to school

[8] From the Family Health Services Division, Hawaii Department of Health Report: *State of Hawaii Maternal & Child Health Needs Assessment Summary*, November 2010. http://hawaii.gov/health/doc/MCH-NASummary2010

*Schools do not provide sexual health education, focus only on abstinence *Need to develop a community health plan that allows evidence-based comprehensive sexual health education & easier access to contraception	

Summary

The family planning issues in Kauai County revolve around pregnancies in young mothers. Attributed by key informants to a lack of adequate sex education in public schools and access to family planning services, the high birth rate among teens is affecting the social and educational development of young women and placing infants at higher risk of adverse health outcomes.

3.2.10 Heart Disease & Stroke

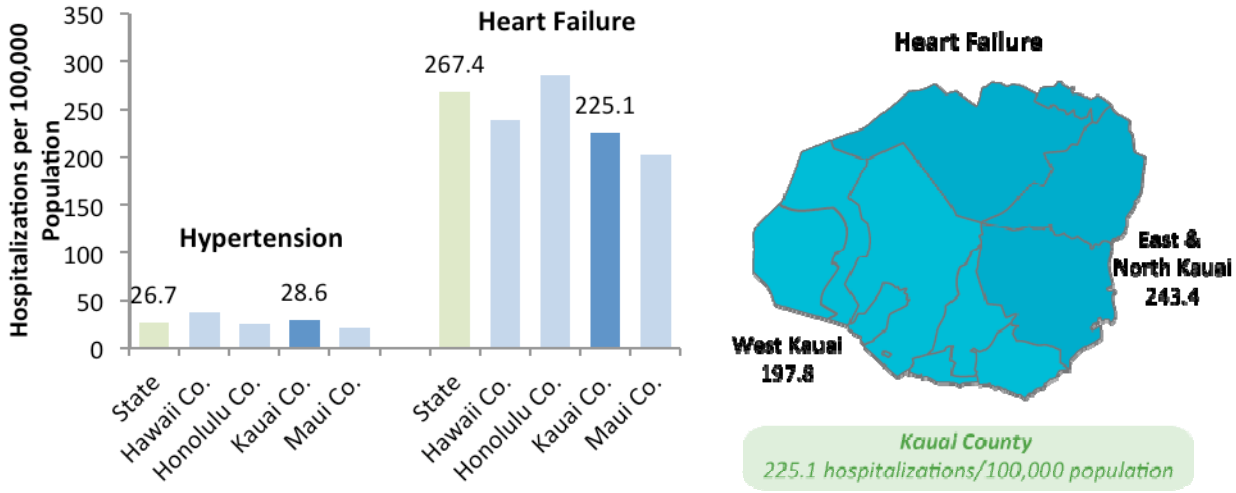
Core Indicators and Supplemental Information

Kauai County ranked relatively well in heart health core indicator data. High cholesterol prevalence, while low compared to the state and the nation, did increase from 28.9% in 2003 to 34.1% 2009 and is far from meeting the HP2020 target of 13.5%.

Hospitalization Rates

Among Hawaii counties in 2011, Kauai County had the second highest rate of hospitalization due to hypertension, and the second lowest due to heart failure. Due to low case counts, the rate for angina without procedure has been suppressed for Kauai County. Only hospitalization rates due to heart failure had case counts high enough to be compared by HSA; East & North Kauai had a higher rate than West Kauai.

Figure 3.12: Hospitalization Rates due to Heart Disease, 2011



Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Need for education on smoking prevention/cessation, blood pressure control, weight control, aspirin *Lack of resources for quick EMS response, heart/stroke patient rehabilitation *Need to look toward primary prevention and wellness, developing awareness and healthy habits *Kids are getting driven to structured activities instead of playing outside *Parents don't have time to cook at home and end up eating less healthy but faster food *Food is an important component of many cultural events, but many times the food being served is unhealthy	*Disproportionate impact on Native Hawaiians and Filipinos *Language barriers for Filipino immigrant population *Storytelling is an important way of communicating among the Pacific Island populations, and health information should be shared with this in mind *Access to technology and computer illiteracy may be barriers to utilizing online tools	*A lot of resources are available, it's a matter of leveraging and collaborating *Ability to collaborate when everyone brings their strengths, resources, expertise, and knowledge to the table

Summary

Kauai County fares relatively well in the area of heart disease and stroke. However, the increase in high cholesterol prevalence as well as the rate of hospitalization due to hypertension may suggest that many adults may have health conditions that indicate poor heart health. According to key informants, Native Hawaiians and Filipinos are most affected by heart disease and stroke; culture and language awareness is critical for addressing this issue. The social environment is also identified as a promoter of unhealthy behaviors among families and the younger generations.

3.2.11 Immunizations & Infectious Diseases

Core Indicators and Supplemental Information

Immunizations and infectious disease ranked eighth among Kauai County's areas of need, with tuberculosis incidence a particular area of concern:

- The tuberculosis incidence rate is 31% higher than the state average (9.0 cases/100,000 population), and also does not meet the HP2020 target of 1.0 case/100,000 population
- The two other HP2020 targets in this topic area are also unmet: vaccinations rates among older adults for both influenza (target: 90.0%) and pneumonia (target: 90.0%)
- AIDS Incidence Rate is 24% higher than best Hawaii county (Honolulu, at 7.6 cases/100,000 population)

Table 3.9: Core Indicators – Immunizations & Infectious Diseases

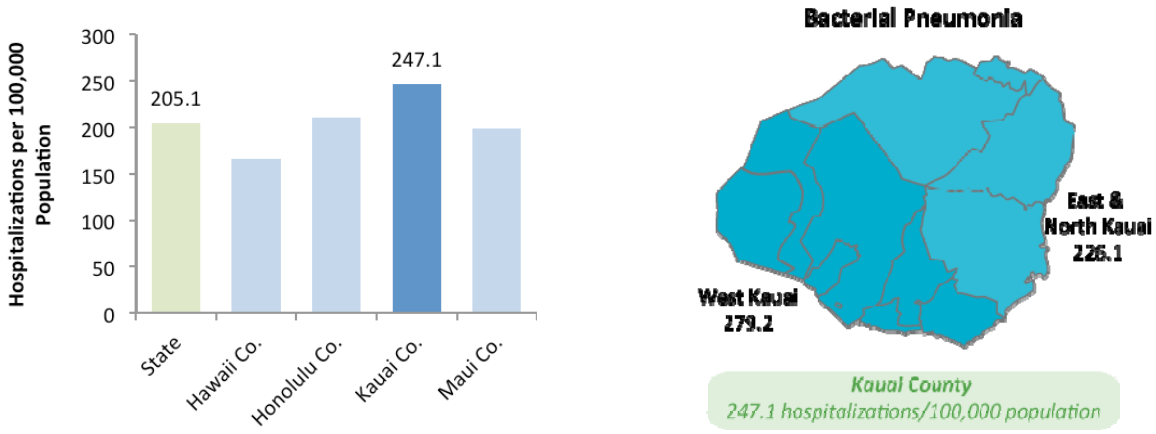
Indicator	Kauai County Value	Geographic Comparison	Trend	Disparity	HP2020 Target
Influenza Vaccination Rate 65+ (2010)	67.8 percent	✓	✓	✓	X
Pneumonia Vaccination Rate 65+ (2010)	69.3 percent	✓	✓	✓	X
AIDS Incidence Rate (2008)	9.4 cases/100,000 population	X	✓		
Chlamydia Incidence Rate (2011)	168.2 cases/100,000 population	✓	✓		
Gonorrhea Incidence Rate (2011)	11.8 cases/100,000 population	✓	✓		
Tuberculosis Incidence Rate (2011)	11.8 cases/100,000 population	X	✓		X

✓ indicates good comparison, X indicates poor comparison, blank cell indicates no comparison possible. Please see Methods section for cutoffs. All values and data sources included in Appendix A.

Hospitalization Rates

Kauai County had the highest rate of hospitalization due to bacterial pneumonia out of all Hawaii counties in 2011; bacterial pneumonia was also the second most frequent cause of hospitalizations in the county (n=141) among the 15 preventable causes studied. Within the county, West Kauai experienced higher hospitalization rates.

Figure 3.13: Hospitalization Rates due to Bacterial Pneumonia, 2011



Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Schools are no longer providing some of the vaccines they used to *Lack of communication between vaccination providers can mean some patients are receiving duplicate vaccinations or no vaccinations *More people are refusing vaccines; needs to be more public education	*Attitudes towards immunization are determined by socioeconomic factors more than race/ethnicity *Migrant populations, unlike immigrants, don't need a health clearance to enter the country *Language and cultural barriers to effective communication and care	*Availability of vaccines through pharmacies has been beneficial *The Hawaii legislature began seriously addressing HIV/AIDS 15 years ago by making it a line item in the communicable diseases budget; Hawaii is now considered a low-prevalence state *Malama Pono performs an

about the importance of vaccines * Hep B and viral hepatitis are big problems because of the large immigrant population on the island * Viral hepatitis surveillance is poor in the state * Hep C a big problem because Kauai has a fairly large injection drug use problem, and screening is stigmatized * Highest TB rates in the state *Insufficient resources, especially in terms of community health nurses	for the Pacific Islander population *Many in the Pacific Islander communities are not used to medical facilities, so nurses provide education and outreach in churches & other social venues instead *Community education is adapted for different cultures: general, Filipino, and Pacific Islander; survey & educational materials are now provided in Samoan, Tongan, Marshallese, Chuukese, Tagalog, Ilocano *Pacific Islanders are denied many Medicaid benefits, and it's unclear how they will be impacted by the Affordable Care Act	automatic screening of anyone who visits a physician on the island *Mainland pharmaceutical company has sponsored radio-based community education & education for Kauai nurses for 3 years now *Chow Project for syringe exchange, which has drastically reduced the spread of hepatitis and HIV *Local officials, University of Hawaii at Manoa advanced nursing students, Kauai Community School of Nursing students are all collaborating on a Hep B elimination project for the next 3 years *Collaborative efforts should be further encouraged in funding design

Summary

High tuberculosis and hepatitis incidence rates are concerns in Kauai County, which has a large immigrant population as well as a migrant population that is not required to be screened for infectious diseases when entering the U.S. The county also has the highest rate of hospitalizations for bacterial pneumonia in the state. The frequent hospitalizations due to bacterial pneumonia could, in many cases, be prevented by increasing vaccination rates among adults ages 65 and older from the 69.3% coverage rate to the HP2020 target of 90% coverage. While successful initiatives have reduced HIV prevalence over the years, Kauai County still doesn't compare well to the rest of Hawaii in terms of AIDS incidence. Key informants stress the importance of reaching and educating the immigrant and migrant communities through culturally appropriate methods and venues.

Voices from the Community

"Chronic Hep B is the single biggest infection issue at this time on Kauai."

3.2.12 Injury Prevention & Safety

Core Indicators and Supplemental Information

Injuries are a concern for Kauai County; some types of injury cause significant deaths and hospitalizations among residents:

- The tuberculosis incidence rate is 31% higher than the state average (9.0 cases/100,000 population), and also does not meet the HP2020 target of 1.0 case/100,000 population
- Motor vehicle collision death rate (12.8 deaths/100,000 population) is higher than the state average (7.8 deaths/100,000 population); the hospitalization rate due to motor vehicle collisions (86.2 hospitalizations/100,000 population) is also higher than the state (63.6 hospitalizations/100,000 population)

- The death rate resulting from motor vehicle collisions is much higher for Native Hawaiian/Pacific Islanders in particular (47.5 deaths/100,000 pop)
- The drowning death rate (5.3 deaths/100,000 population) is over twice state average (2.4 deaths/100,000 population)

Table 3.10: Core Indicators – Injury Prevention & Safety

Indicator	Kauai County Value	Geographic Comparison	Trend	Disparity	HP2020 Target
Hospitalization Rate due to Motor Vehicle Collisions (2009)	86.2 hospitalizations/ 100,000 population	X	✓		
Motor Vehicle Collision Death Rate (2009-2011)	12.8 deaths/100,000 population	X	✓	X	X
Pedestrian Death Rate (2007-2010)	0.8 deaths/100,000 population	✓	✓		✓
Drowning Death Rate (2006-2008)	5.3 deaths/100,000 population	X			X
Poisoning Death Rate (2009-2011)	9 deaths/100,000 population	✓	✓	✓	✓
Hospitalization Rate due to Unintentional Injuries (2009)	336.8 hospitalizations/ 100,000 population	X	✓		
Unintentional Injury Death Rate (2009-2011)	27.1 deaths/100,000 population	✓	✓	✓	✓
Hospitalization Rate due to Injuries (2009)	410.3 hospitalizations/ 100,000 population	✓	✓		✓
Injury Death Rate (2009-2011)	51.1 deaths/100,000 population	X	✓	✓	
Hospitalization Rate due to Assault (2009)	6.3 hospitalizations/ 100,000 population	✓	✓		

✓ Indicates good comparison, X Indicates poor comparison, blank cell indicates no comparison possible. Please see Methods section for cutoffs. All values and data sources included in Appendix A.

Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Difficult for people to leave unsafe situations in a rural island community *Everyone knows everyone else in the small community, making it hard for sexual assault victims to remain anonymous and avoid their attackers afterwards *Challenge to find safe long-term housing for homeless families after they reach the 90-day limit at the shelter *Fall prevention for elderly, since falls are the #1 cause of	*Health disparities might not seem as obvious as with chronic disease, but they do exist *Car seats and helmets may be costly for low-income families *In the YWCA's anger management classes, racial undertones can be detected *People with less education may be less likely to engage in protective risk reduction factors (e.g. wearing a seatbelt) *Not every culture believes in or	*Collaboration around safe routes to school *Kauai Path has developed paths that provide many areas, including low-income neighborhoods, with safe exercise routes *Kauai YWCA provides 24-hour crisis services and lines for domestic violence and sexual assault *YWCA also provides afterschool programs and education on youth violence prevention *YWCA shelter works with families to obtain health insurance coverage

hospitalization and a community-identified priority in the state	values prevention *Accepted behaviors in some cultures (e.g. drinking and driving) pose high risk for injury *Some communities/groups are less likely to call 911 or for ambulance services	(Med-QUEST) *Progress with seatbelt and car seat use, especially after car seat fitting programs

Summary

In Kauai County, motor vehicle collisions and drowning have particularly high tolls compared to the rest of the state. Native Hawaiians are impacted most heavily by motor vehicle collisions, which may be related to different cultural attitudes towards safety and prevention. Kauai County has relatively low hospitalization rates due to assault, but the county's small, rural community settings pose unique challenges for assault victims to avoid their attackers. Recent years have seen progress on establishing safe walking routes and with seatbelt/car seat use, but cost and lack of education still prevent some people from adopting risk-reducing behaviors.

3.2.13 Maternal, Fetal & Infant Health

Core Indicators and Supplemental Information

Maternal, fetal & infant health is an area of concern in Kauai County, particularly when compared to the rest of the state:

- The proportion of mothers who smoked during pregnancy is 40% higher in Kauai County than in the best-ranked Hawaii county (Maui, at 7.2%)
- Women who binge drink prior to pregnancy is 29% higher than the state average of 23.1%
- The infant mortality rate is more than twice that of the best-ranked Hawaii county (Maui, at 2.1 deaths/1,000 live births)
- Preterm births in the county increased from 8.6% in 2003 to 10.4% in 2011

Table 3.11: Core Indicators – Maternal, Fetal & Infant Health

Indicator	Kauai County Value	Geographic Comparison	Trend	Disparity	HP2020 Target
Mothers who Received Late or No Prenatal Care (2011)	10.7 percent	✓	✓	✓	
Mothers who Smoked During Pregnancy (2009)	10.1 percent	X	✓		
Women who Binge Drink Prior to Pregnancy (2009+) (2009)	29.9 percent	X			
Preterm Births (2011)	10.4 percent	X	X	✓	✓
Babies with Low Birth Weight (2011)	8.1 percent	✓	✓	✓	✓
Infant Mortality Rate (2008-2010)	4.3 deaths/1,000 live births	X	✓		✓
Births Delivered by Cesarean Section (2011)	26.6 percent	X	✓	✓	
Mothers who Breastfeed (2009)	95.3 percent	✓	✓		

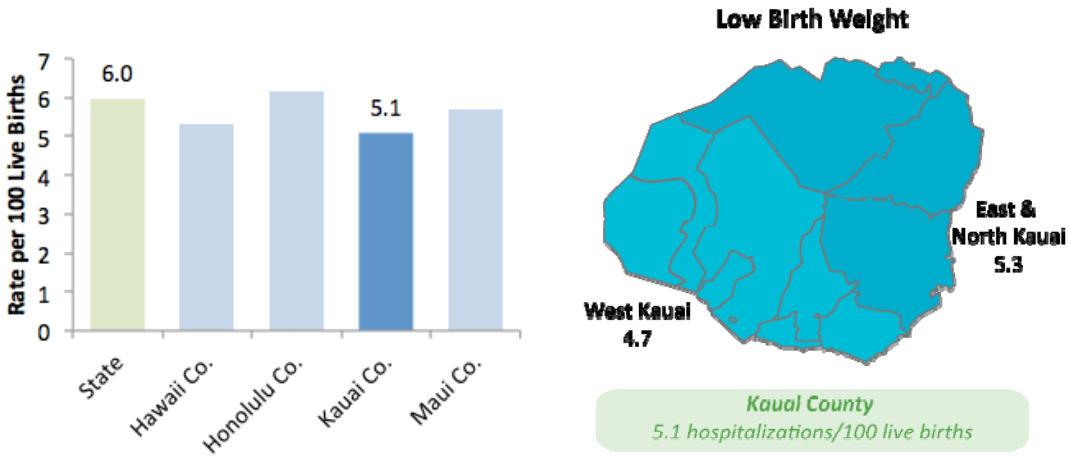
✓ indicates good comparison, X indicates poor comparison, blank cell indicates no comparison possible. Please see Methods section for cutoffs.
All values and data sources included in Appendix A.

Furthermore, a recent statewide needs assessment of Maternal and Child Health Needs identified reducing the use of alcohol during pregnancy as one of its priorities for Women and Infants.[9]

Hospitalization Rates

Based on the one hospitalization indicator available in this topic area, Kauai County is doing well relative to other Hawaii counties, with the lowest hospitalization rate due to low birth weight. East & North Kauai has higher hospitalization rates than West Kauai.

Figure 3.14: Low Birth Weight Rate per 100 Live Births, 2011



Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Teenage pregnancies have increased *Kauai has higher rates of grandparents caring for children *Domestic violence is a concern, including among teenage parents	*Youth in foster care are much more likely to become young parents, and usually struggle to adequately care for their infants and children	*Recently received Title 10 dollars to expand Planned Parenthood services to support pregnancy, birth, and infant care *A group, Keiki to Career, is focused on many holistic health objectives from birth throughout childhood and adolescence

Summary

Kauai County is tracking poorly on many maternal, fetal, and infant indicators compared to other Hawaii counties. Expectant mothers are engaging in risky behaviors, including smoking and binge drinking. Infant mortality rates are high, as are preterm births, which have been increasing over time. Although the county overall has a high percent of mothers who receive early prenatal care, certain populations (such as Micronesian women) do not have a tradition of seeking such care. Key informants identify another issue in this area related to family planning: high rates of teen births. This has led more grandparents to take on caring for infants and children.

[9] From the Family Health Services Division, Hawaii Department of Health Report: *State of Hawaii Maternal & Child Health Needs Assessment Summary*, November 2010. http://hawaii.gov/health/doc/MCH-NASummary2010

3.2.14 Mental Health & Mental Disorders

Core Indicators and Supplemental Information

Mental health ranked third among Kauai County's areas of need, indicating it is a topic of significant concern. Kauai County is tracking particularly poorly in this area when contrasted with its geographic comparisons:

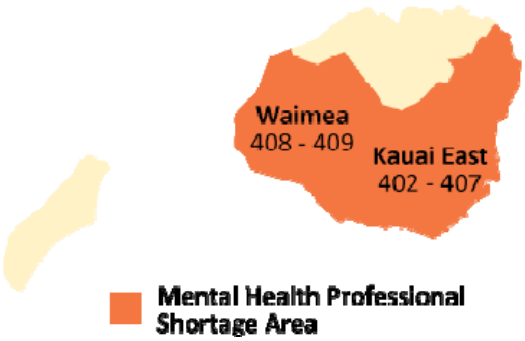
- Fewer Kauai County adults reported good physical and mental health in 2010 (55.4%) than the state average (56.4%)
- The county's suicide death rate is 40% higher than best Hawaii county, Honolulu (10.9 deaths/100,000 population). The suicide rate also increased from 10.5 to 15.3 deaths/100,000 population between 2003-2005 and 2009-2011, and does not meet the HP2020 Target of 10.2 deaths/100,000 population
- The proportion of adults with a depressive disorder is 40% higher than the state average of 8.9%

Table 3.12: Core Indicators – Mental Health & Mental Disorders

Indicator	Kauai County Value	Geographic Comparison	Trend	Disparity	HP2020 Target
Self-Reported Good Physical and Mental Health (2010)	55.4 percent	X	✓	✓	
Suicide Death Rate (2009-2011)	15.3 deaths/100,000 population	X	X	✓	X
Adults with a Depressive Disorder (2010)	12.5 percent	X	✓		

✓ indicates good comparison, X indicates poor comparison, blank cell indicates no comparison possible. Please see Methods section for cutoffs. All values and data sources included in Appendix A.

Figure 3.15: Federally-Designated Mental Health Professional Shortage Areas by Census Tracts



The Health Resources and Services Administration has designated a large portion of Kauai—both the Waimea and Kauai East regions—as mental health professional shortage areas.

Voices from the Community

"Psychiatric…patients have no community support structure in place."

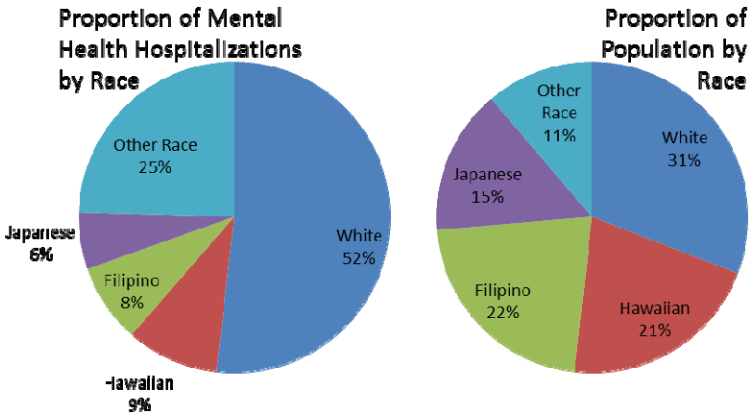
Hospitalization Rates

It is notable that mental health was the most frequent cause for hospitalization among the 15 different preventable hospitalizations that were studied – 220 hospitalizations were due to mental health in Kauai County in 2011. Almost all mental health admissions were among ages 18-64 (90.0%), even though this

group represents only 61.9% of the total population. Also, more than half of mental health admissions were for males (58.2%). Figure 3.16 presents the proportion of mental health hospitalizations by race as well as the population proportions of these race groups according to HHIC-provided data. While Whites only make up 31% of the county population, 52% of mental health hospitalizations were among Whites. The same pattern is seen among the Other Race category, which accounted for 25% of hospitalizations while making up only 11% of the population. Japanese, Filipinos, and Hawaiians meanwhile had a disproportionately low number of hospitalizations relative to their populations.

Because mental health hospitalization rates are not risk- or age-adjusted, the mental health admission rates are not compared across geographies due to uncertainties in varying population characteristics. All 2011 values are included in Appendix B. Further data on mental health hospitalizations at a sub-county level can be found in the State of Hawaii Primary Care Needs Assessment Data Book 2012.[10]

Figure 3.16: Mental Health Hospitalizations by Race: Kauai County, 2011



Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Mental health is a big problem in Kauai, as are the related issues of homelessness and substance abuse *Only about 4 psychiatrists on the island, all over the age of 75 *Funding cuts have heavily impacted mental health services *More patients who need mental health support are showing up in primary care and in the ER, sometimes off their medications *Mental health care system needs additional support	*Many homeless people suffer from mental illness or substance abuse or both. *Mental health services may be a foreign concept to some cultural groups *Culturally-sensitive services are hard to find	*Opportunity for collaboration with state facilities, which has not happened yet *Great providers and high-quality programs, but not enough capacity

[10] Family Health Services Division, Hawaii Department of Health Report: *State of Hawaii Primary Care Needs Assessment Data Book 2012*, July 2012. http://hawaii.gov/health/doc/pcna2012databook.pdf

*Long-term care facilities don't have specialized units to deal with psychological issues

Summary

Core indicators and hospitalization data clearly show mental health is an area of great concern for its residents. As illustrated in the word cloud in Section 3.2, mental health was mentioned most frequently as a concern during the interview process. Key informants also noted that the severe shortages of mental health resources have impacted other parts of the health care system, including hospitals' emergency departments. In addition, mental illnesses are closely tied to homelessness and substance abuse. Some cultures traditionally do not seek out mental health services, and may struggle with finding culturally-sensitive care when they do. Even though the need is great, mental health resources have been cut due to funding decisions.

3.2.15 Older Adults & Aging

Core Indicators and Supplemental Information

Little data specific to older adults was included in the core indicator data summary. The rate of hospitalization due to falls among people aged 65 and older in Kauai County increased slightly between 2003 and 2009, but is still the lowest in the state. As seen under Immunizations & Infectious Diseases (section 3.2.11), vaccination rates among people 65 and older have not met Healthy People 2020 targets.

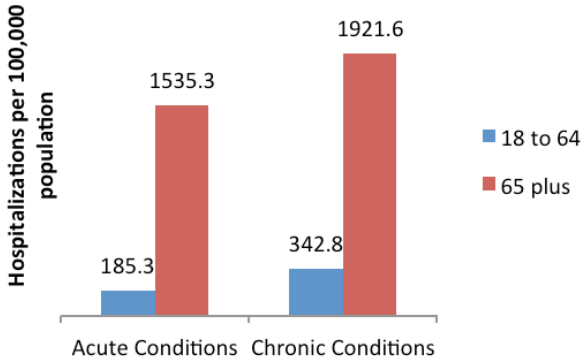
Voices from the Community

"[We] need to address the elderly 85-year-old-and-over population that can't live at home alone and are dropped off to hospital ERs for nonmedical needs because no one [is] available at home to care for them."

Hospitalization Rates

Overall, most hospitalizations occur among older adults. With the exception of hospitalizations due to short-term complications of diabetes and mental health hospitalizations, the unadjusted hospitalization rate was much higher for adults aged 65 and older.

Figure 3.17: Unadjusted Composite Hospitalization Rates: Kauai County, 2011



Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Biggest challenge is finding providers who can give safe, adequate care to patients in their homes *Community resources for home care are limited, and hiring private care becomes very costly for individuals *Transition from hospital to home-based or other long-term care is another area of concern, especially for individuals who don't have a primary caregiver *Gap group of 50- to 64-year-olds who don't qualify for aid as "seniors" but who are significantly affected if illness/injury hampers their ability to provide for their family *A lot of trust is required to allow non-family caretakers into the home and care for a loved one *With funding cuts, fewer resources to provide additional support, such as overseeing medication regimen	*Without insurance, home care costs are prohibitive *County program helps some, but it is not enough to cover the full cost of care *People who are employed but don't have insurance coverage have to work while also providing care to multiple generations (children, elderly parents) *Culturally, there may be some groups where families are more involved in care *In recent years, hospice patient population has become more diverse—went from being predominantly Caucasian to include more Native Hawaiians, Filipinos, Japanese	*Kauai's Agency on Elderly Affairs helps connect people with services and helps pay for some personal services through grants *The agency has a useful website, but a physical "one-stop shop" would be great for mobile seniors to conveniently get information various services, since not everyone has a computer or internet access *Share the Care is a new program to help prevent caregiver burnout *Grief and bereavement support after a loved one passes is important; Kauai Hospice offers telephone calls, support groups, recognition of important dates *Volunteer program to assist people who can't afford a private caregiver but also don't qualify for long-term care support *Kauai Hospice has collaborated with other nonprofits, but sees an opportunity for strengthening partnership with DOH

Summary

Although health data for seniors is lacking, longevity in Hawaii is leading to an increased need for care for seniors. Improved coordination of care could help reduce the burden of managing advice and medications from multiple providers and more effectively deliver health services for this growing population. A particular area of concern identified by key informants is access to affordable, reliable home-based care. Some nonprofit groups are working to fill this need, but the cost of care remains burdensome for many elderly residents and their families.

3.2.16 Oral Health

Core Indicators and Supplemental Information

In adult oral health indicators, Kauai County fares worse than the state overall. The county compares unfavorably to both the state and the nation in the percent of adults who visited a dentist (66.7% vs. 70.1% and 69.7%, respectively). However, fewer Kauai County adults have tooth extractions and tooth loss compared to the rest of the nation, and do not experience large race, gender, or age disparities.

Although no oral health indicators in the summary addressed children, a report by the Pew Research Center gave the State of Hawaii a grade of "F" for meeting only one out of eight benchmarks for key policy indicators. In *The State of Children's Dental Health: Making Coverage Matter,*[11] Hawaii compared poorly to the nation due to several factors, including:

- Sealant programs were in place in 0% of high-risk schools in 2010
- Optimally fluoridated water was provided to only 10.8% of citizens on community systems in 2008
- As of 2010, the Medicaid program does not reimburse medical care providers for preventive dental health services

Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Unfluoridated water *Kids don't get preventative dental care *When kids' teeth rot, the only option is to get them pulled *Inadequate dental care can lead to life-threatening illnesses	*Many dentists don't accept Medicaid for child or adult dental care, even though it should be covered	*Need to support the expansion of community health centers to improve dental care access

Summary

Both the secondary data and key informant interviews highlight the lack of oral health care available in Kauai County. Given the large impact oral health has on overall health and wellbeing, it is important that residents gain access to and utilize preventative dental care. Possible avenues for improving oral health include fluoridating the drinking water supply, strengthening Medicaid coverage, and supporting dental care provided through community health centers and schools.

3.2.17 Respiratory Diseases

Core Indicators and Supplemental Information

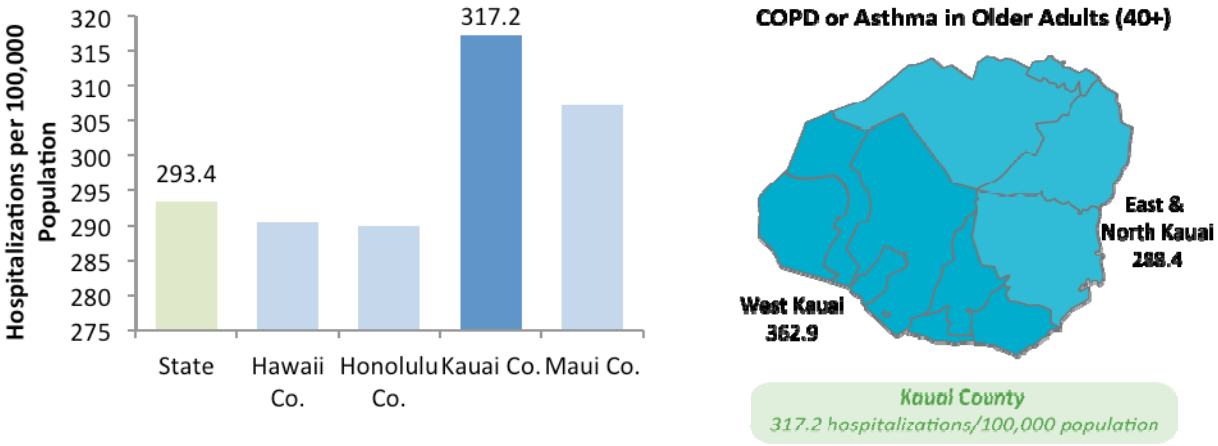
Overall, Kauai County compares favorably to the state and nation in respiratory disease indicators (see Appendix A for all values and comparisons). Within the county, where 5.6% of adults have asthma, higher prevalence is seen among the Caucasian (8.7%) and Filipino (6.3%) populations.

Hospitalization Rates

Among adults aged 40 and older, the hospitalization rate due to chronic obstructive pulmonary disease (COPD) or asthma is higher in Kauai County than all other Hawaii counties. West Kauai sees particularly high hospitalization rates. The hospitalization rate due to asthma in younger adults has been suppressed for Kauai County due to low case counts.

[11] From the Pew Research Center's *The State of Children's Dental Health: Making Coverage Matter*, May 2011. http://www.pewstates.org/uploadedFiles/PCS_Assets/2011/The_State_of_Childrens_Dental_health.pdf

Figure 3.18: Hospitalization Rates due to COPD or Asthma in Older Adults, 2011



Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Tobacco-related respiratory illness is preventable *Women who are pregnant and smoking is a concern; women who resume smoking after pregnancy also put children's respiratory health at risk *Asthma correlated with obesity for unknown reasons *Asthma prevalence is significant in kids ages 0-4 *Asthma most common reason for child to be hospitalized *Asthma causes school absenteeism and grades drop	*Lower socioeconomic levels correlated with higher smoking rates *Native Hawaiian, Pacific Islander, and Filipino populations also have higher smoking rates *Asthma more prevalent with poverty; higher rates where housing conditions are not good *Native Hawaiians have highest rate of asthma & chronic disease	*Hawaii's progressive laws have positively impacted smoking rates in last 10 years *"Catch a roach" program in public housing helps reduce this asthma trigger *Chronic disease self-management programs *Data collection and analysis efforts play an important role in educating and empowering people *Community health centers are a great model

Summary

Residents living in poverty are more likely to smoke and more likely to live in conditions that may trigger asthma. Controlling asthma is particularly important for children, whose education can be negatively affected by the disorder. Key informants praise progressive laws that have impacted smoking rates, and recommend chronic disease self-management programs and further data collection and analysis to inform efforts in this area.

3.2.18 Social Environment

Core Indicators and Supplemental Information

Little secondary data was available for the core indicator summary that directly pertains to Kauai County's social environment. A smaller proportion of the county's children live in single-parent family households than both the state and the nation. A lower percent of Kauai County households were linguistically isolated compared to both the state and nation as well: just 2.7% of households reported that all of its members ages 14 and over had some difficulty speaking English, contrasted with 6.2% of households in Hawaii and 4.8% of households in the U.S.[12]

Voices from the Community

"[There is a need for] homeless access to affordable health care clinics as a preventive measure to frequent readmits."

An additional consideration for the Social Environment is the inclusion of two priorities in a recent statewide needs assessment of Maternal and Child Health Needs:[13]

- Reduce the rate of child abuse and neglect with special attention on ages 0-5 years
- Prevent bullying behavior among children with special attention on adolescents age 11-18

Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*The biggest killers (heart disease, cancer, accidents, etc.) are all linked to social determinants of health *Upstream interventions are crucial to public health, yet are not given enough credit *Drivers of health (like housing, education, income, time to exercise) are not addressed in the health care environment *Need to focus on improved outcomes, not just on improved process—this is a problem in both public and private sectors *Need to introduce interventions to families early enough so children don't grow up in an environment where alcohol/drug use is the norm	*Traditional Hawaiian culture was disrupted, and it's important for Hawaiians to reconnect with a healthy, sustainable lifestyle *Food banks don't offer any fresh food *A lot of low-income, underserved people already have too much on their plate and have difficulty making time for physical activity	*Prevention and upstream interventions are the most important *A lot of Kauai residents are involved in upstream issues *Many groups are already doing great work in Kauai and should be empowered & funded to continue (e.g. Get Fit Kauai, elderly groups, housing advocates, Habitat for Humanity, Kauai PACT) *Opportunity for hospitals to invest in upstream issues in their communities

[12] U.S. Census, American Community Survey, 2006-2010 Estimates

[13] From the Family Health Services Division, Hawaii Department of Health Report: *State of Hawaii Maternal & Child Health Needs Assessment Summary*, November 2010. http://hawaii.gov/health/doc/MCH-NASummary2010

Summary

In Kauai County, a growing number of people recognize the importance of addressing upstream issues. Largely driven by economic insecurity, social issues such as unemployment, education, alcoholism, and domestic violence all influence a community's health. Low-income residents are most impacted by poor social environments that limit opportunities for economic and social advancement. Although there are groups in Kauai County focused on improving these drivers of health, long-term funding is required to reap the benefits of their interventions downstream.

3.2.19 Substance Abuse & Lifestyle

Core Indicators and Supplemental Information

Measures of substance abuse in Kauai County earn the topic area the second-highest ranking among all areas of need:

- The proportion of adults who binge drink is 50% higher than the U.S. average (15.1%) and 27% higher than state average (17.9%). This proportion has increased over time, from 18.8% in 2006 to 22.7% in 2010. Binge drinking is much more common among males (37.6%) than females (8.4%)
- The county has a higher percent of adults who smoke than the state (14.5%) and the nation (17.3%), and does not meet the HP2020 Target for this indicator (12.0%). Adult smoking prevalence is highest among Native Hawaiians (28.4%)

Table 3.13: Core Indicators – Substance Abuse & Lifestyle

Indicator	Kauai County Value	Geographic Comparison	Trend	Disparity	HP2020 Target
Adults who Binge Drink (2010)	22.7 percent	X	X	X	✓
Liquor Store Density (2010)	3 stores/100,000 population	✓	✓		
Adults who Smoke (2010)	18.1 percent	X	✓	X	X

✓ indicates good comparison, X indicates poor comparison, blank cell indicates no comparison possible. Please see Methods section for cutoffs.
All values and data sources included in Appendix A.

In Kauai County in 2006-2010, the overall percent of hospital admissions that were associated with a substance-related disorder (8.1%) was lower than the state average of 8.9%. However, the percentage was higher in the sub-county areas of Hanalei (11.5%) and Kapaa (9.3%).[14]

Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*Substance abuse has a strong genetic component, but environmental influences also need to be addressed *Long-term abusers enter hospice care, which is very expensive	*Underserved are often non-functioning addicts, meaning they can't/don't work and become dependent on the others to care for them and their families *Native Hawaiians make up a large	*First-time teenage alcohol/ substance abuse offenders go to a teen court, where Hale Opio Kauai connects with the families and implements a family-based intervention

[14] From the Family Health Services Division, Hawaii Department of Health Report: *State of Hawaii Primary Care Needs Assessment Data Book 2012*, July 2012. http://hawaii.gov/health/doc/pcna2012databook.pdf

*No inpatient or strong outpatient treatment facilities on the island *Adult substance abuse is increasing island-wide *Crystal meth is still an issue *Prescription drugs are becoming a big problem	share of the substance abuser population

Summary

Kauai County's problems with substance abuse and lifestyle have wide impacts on the health of the community. Substance abuse rates are high and increasing. Prescription drug addiction is an emerging problem, while drinking, smoking, and crystal meth use continue to be issues. Native Hawaiians in particular represent a large portion of those struggling with substance abuse. Addicts cannot care for their families and sometimes enter hospice care, which becomes very costly. Intervening on psychosocial disorders and other mental health issues may indirectly assist in controlling substance abuse in Kauai County.

3.2.20 Transportation

Core Indicators and Supplemental Information

Reliable transportation is essential for accessing health services, and the choices a community makes for daily transportation can have a great impact on the environment. Kauai County residents have the shortest average commute time to work in the state, but compares poorly on the two other transportation indicators:

- The proportion of workers commuting by public transportation is only a fraction of state average (6%). The share is lowest for people of Two or More Races (0.2%)
- The percent of workers who walk to work ranks Kauai County in the bottom 50th percentile of U.S. counties. Again, the race group with the lowest percent is Two or More Races (0.5%), while the age group with the lowest share is 20-24 (0.2%)

Table 3.14: Core Indicators – Transportation

Indicator	Kauai County Value	Geographic Comparison	Trend	Disparity	HP2020 Target
Mean Travel Time to Work (2006-2010)	19.9 minutes	✓	✓	✓	
Workers Commuting by Public Transportation (2006-2010)	0.4 percent	X	✓	X	X
Workers who Walk to Work (2006-2010)	1.6 percent	X	✓	X	

✓ indicates good comparison, X indicates poor comparison, blank cell indicates no comparison possible. Please see Methods section for cutoffs.
All values and data sources included in Appendix A.

Key Informant Interviews

Needs/Concerns	Impact on Low-Income, Underserved/Uninsured, Race/Ethnic Groups	Opportunities/Strengths
*People may be unable to take advantage of bus service if they live far from the main streets with bus routes *Health centers on the island are mostly concentrated around Lihue	*When gas prices increased, many people didn't want to drive but didn't have an alternative transportation option	*The first county to pass a "complete streets" resolution to accommodate and encourage bicyclists, public transportation, and all ages of pedestrians *Opportunities for more partnerships with the DOH *Safe routes to school are being established, and a statewide bill was just passed to increase the fine for traffic violations in school zones/safe routes to school *Transportation on the island has come a long way, with expanded schedules *Although services are concentrated in Lihue, the western portion of the island also has some facilities (including the Kauai Veterans Hospital, West Kauai Medical Center, community clinics)

Summary

Public transportation options have improved in Kauai County, but some residents still live too far from bus routes to take advantage of public transportation. The lack of an extensive bus network requires residents to continue driving even when it is costly due to high gas prices. People living outside of Lihue will also have a harder time getting to medical care facilities.

4 Community Health Needs Summary

4.1 Findings/Conclusions

The community health needs of Kauai County span across all of the topics included in this report. Some health issues impact a larger proportion of the population, while others are of greatest impact to particular groups or sub-geographies. In order to assess the health needs in Kauai, both objective indicator data and subjective interviews were considered. While indicator data provided a good starting point for determining where attention should be focused, sometimes the data was lacking in depth or breadth on important topics. Interviewing key informants who have local knowledge on the topics helped to fill in details and bring attention to data gaps. Surveying residents elicited health concerns from a small proportion of the community and added highlights to this. Planners will want to consider how to impact these areas, as many areas can be addressed concurrently with appropriate primary and holistic interventions.

Several common themes emerge in this assessment that can guide community health improvement planning:

All groups experience adverse health outcomes due to chronic disease and health risk behaviors

Individuals from all geographies, race, gender, and age groups experience poor health outcomes. High rates of chronic disease patterns, hospitalizations due to preventable causes, and patterns of unhealthy behaviors compels those seeking to improve health to consider interventions at the structural, policy, and community-wide level in order to positively impact the long-term health of as many Kauai residents as possible. Key informants identified asthma as the most common reason for students to miss school and be hospitalized, although interventions to reduce the frequency and intensity of asthma symptoms have been introduced. The community has also designated the reduction of overweight and obesity among children as a priority, particularly in light of the fact that children in Hawaii have a much higher likelihood of developing Type II diabetes than the rest of the country.

Special consideration for mental health, a chronic condition that significantly influences overall health, is critical for achieving population health goals. Substance abuse, often associated with poor mental health, is a problem among teens and is increasing among adults. Many injury-related hospitalizations and deaths may be attributable to substance abuse, including motor vehicle collision deaths caused by driving under the influence of alcohol. As highlighted in the primary data, Kauai County does not have the capacity to serve the mental health and substance abuse needs of its residents.

Greater socioeconomic need and health impacts are found among certain groups and places in Kauai County

Across many topic areas, key informants identified the low-income population as both the most vulnerable and the most difficult to reach. Because Census estimates of poverty do not adjust for the higher cost of living in Hawaii, the number of Kauai County residents impacted by poverty is likely underestimated. Among other conditions, poor residents are much more likely to have diabetes and unhealthy body weights. They do not have the time or energy to focus on leading healthy lifestyles and often also forgo cancer screening, dental care, and use of car seats due to costs. Multigenerational low-income families particularly struggle to find affordable and reliable care for their older members. Poverty is unevenly distributed around the county, with the North Shore and northern portion of the East Side most heavily impacted. As both health status and poverty are closely tied to educational attainment, the issues surrounding education in Kauai County—including reduced individualized attention for students and low levels of proficiency in math and English—are especially concerning.

Individuals with less education often have lower levels of health and technology literacy, and have fewer job opportunities open to them. These factors impact the less-educated population's ability to recognize potential health issues, seek care, and afford treatment when necessary.

Cultural and language barriers inhibit effective intervention for the most impacted populations

Because of the strong correlation between poverty and race/ethnicity, some of the groups most impacted by health issues often face cultural barriers to health improvement. Language differences, including limited English proficiency, and poor health behaviors that are common within a culture are challenges that must be overcome in order to effectively prevent disease. Furthermore, perceptions of Western medical care and the stigmatization of health issues in certain cultures prevent some residents from seeking care when they need it. The effects can range from not calling 911 during a medical emergency to not acknowledging ongoing mental health problems. Cultural differences also impact attitudes toward healthy eating habits and the importance of education. Key informants repeatedly stressed the need to find culturally-appropriate ways of disseminating health knowledge. The Pacific Islander immigrant population in particular was identified as a group unaccustomed to formal medical facilities, so informants advocated reaching out in more familiar settings, including churches and other social venues. See Section 4.1.1 for further discussion of health disparities by race/ethnicity.

Limited access to care results in greater health impacts

Like the other Neighbor Islands, Kauai County suffers from limited access to various types of care. The Health Resources and Services Administration has designated the entirety of the county as "medically underserved." Centers for cancer prevention, screening, and treatment are mostly located on Oahu. As mentioned above, older adults have trouble finding home health care providers they can afford. Substance abuse is a significant issue, but there are few resources for treatment in Kauai County. Key informants noted a dearth of diabetes specialists in rural areas, leading to under-diagnosis of diabetes. Mental health providers are in particularly short supply. The shortage of mental health services means other segments of the health care system, including emergency departments and primary care providers, are overwhelmed by the large need in this area. Certain parts of Kauai also have further difficulties accessing care: most health centers are located around Lihue, requiring residents of other areas to find transportation across the county.

Community health centers and schools are key community assets for effective interventions

Community health centers were recommended by key informants as optimal ways to provide services, particularly for oral health care and treatment of respiratory disease. Locally-based care has many advantages, including the ability to bring primary care services that are culturally appropriate to rural areas. Furthermore, community health centers are a natural complement to the many initiatives that have been developed through community efforts. Key informants highlighted residents' collaborative spirit as an important asset to addressing drivers of health, including education, access to healthy foods and recreational facilities, and social support. Organizations, too, have collaborated to tackle social issues larger than their individual areas of focus. Despite the rich human capital in Kauai County, however, there is a shortage of funding to support communities' crucial work in upstream issues. The allocation of more financial resources is needed to continue improving the health of Kauai's communities.

School-based programs also hold promise in addressing the many health challenges faced by children and young adults. Childhood obesity can be addressed in school by increasing physical activity time and sports activities, an important step towards reducing future chronic disease. Dental health can be improved by implementing evidence-based strategies that are provided in the school environment. Schools can also play an important role in addressing the high teen pregnancy rate among certain

groups; key informants called for improved education surrounding family planning. Health interventions for children and teens can have a two-fold benefit of establishing healthy life-long behaviors among Kauai County's youth, as well as influencing the health of their families.

4.1.1 Disparities Highlights

Although the root causes of health disparities are attributable to socioeconomics, race/ethnicity is a correlate for which data is more often available. The topic areas for which each race/ethnic group was noted to have a severe disparity (either by a key informant or for at least one indicator) are listed in Figure 4.1 below. Note that some race/ethnic category definitions differ between secondary data sources, and the degree to which disparities could be assessed depend on data availability. A significant finding is that Native Hawaiians and Pacific Islanders are faring worse across more topic areas than any other group.

Figure 4.1: Areas of Disparity for Race/Ethnicity Groups

4.1.2 Identified Data Gaps

There were four topic areas for which so little data was available that a secondary data summary score was not calculated: Diabetes, Disabilities, Older Adults & Aging, and Social Environment. Although Diabetes was further informed by hospitalization rates, more data is needed on the disease regarding children and teens. Obesity indicators, while correlated with diabetes, are not necessarily predictive of diabetes' impact. Although the population affected by disabilities was described with data from the American Community Survey, information on the specific needs and challenges of this group is lacking. The health needs of Older Adults can be further described with data from other topics such as tooth loss, immunization rates for adults 65 and older, and age-specific hospitalization rates, but data describing the social isolation, disability, and care needs faced by this population is lacking. While some secondary data shed light on the topic of mental health, primary data brought further attention to this critical area that impacts many other health behaviors and outcomes.

For Immunizations & Infectious Diseases, little sub-population data is available to examine disparities. Secondary data specific to children and teens in the topic areas of Exercise, Nutrition & Weight, Oral Health, and Injury Prevention & Safety are scarce, although key informants included these areas in their discussion of child health issues.

Another area where available data does not fully describe the health needs is with new immigrant and transient populations. Primary data did highlight the populations arriving in Hawaii under the Compact of Free Association and the new challenges this growing group presents to the state's health care system. Due to this population's mobility, marginalized existence, and cultural isolation, traditional public health surveys and population statistics typically do not capture their data and circumstance. However, acute care settings are challenged to provide services and community infrastructure to support the new populations.

4.2 Limitations and Other Considerations

This needs assessment is subject to limitations of the methods used for summarizing secondary data and key informant interview findings. Topic areas to which core indicators were assigned are not truly independent of each other, and the scoring system used could not account for the inherent relationships between health and wellness topics. The number of indicators available for each topic area varied, and while the scoring system numerically accounted for this variation, the impact of a given indicator on the final scoring for a topic area was greater if fewer indicators and/or comparisons were available. Nonetheless, this needs assessment utilized an extensive data set, derived from the best public health data made available by the Hawaii State Department of Health and the Hawaii Health Data Warehouse. By using the local website source for indicator data, available from www.HawaiiHealthMatters.org, the most recent, least aggregated across years, and most detailed race/ethnicity disparity data possible was considered. Race and ethnicity breakout data from this source provides information on the numerous subgroups in Hawaii (Japanese, Filipino, Chinese, Native Hawaiian, Pacific Islander), allowing this report to understand health needs and disparities for groups that together compose a majority of the population in Kauai County.

Indicators from national data sources had limitations, including combining important race and ethnic groups together and thus masking disparities. Importantly, in assessing poverty and economic measures, data sources did not account for the higher cost of living on the islands, resulting in an underestimation of poverty in Kauai County.

The variability in accuracy and precision of secondary data indicators, as well as the comparisons used, are further limitations. Some indicators, such as those from vital statistics, are based on accurate counts and are the most exact. Other indicators which are based on surveys are subject to variability due to

sampling error and accuracy of self-reported data. The small number of counties in Hawaii allowed for few in-state comparisons. Because of the varying amount of historical data available for different sources, trend comparisons were not equal between indicators. Additionally, many indicators from surveys conducted in Hawaii, including the Hawaii Health Survey (HHS) and Pregnancy Risk Assessment Monitoring System (PRAMS), could not be compared to a national value or benchmark due to lack of equivalent data. When national comparisons were available, sometimes the indicator was in an area where the nation as a whole is doing very poorly and a favorable comparison for Kauai County did not necessarily reflect good health; examples of this include obesity and physical activity measures. Healthy People 2020 benchmarks were used for comparisons, when available, though some of these can be ambitious targets for communities to meet.

While preventable hospitalization rate indicators provided by HHIC were invaluable for their insight into the underlying health of the community at a sub-county level, it should also be considered that the variation in rates may reflect geographic differences in access and timeliness of care. Further analysis may be needed to better understand Kauai County's preventable hospitalization patterns.

One challenge in conducting this community health needs assessment was the condensed timeline. All of this work was compressed into a 5½-month time frame, overlapping the winter holidays, which impacted the primary data collection strategy. However, the key public health officials and community health leaders of Kauai County were successfully included in the key informant process (See Appendix C for a full list of key informants interviewed). The online community survey was aimed to further complete the understanding of the local needs in Kauai County, although the limited participation makes it difficult to assess if findings accurately reflect the broader community's perspective. While invaluable data was provided through the primary data collected for this report, a future CHNA process would benefit from a longer time horizon and would allow for expanded involvement and input from the community.

Regardless of the limitations, this report provides a snapshot of the health and quality of life challenges in Kauai County. The needs outlined provide a guide for community benefit planning, but subsequent efforts may be needed to delve deeper into specific areas of need and the most effective methods of intervention. While there are many areas of need, there are also innumerable community assets and a true *aloha* spirit that provide ample foundation for community health improvement activities

5 Selected Priority Areas

On March 5, 2013, HCI presented the Community Health Needs Assessment findings for Kauai County to the Wilcox Health Community Benefit team. Following the presentation, HCI facilitated a prioritization process whereby the team of nine narrowed down the 20 topic areas of need from the CHNA report to two priorities. These two priorities will be the focus for Wilcox's implementation strategy planning.

The group used the Nominal Group Planning Process. The group determined the following criteria for selecting priorities:

- Magnitude/severity of problem
- Opportunity to intervene at prevention level
- Alignment with Wilcox's mission/strengths/programs
- Opportunity for partnership
- Solution could impact multiple problems
- Feasibility of change
- Importance of problem to community

Each member of the community benefit team was given a ballot that listed the 20 topic areas of need highlighted in the CHNA report. Each member cast their vote, selecting three topic areas as the key areas of need to focus community benefit efforts. The team members understood that the selected priorities would become the areas of focus for their implementation strategy planning.

After one round of voting and discussion, the top two topic areas selected as priorities were:

1. Access to Health Services
2. Exercise, Nutrition & Weight

HCI then asked for nominations for key stakeholders so that their priorities could be validated and communicated to the larger community. The group nominated the following individuals:

- Dileep Bal, District Health Officer for Kauai County
- Bernard P. Carvalho, Mayor of Kauai

HCI conducted these key stakeholder interviews and were able to share and validate the hospital's priorities and learn about partnership opportunities.

Appendix A: HCI Provided Data

About HCI Provided Data

Healthy Communities Institute (HCI), in partnership with the Hawaii Department of Health and the Hawaii Health Data Warehouse, provides demographic and secondary indicator data on health, health determinants, and quality of life topics. Data is typically presented in comparison to the distribution of counties, state average, national average, or Healthy People 2020 targets. Data is primarily derived from state and national public health sources. HCI also provides a database of promising practices from a variety of sources, including the Centers for Disease Control and Prevention.

All of the HCI content is presented in a public web platform that also serves as a publishing tool for components of Community Health Needs Assessments.

Framework for Indicator/Data and Topic Selection

The framework for indicator selection within the Health category is based on the Department of Health and Human Services (DHHS) Healthy People initiative. Healthy People establishes science-based national objectives for improving the health of the nation. The initiative establishes benchmarks every ten years and tracks progress toward these achievable goals. This framework encourages collaboration across sectors and allows communities to track important health and quality of life indicators focusing on general health status, health-related quality of life and wellbeing, determinants of health and disparities.

The Health subcategories are based on the Healthy People framework, and multiple indicators across the health sub-topics that correspond with Healthy People targets have been chosen (based on data availability, reliability and validity from the source).

Indicators in the other categories were selected according to national consensus and feedback from a wide set of advisors, public health officials, health departments, and local stakeholders from various sectors in the community. For example, the education indicators are based on the National Center for Health Research and Statistics and United Way of America, and the standards and goals they set forth to help track educational attainment in the U.S. Economic indicators were selected in conjunction with economic development and chamber of commerce input. All of the selected indicators have gone through a vetting process where HCI's advisory board, as well as stakeholders in communities who have implemented HCI systems, provide feedback to refine the core indicators in order to best reflect local priorities.

The indicator selection process evolves over time with changing health priorities, new research models and national benchmarks. HCI continues to incorporate models and standards from nationally recognized institutions such HHS's Healthy People, AHRQ's PQI's, EPA Air Quality standards, National Center for Education Research and Statistics' priorities, United Way, and United States Department of Agriculture's Food Atlas, among many others.

Core Indicator Data Summary: Analytic Approach and Scoring Methodology

As discussed in Section 2.1, the selection of topic areas for primary data collection relied on four types of Core Indicator comparisons: geographic, trend, disparity, and benchmark. A four-point system was used to evaluate each indicator on these four comparison methods, as illustrated in the examples below. Please note the data in this section is presented only to demonstrate the methodology and may not reflect data referenced elsewhere in this report.

Geographic Comparison

The core indicator was assigned a geographic comparison point if it was worse than its comparison values on average:

Relative to the comparison geography's value, the county value receives one of three designations, which is translated into points to calculate an average:

Better/same → 0 points **Worse → 1 point** **Much worse → 2 points**

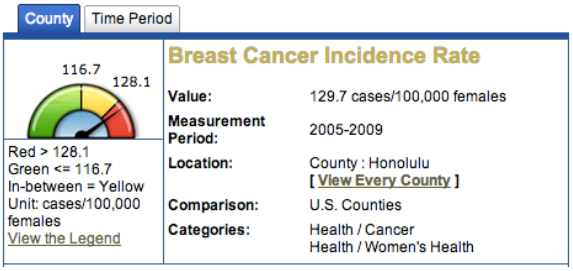
The following criteria were used to assign points for worse or much worse comparisons:

Comparison	Worse → 1 point	Much worse → 2 points
National*	worse than U.S. value *or* worst 50th percentile of U.S. counties	>25% worse than U.S. value *or* worst 25th percentile of U.S. counties
State	worse than state value	>25% worse than state value
HI counties	worse than best county value	>25% worse than best county value

*National comparison uses either the U.S. value or a distribution of U.S. counties depending on data availability. An indicator with a national comparison will be compared to either the U.S. value or the county distribution, never both.

Average was calculated as total points divided by number of possible geographic comparisons. If average was at least 1 (worse), then geographic comparison was considered poor for indicator.

For example, this breast cancer core indicator for Honolulu County would be assigned a geographic comparison point.



National	The county value is in the worst 25th percentile of U.S. counties	→ 2 points
State	The county value is worse than the state value of 125.1 cases per 100,000 females, but not more than 25% worse	→ 1 point
HI counties	The county value is worse than the best county value (Kauai, at 105.6 cases per 100,000 females), but not more than 25% worse	→ 1 point
	Sum of Points	**4 points**

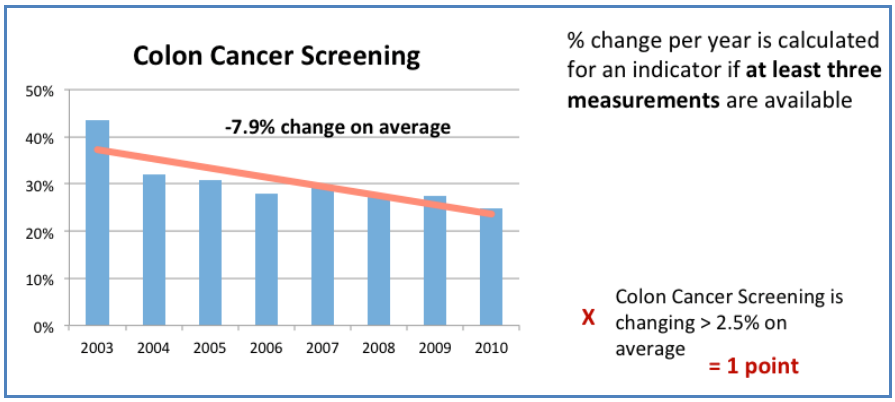
Location	cases/100,000 females	Status
County : Hawaii	116.1	
County : Honolulu	129.7	
County : Kauai	105.6	
County : Maui	117.8	
State : Hawaii	125.1	

	Points Assigned	Comparisons Possible	Average	
X	4	3	*1.33*	= 1 point

Since the average was greater than 1, this breast cancer incidence rate core indicator was assigned a geographic comparison point.

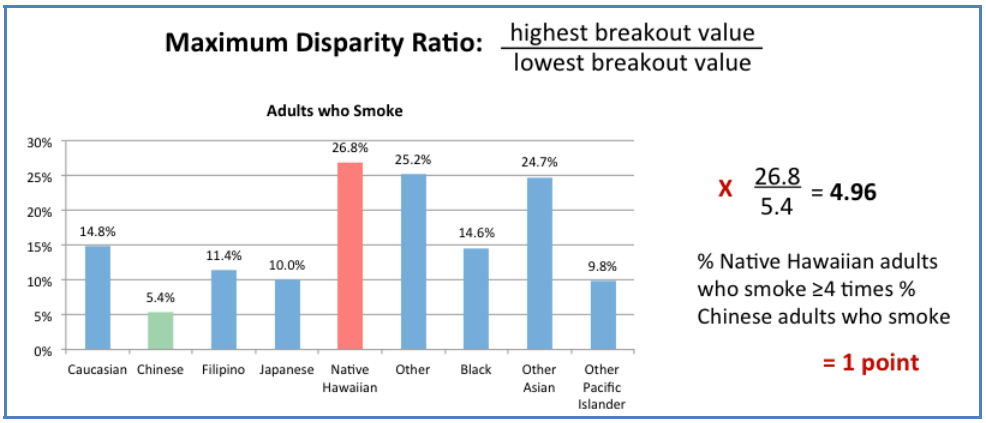
Trend Comparison

The indicator was assigned a point if the value was worsening by at least 2.5% on average. In this example of a colon cancer screening indicator, a point would be assigned because the value decreased by 7.9% on average:



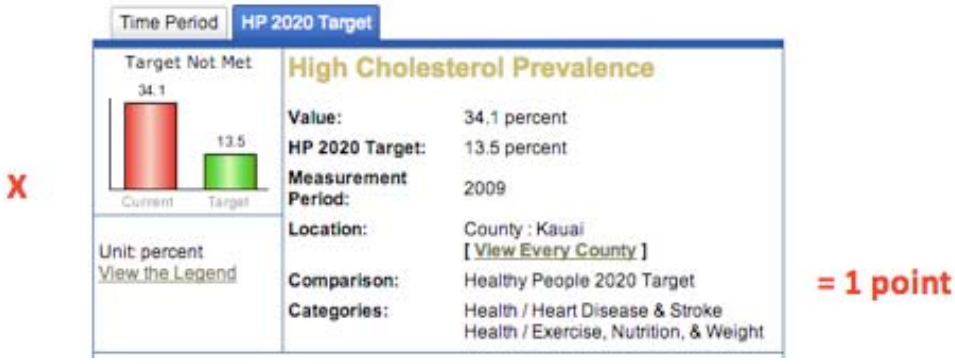
Disparity Analysis

The indicator was assigned a point if there were large disparities among subpopulations. In this Core Indicator analysis, any indicator with a maximum disparity ratio of 4 or greater received a point. This example of an adult smoking indicator would receive a point because its maximum disparity ratio is ≥4:



Healthy People 2020 Target Comparison

The indicator was assigned a point if it did not meet a Healthy People 2020 target. In this high cholesterol prevalence example, a point would be assigned because the county did not meet the target of 13.5%:



Scoring

The total earned points and total possible points were tallied for each indicator. In this example of a mammogram history indicator, four points were possible since all four comparisons were available. Out of the four potential points, the indicator earned only one point, for not meeting the Healthy People 2020 target:

Indicator	National Comparison	Trend	Disparity	HP2020 Target	Points / Possible
Mammogram History	√	√	√	X	1/4

X Poor value relative to comparison; point assigned
√ Value not poor relative to comparison; no point assigned

The total earned points and total possible points were then tallied for all indicators in a topic area to calculate the topic area summary score. In this cancer topic area example, 15 points were earned out of 38 possible points, giving the topic area a summary score of 0.39. These summary scores were then ranked in descending order to help guide the primary data collection process.

Indicator	National Comparison	Trend	Disparity	HP2020 Target	Points / Possible
Mammogram History	√	√	√	X	1/4
Breast Cancer Incidence	X	√	√		1/3
Breast Cancer Death		√	X	√	1/3
Pap Test History		√	√	X	1/3
Cervical Cancer Incidence	X	X	√		2/3
Colon Cancer Screening	√	X	√		1/3
Colorectal Cancer Incidence	X	√	√	X	2/4
Colon Cancer Death Rate		√	X	√	1/3
Liver and Bile Duct Cancer Incidence	X	X	√		2/3
Lung and Bronchus Cancer Incidence	√	√	√		0/3
Melanoma Incidence	X	X	X		3/3
Prostate Cancer Incidence	√	√	√		0/3
Total for Cancer	**5/9**	**4/12**	**3/12**	**3/5**	**15/38**

All points earned by indicators in a topic area are divided by total points possible to calculate the topic area's summary score

Cancer Summary Score:
15 ÷ 38 = **0.39**

Core Indicator Data

Most of the core indicator data included in this report can be found on Hawaii Health Matters (www.HawaiiHealthMatters.org).

Kauai County

Detailed Explanation of Contents	
Topic Area	Health/Quality of Life topic area
Score	Score calculated as proportion of poor comparisons for all indicators within topic (range 0-1)
Indicator	Measure of a specific issue within a topic area
Value	Most recent value available, with period of measurement
National Value	Median U.S. County value (* denotes U.S. average value) Italics indicates that value is within bottom 25th percentile of U.S. Counties (or 25% worse than U.S. average)
State Value	Hawaii State value Italics indicates that value is at least 25% worse than Hawaii State value
Best County Value	Best Hawaii county value Italics indicates that value is at least 25% worse than best county value
% Change per Year	Percent change per year (calculated using line of best fit for all values available), with earliest period of measurement
Race Disparity Ratio	Ratio between highest and lowest value for a specific race/ethnic group
Gender Disparity Ratio	Ratio between gender-specific values
Age Disparity Ratio	Ratio between highest and lowest value for a specific age group
HP2020 Target	Healthy People 2020 Target for indicator
Sub-populations in greatest need	Race, gender, or age specific sub-populations with value worse than average, with sub-population value. Only worst age group included.
Source of Data	Source of indicator data
Unit of Measure	Unit of measure for indicator data

Red text indicates "poor" comparison

Please note that availability of comparisons and sub-population categories vary by indicator and data source

All data is presented in the following format:

Topic Area									**Score**
Indicator	Value (Year)	National Value	State Value	Best County Value	% Change per Year (baseline year)	Race Disparity Ratio	Gender Disparity Ratio	Age Disparity Ratio	HP2020 Target
Sub-populations in greatest need (value)									
Source of Data									*Unit of measure*

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Indicator Sub-populations in greatest need (value) *Source of Data*	Value (Year)	National Value	State Value	Best County Value	% Change per Year (baseline year)	Race Disparity Ratio	Gender Disparity Ratio	Age Disparity Ratio	HP2020 Target *Unit of measure*
Family Planning									**0.67**
Pregnancies that are Intended	51.1 (2009)		52.6	53.8	-0.7% (2003)				56
Source: Pregnancy Risk Assessment Monitoring System									*Units: percent*
Teen Birth Rate	38.7 (2011)		*29.9*	*27.3*	1.9% (2003)	160.5			
Am Indian/Alask Nat (142.9) Hawaiian/Pac Islander (198.1)									
Source: Hawaii State Department of Health, Vital Statistics									*Units: births/1,000 women aged 15-19 years*
Infants Born to Mothers with <12 Yrs Education	8.7 (2011)		7.3	*5.8*	-1.6% (2003)	3.3		10.1	
Hawaiian/Pac Islander (13.3) 15-19 (45.8) 20-24 (10.5)									
Source: Hawaii State Department of Health, Vital Statistics									*Units: percent*
Substance Abuse & Lifestyle									**0.6**
Adults who Binge Drink	22.7 (2010)	*15.1*	*17.9*	*17.4*	4.3% (2006)	2.5	4.4	2.9	24.3
Caucasian (25.9) Filipino (24.3) Male (37.6) 35-44 (39.1)									
Source: Behavioral Risk Factor Surveillance System									*Units: percent*
Liquor Store Density	3 (2010)	10.4	3.7	2.6	-11.3% (2007)				
Source: U.S. Census - County Business Patterns									*Units: stores/100,000 population*
Adults who Smoke	18.1 (2010)	17.3	14.5	*13.0*	-3.6% (2003)	4.4	2.0	15.5	12
Native Hawaiian (28.4) Male (23.9)									
Source: Behavioral Risk Factor Surveillance System									*Units: percent*
Mental Health & Mental Disorders									**0.56**
Self-Reported Good Physical and Mental Health	55.4 (2010)		56.4	57.0	-0.4% (2003)	1.3	1.3	1.2	
Caucasian (50.1) Female (47.3) 35-44 (52.9)									
Source: Behavioral Risk Factor Surveillance System									*Units: percent*
Suicide Death Rate	15.3 (2009-2011)		13.1	*10.9*	7.6% (2003-2005)	2.0	0.0		10.2
Caucasian (21.1) Hawaiian/Pac Islander (41.5) Male (26.8)									
Source: Hawaii State Department of Health, Vital Statistics									*Units: deaths/100,000 population*
Adults with a Depressive Disorder	12.5 (2010)		*8.9*	*7.9*	0.6% (2006)				
Source: Behavioral Risk Factor Surveillance System									*Units: percent*
Education									**0.5**
People 18+ without a High School Degree	3.5 (2010)	7.5	5.3	3.5	-6.8% (2003)	4.3	1.2	2.3	
Filipino (3.9) Native Hawaiian (3.9) Male (3.7) 75+ (8.9)									
Source: Behavioral Risk Factor Surveillance System									*Units: percent*

Indicator Sub-populations in greatest need (value) *Source of Data*	Value (Year)	National Value	State Value	Best County Value	% Change per Year (baseline year)	Race Disparity Ratio	Gender Disparity Ratio	Age Disparity Ratio	HP2020 Target *Unit of measure*
People 25+ with a Bachelor's Degree or Higher Other (9.9) Black (15.7) Asian (19.9) Hawaiian/Pac Islander (8) Two or more races (14.7) Hispanic (15.1) *Source: American Community Survey*	22.7 (2006-2010) Male (22.2) 65+ (20.6)	16.9	*29.4*	*31.1*	-3.4% (2005-2009)	4.5	1.0	1.2	*Units: percent*
Student-to-Teacher Ratio *Source: National Center for Education Statistics*	16.5 (2009-2010)	*14.2*	15.8	15.2	0.9% (2006-2007)				*Units: students/teacher*
Transportation									**0.5**
Mean Travel Time to Work Male (20) *Source: American Community Survey*	19.9 (2006-2010)	22.4	25.9	19.9	3.6% (2005-2009)		1.0		*Units: minutes*
Workers Commuting by Public Transportation Two or more races (0.2) Male (0.2) 25-44 (0.2) *Source: American Community Survey*	0.4 (2006-2010)	0.3	*6*	*7.9*	0% (2005-2009)	7.0	3.0	3.0	5.5 *Units: percent*
Workers who Walk to Work Asian (1.2) Two or more races (0.5) Hispanic (1.1) Female (1.5) 55-59 (0.5) *Source: American Community Survey*	1.6 (2006-2010)	2.6	*4.7*	*5.5*	23.1% (2005-2009)	7.0	1.1	9.2	*Units: percent*
Access to Health Services									**0.44**
Adults with a Usual Source of Health Care Native Hawaiian (80.3) Male (85.2) *Source: Behavioral Risk Factor Surveillance System*	85.2 (2010)		86.4	87.4	1.4% (2003)	1.1	1.0	1.1	83.9 *Units: percent*
Adults without Health Insurance Filipino (14.4) Female (12.4) *Source: Behavioral Risk Factor Surveillance System*	11.5 (2010)	17.8	*8.2*	*7.2*	-6% (2003)	1.9	1.2	2.0	*Units: percent*
Children without Health Insurance *Source: Hawaii Health Survey*	4.4 (2005)		*2.2*	*1.4*	12.9% (2003)				*Units: percent*
Cancer									**0.32**
Mammogram History Caucasian (71) Japanese (70.3) *Source: Behavioral Risk Factor Surveillance System*	72.4 (2010)	75.2	76.5	78.0	-0.7% (2003)	1.0		1.1	81.1 *Units: percent*
Breast Cancer Incidence Rate Caucasian (137.6) *Source: National Cancer Institute*	105.6 (2005-2009)	116.7	125.1	105.6	0.2% (2003-2007)	1.6			*Units: cases/100,000 females*

Indicator Sub-populations in greatest need (value) *Source of Data*	Value (Year)	National Value	State Value	Best County Value	% Change per Year (baseline year)	Race Disparity Ratio	Gender Disparity Ratio	Age Disparity Ratio	HP2020 Target *Unit of measure*
Breast Cancer Death Rate Caucasian (13.1) *Source: Hawaii State Department of Health, Vital Statistics*	13 (2009-2011)		14.2	13.0	-4.5% (2000-2002)	2.0			*Units: deaths/100,000 females*
Pap Test History Japanese (70.8) 75+ (41.3) *Source: Behavioral Risk Factor Surveillance System*	73.1 (2010)		77.4	78.0	-1.1% (2003)	1.2		2.1	93 *Units: percent*
Cervical Cancer Incidence Rate *Source: National Cancer Institute*	10.9 (2005-2009)	*8.6*	*8.2*	*5.9*	-0.5% (2003-2007)				*Units: cases/100,000 females*
Colon Cancer Screening Caucasian (10.7) Female (14.7) 50-59 (10.9) *Source: Behavioral Risk Factor Surveillance System*	15.6 (2010)	17.2	*24.7*	*29.5*	-9.1% (2003)	1.8	1.1	1.7	*Units: percent*
Colorectal Cancer Incidence Rate Caucasian (46.4) Male (54.5) *Source: National Cancer Institute*	45.4 (2005-2009)	48.5	48.6	45.4	-5.8% (2003-2007)	1.1	1.5		38.6 *Units: cases/100,000 population*
Colon Cancer Death Rate Asian (18.8) Hawaiian/Pac Islander (37.2) Male (24) *Source: Hawaii State Department of Health, Vital Statistics*	18 (2009-2011)		*13.5*	*13.1*	-1.1% (2000-2002)	2.5	1.8		*Units: deaths/100,000 population*
Liver and Bile Duct Cancer Incidence Rate *Source: National Cancer Institute*	7.9 (2005-2009)	*6.1*	10.7	7.9	8.1% (2003-2007)				*Units: cases/100,000 population*
Lung and Bronchus Cancer Incidence Rate Caucasian (66.3) Male (80) *Source: National Cancer Institute*	52.6 (2005-2009)	74.6	52.9	50.1	-0.1% (2003-2007)	1.5	2.6		*Units: cases/100,000 population*
Melanoma Incidence Rate Male (30.6) *Source: National Cancer Institute*	22.3 (2005-2009)	19.9	20.6	*16.3*	-5.6% (2003-2007)		2.0		*Units: cases/100,000 population*
Prostate Cancer Incidence Rate Caucasian (139.3) *Source: National Cancer Institute*	120.5 (2005-2009)	145.6	128.4	103.5	4.6% (2003-2007)	1.4			*Units: cases/100,000 males*
Immunizations & Infectious Diseases									**0.29**
Influenza Vaccination Rate 65+ Caucasian (61.7) Male (66.5) *Source: Behavioral Risk Factor Surveillance System*	67.8 (2010)	67.5	73.2	75.7	-0.1% (2003)	1.2	1.0		90 *Units: percent*

Indicator Sub-populations in greatest need (value) *Source of Data*	Value (Year)	National Value	State Value	Best County Value	% Change per Year (baseline year)	Race Disparity Ratio	Gender Disparity Ratio	Age Disparity Ratio	HP2020 Target *Unit of measure*
Pneumonia Vaccination Rate 65+ Caucasian (52.9) Female (66.4) *Source: Behavioral Risk Factor Surveillance System*	69.3 (2010)	68.8	66.8	69.3	-1.1% (2003)	1.7	1.1		90 *Units: percent*
AIDS Incidence Rate *Source: Hawaii State Department of Health*	9.4 (2008)		7.8	7.6	-24.1% (2005)				 *Units: cases/100,000 population*
Chlamydia Incidence Rate *Source: Hawaii State Department of Health*	168.2 (2011)		436.6	168.2	-0.4% (2003)				 *Units: cases/100,000 population*
Gonorrhea Incidence Rate *Source: Hawaii State Department of Health*	11.8 (2011)		49.8	11.8	-16.3% (2003)				 *Units: cases/100,000 population*
Tuberculosis Incidence Rate *Source: Hawaii State Department of Health*	11.8 (2011)		*9*	*3.2*	-11.9% (2009)				1 *Units: cases/100,000 population*
Injury Prevention & Safety									**0.28**
Hospitalization Rate due to Motor Vehicle Collisions *Source: Hawaii Health Information Corporation*	86.2 (2009)		*63.6*	*50.9*	-7% (2003)				 *Units: hospitalizations/100,000 population*
Motor Vehicle Collision Death Rate Asian (16.4) Hawaiian/Pac Islander (47.5) Male (18.4) *Source: Hawaii State Department of Health, Vital Statistics*	12.8 (2009-2011)		*7.8*	*5.7*	0.8% (2003-2005)	5.0	2.6		12.4 *Units: deaths/100,000 population*
Pedestrian Death Rate *Source: Fatality Analysis Reporting System*	0.8 (2007-2010)		1.7	0.8	-16.0% (2003-2006)				1.3 *Units: deaths/100,000 population*
Drowning Death Rate *Source: Hawaii State Department of Health, Vital Statistics*	5.3 (2006-2008)		*2.4*	*1.9*			0.0		1.1 *Units: deaths/100,000 population*
Poisoning Death Rate Caucasian (18.9) Male (9.4) *Source: Hawaii State Department of Health, Vital Statistics*	9 (2009-2011)		12.9	9.0	-0.4% (2003-2005)	1.0	1.1		13.1 *Units: deaths/100,000 population*
Hospitalization Rate due to Unintentional Injuries *Source: Hawaii Health Information Corporation*	336.8 (2009)		323	298.7	-5% (2003)				 *Units: hospitalizations/100,000 population*

Indicator Sub-populations in greatest need (value) *Source of Data*	Value (Year)	National Value	State Value	Best County Value	% Change per Year (baseline year)	Race Disparity Ratio	Gender Disparity Ratio	Age Disparity Ratio	HP2020 Target *Unit of measure*
Unintentional Injury Death Rate Caucasian (33) Hawaiian/Pac Islander (59.4) Male (36.8) *Source: Hawaii State Department of Health, Vital Statistics*	27.1 (2009-2011)		29.8	27.1	-1.9% (2003-2005)	2.4	2.2		53.3 *Units: deaths/100,000 population*
Hospitalization Rate due to Injuries *Source: Hawaii Health Information Corporation*	410.3 (2009)		421.7	405.1	-6.3% (2003)				555.8 *Units: hospitalizations/100,000 population*
Injury Death Rate Caucasian (65.4) Hawaiian/Pac Islander (120.7) Male (72.4) *Source: Hawaii State Department of Health, Vital Statistics*	51.1 (2009-2011)		48.4	43.2	0.9% (2003-2005)	3.4	2.5		 *Units: deaths/100,000 population*
Hospitalization Rate due to Assault *Source: Hawaii Health Information Corporation*	6.3 (2009)		24	6.3	-12.2% (2003)				 *Units: hospitalizations/100,000 population*
Maternal, Fetal & Infant Health									**0.27**
Mothers who Received Late or No Prenatal Care Hawaiian/Pac Islander (13.3) 20-24 (15.4) *Source: Hawaii State Department of Health, Vital Statistics*	10.7 (2011)		15.2	10.7	-7.8% (2003)	1.7		1.9	 *Units: percent*
Mothers who Smoked During Pregnancy *Source: Pregnancy Risk Assessment Monitoring System*	10.1 (2009)		9.6	*7.2*	1.3% (2003)				 *Units: percent*
Women who Binge Drink Prior to Pregnancy (2009+) *Source: Pregnancy Risk Assessment Monitoring System*	29.9 (2009)		*23.1*	*21.3*					 *Units: percent*
Preterm Births Asian (11.1) Hawaiian/Pac Islander (11) 35-44 (13.1) *Source: Hawaii State Department of Health, Vital Statistics*	10.4 (2011)		9.9	9.7	2.6% (2003)	1.4		2.1	11.4 *Units: percent*
Babies with Low Birth Weight Hawaiian/Pac Islander (9.9) 15-19 (13.7) *Source: Hawaii Health Data Warehouse, Vital Statistics*	8.1 (2011)		8.2	7.7	1.3% (2003)	1.7		2.0	7.8 *Units: percent*
Infant Mortality Rate *Source: Hawaii State Department of Health, Vital Statistics*	4.3 (2008-2010)		5.8	*2.1*	14.4% (2005-2007)				6 *Units: deaths/1,000 live births*
Births Delivered by Cesarean Section Asian (28.6) 35-44 (37.2) *Source: Hawaii State Department of Health, Vital Statistics*	26.6 (2011)		26.5	24.1	-1.1% (2003)	1.1		2.1	 *Units: percent*

Indicator Sub-populations in greatest need (value) *Source of Data*	Value (Year)	National Value	State Value	Best County Value	% Change per Year (baseline year)	Race Disparity Ratio	Gender Disparity Ratio	Age Disparity Ratio	HP2020 Target *Unit of measure*
Mothers who Breastfeed *Source: Pregnancy Risk Assessment Monitoring System*	95.3 (2009)		93.3	97.5	0.4% (2003)				*Units: percent*
Economy									**0.25**
Median Household Income Caucasian (58458) Am Indian/Alask Nat (36250) Other (31419) Two or more races (60614) Hispanic (47500) *Source: American Community Survey*	62531 (2006-2010)	42445	66420	70093	-1.2% (2005-2009)	2.3			*Units: dollars*
Per Capita Income Asian (25645) Hawaiian/Pac Islander (21825) Two or more races (16252) Hispanic (16389) *Source: American Community Survey*	26513 (2006-2010)	21512	28882	29516	-1.7% (2005-2009)	2.2			*Units: dollars*
Income Inequality *Source: U.S. Census*	2.29 (2000)	4.62	2.47	*1.7*					*Units: 0*
People Living Below Poverty Level Caucasian (12.6) Am Indian/Alask Nat (12.7) Other (17.1) Black (11.4) Two or more races (9.1) Hispanic (10.7) *Source: American Community Survey* Female (9.6) 75+ (11.5)	8.8 (2006-2010)	14.7	9.6	8.8	-7.4% (2005-2009)	2.9	1.2	1.5	*Units: percent*
Children Living Below Poverty Level Caucasian (15.6) Black (22.8) Two or more races (10.4) Hispanic (10.2) Male (11) <6 (10) *Source: American Community Survey*	9.3 (2006-2010)	20.4	12.3	9.3	-18.4% (2005-2009)	4.5	1.5	1.2	*Units: percent*
People 65+ Living Below Poverty Level Am Indian/Alask Nat (100) Two or more races (18.2) Female (13.5) 75+ (11.5) *Source: American Community Survey*	9.5 (2006-2010)	10	*7.5*	*5.9*	-1.0% (2005-2009)	16.4	2.8	1.5	*Units: percent*
Families Living Below Poverty Level Caucasian (8.5) Other (32.8) Black (8.6) Hispanic (10.8) *Source: American Community Survey*	6.5 (2006-2010)	10.4	6.7	6.1	-8.5% (2005-2009)	9.6			*Units: percent*
Students Eligible for the Free Lunch Program *Source: U.S. Department of Agriculture - Food Environment Atlas*	30.5 (2009)	35.7		30.5	5.2% (2006)				*Units: percent*
Households with Public Assistance *Source: American Community Survey*	3.4 (2006-2010)	*2*	3.3	*2.4*	30.8% (2005-2009)				*Units: percent*
Homeownership *Source: American Community Survey*	48.6 (2006-2010)	*61.5*	51.2	53.4	-1.6% (2005-2009)				*Units: percent*

Indicator Sub-populations in greatest need (value) *Source of Data*	Value (Year)	National Value	State Value	Best County Value	% Change per Year (baseline year)	Race Disparity Ratio	Gender Disparity Ratio	Age Disparity Ratio	HP2020 Target *Unit of measure*
Renters Spending 30% or More of Income on Rent 15-24 (53.7) *Source: American Community Survey*	47.5 (2006-2010)	46	54.6	47.5	-1.5% (2005-2009)			1.2	*Units: percent*
Unemployed Workers in Civilian Labor Force *Source: U.S. Bureau of Labor Statistics*	8.7 (June 2012)	7.8		*6.3*	0% (Jan 2012)				*Units: percent*
Firms Owned by Women *Source: U.S. Economic Census*	31.8 (2007)	28.8	31	32.1	0.8% (2002)				*Units: percent*
Environment									**0.25**
PBT Released *Source: U.S. Environmental Protection Agency*	0 (2010)			0					*Units: pounds*
Recognized Carcinogens Released into Air *Source: U.S. Environmental Protection Agency*	0 (2010)			0					*Units: pounds*
Beach Water Quality *Source: Natural Resources Defense Council*	9 (2011)		*4*	*2*	-9.5% (2007)				*Units: percent*
Oral Health									**0.23**
Adult Preventive Dental Care Filipino (50.1) Native Hawaiian (63.2) Male (65.8) 45-54 (61.7) *Source: Behavioral Risk Factor Surveillance System*	67.1 (2010)		69.3	71.4	-0.9% (2004)	1.6	1.0	1.4	*Units: percent*
Adults who Visited a Dentist Filipino (50.3) Native Hawaiian (52.2) Male (64.4) 45-54 (64.9) *Source: Behavioral Risk Factor Surveillance System*	66.7 (2010)	69.7	70.1	72.2	-0.7% (2004)	1.6	1.1	1.3	49 *Units: percent*
Adults with One or More Tooth Extractions *Source: Behavioral Risk Factor Surveillance System*	40 (2010)	43.6	39.6	38.6	0.2% (2004)				*Units: percent*
Adults with Total Tooth Loss Japanese (10.4) Male (10.6) 75+ (14.2) *Source: Behavioral Risk Factor Surveillance System*	9.3 (2010)	16.9	*7.4*	*6.6*	-3.9% (2004)	2.5	1.3	3.2	21.6 *Units: percent*

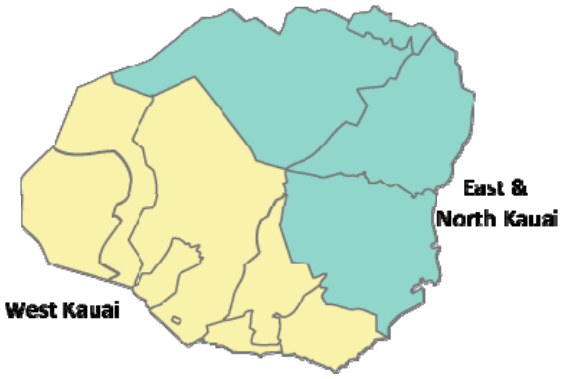
Indicator Sub-populations in greestest need (value) *Source of Data*	Value (Year)	National Value	State Value	Best County Value	% Change per Year (baseline year)	Race Disparity Ratio	Gender Disparity Ratio	Age Disparity Ratio	HP2020 Target *Unit of measure*
Heart Disease & Stroke									**0.21**
High Blood Pressure Prevalence Filipino (33.8) Japanese (30.7) Native Hawaiian (26.7) Male (27.2) 65-74 (52.5) *Source: Behavioral Risk Factor Surveillance System*	24.9 (2009)	28.7	30.2	24.9	2.1% (2003)	1.8	1.2	3.7	26.9 *Units: percent*
High Cholesterol Prevalence Filipino (42.3) Male (37.5) 75+ (48.1) *Source: Behavioral Risk Factor Surveillance System*	34.1 (2009)	37.5	38.9	34.1	3% (2003)	1.6	1.2	1.7	13.5 *Units: percent*
Heart Disease Death Rate Hawaiian/Pac Islander (224.3) Male (121.8) *Source: Hawaii State Department of Health, Vital Statistics*	82.1 (2009-2011)		72.3	68.1	-3.9% (2000-2002)	3.3	2.4		 *Units: deaths/100,000 population*
Stroke Death Rate Hawaiian/Pac Islander (107.3) Male (36.8) *Source: Hawaii State Department of Health, Vital Statistics*	33.5 (2009-2011)		35.8	28.1	-3.6% (2000-2002)	3.6	1.2		 *Units: deaths/100,000 population*
Respiratory Diseases									**0.2**
Adults with Asthma Caucasian (8.7) Filipino (6.3) Female (6.2) 75+ (9.7) *Source: Behavioral Risk Factor Surveillance System*	5.6 (2010)	9.1	9.4	5.6	-4% (2003)	10.9	1.2	1.5	 *Units: percent*
Children with Current Asthma *Source: Behavioral Risk Factor Surveillance System*	10.3 (2010)		11.1	10.2	-6.7% (2005)				 *Units: percent*
Exercise, Nutrition, & Weight									**0.15**
Adults Engaging in Regular Physical Activity Filipino (49.9) Female (57.6) 75+ (45.6) *Source: Behavioral Risk Factor Surveillance System*	57.9 (2009)	51	53.2	57.9	3.4% (2003)	1.3	1.0	1.4	 *Units: percent*
Adults Not Engaging in Physical Activity Filipino (24.4) Japanese (24.7) Female (18.8) 75+ (23.8) *Source: Behavioral Risk Factor Surveillance System*	16.7 (2010)	23.9	19.2	16.6	0.1% (2007)	2.5	1.3	1.9	 *Units: percent*
Recreation and Fitness Facilities *Source: U.S. Department of Agriculture - Food Environment Atlas*	0.06 (2009)	0.07		*0.10*	-20% (2007)				 *Units: facilities/1,000 population*
Adult Fruit and Vegetable Consumption Caucasian (29) Japanese (28) Male (27.3) 55-64 (28.2) *Source: Behavioral Risk Factor Surveillance System*	29.3 (2009)	23.4	23.5	29.3	0.2% (2003)	1.2	1.1	1.7	 *Units: percent*

Indicator Sub-populations in greatest need (value) *Source of Data*	Value (Year)	National Value	State Value	Best County Value	% Change per Year (baseline year)	Race Disparity Ratio	Gender Disparity Ratio	Age Disparity Ratio	HP2020 Target *Unit of measure*
Farmers Market Density	0.19 (2011)	0.02		0.19	0% (2009)				
Source: U.S. Department of Agriculture - Food Environment Atlas									*Units: markets/1,000 population*
Grocery Store Density	0.33 (2009)	0.21		0.33	-2.9% (2007)				
Source: U.S. Department of Agriculture - Food Environment Atlas									*Units: stores/1,000 population*
SNAP Certified Stores	0.8 (2010)	0.9		0.8	7.1% (2008)				
Source: U.S. Department of Agriculture - Food Environment Atlas									*Units: stores/1,000 population*
Adults who are Overweight Caucasian (36.7) Japanese (41.1) Male (34.9) 75+ (40.7)	32.1 (2010)	36.2	34.1	32.1	-0.4% (2003)	1.7	1.2	1.7	
Source: Behavioral Risk Factor Surveillance System									*Units: percent*
Adults who are Obese Filipino (33.4) Native Hawaiian (41.3) Male (28.4) 35-44 (33.1)	23 (2010)	27.5	23.1	21.9	6.6% (2003)	3.5	1.6	3.1	30.6
Source: Behavioral Risk Factor Surveillance System									*Units: percent*
Adults with a Healthy Body Weight Filipino (40.6) Native Hawaiian (30.1) Male (36.5) 45-54 (35.8)	43.3 (2010)		40	43.3	0.8% (2007)	1.5	1.4	1.3	
Source: Behavioral Risk Factor Surveillance System									*Units: percent*
Diabetes									
Adults with Diabetes Filipino (8) Japanese (10.5) Male (6.2) 65-74 (18.4)	6.1 (2010)	8.7	8.3	6.1	0% (2003)	3.9	1.1	9.3	
Source: Behavioral Risk Factor Surveillance System									*Units: percent*
Disabilities									
Older Adults & Aging									
Hospitalization Rate due to Falls Among Seniors	808.1 (2009)		920.2	808.1	3.7% (2003)				
Source: Hawaii Health Information Corporation									*Units: hospitalizations/100,000 population 65+*
Social Environment									
Single-Parent Households	29 (2006-2010)	29.5	29	27.1	-8.2% (2005-2009)				
Source: American Community Survey									*Units: percent*

Appendix B: Hospitalization Data

Hospital Service Areas

Figure 5.1: Kauai County Hospital Service Areas



The Hawaii Health Information Corporation (HHIC) derived the Hospital Service Areas (HSAs) used in this report. These HSAs are composed of contiguous zip codes surrounding hospitals' self-defined service areas, and were delineated by hospital CEOs in 1995. The following zip codes are included in each HSA:

East & North Kauai							
96703	96714	96715	96722	96746	96751	96754	96766
West Kauai							
96705	96716	96741	96747	96752	96756	96765	96769	96796

Hospitalization Rates

Rates were provided by HHIC, and are defined by the Agency for Healthcare Research and Quality (AHRQ) as a set of measures that can be used to identify quality of outpatient care which can potentially prevent the need for hospitalization. Rates are risk-adjusted based on the Healthcare Cost and Utilization Project's State Inpatient Databases. Please see http://qualityindicators.ahrq.gov/Modules/pqi_resources.aspx for a complete definition of indicators. Because the area of mental health was not well represented in the Core Indicator Summary, HHIC also provided unadjusted rates of hospitalization for any mental health-related primary diagnosis.

For all rates, values were suppressed if based on fewer than 10 cases. Population estimates are based on the U.S. Census Bureau, Population Division, Intercensal Estimates of the Resident Population for Counties of Hawaii. Sub-county demographic counts are based on estimates/projections provided by Pitney Bowes Business Insight, 2008-2011. Population estimates by race were provided by the Hawaii State Department of Health, Office of Health Status Monitoring, Hawaii Health Survey 2009-2010.

The tables below include risk-adjusted hospitalization rates with 95% confidence intervals for Kauai County and all contained Hospital Service Areas for 2009, 2010, and 2011. Unadjusted rates by age, gender, and race are for 2011 only (race-specific rates unavailable at HSA level). All mental health hospitalization rates are unadjusted. Use caution when comparing unadjusted rates, as they may represent populations of differing age distribution. State values are also provided for comparison.

	State	Kauai County		Hospital Service Areas	
				East & North Kauai	West Kauai
	Rate	Cases	Rate (95% CI)	Rate (95% CI)	Rate (95% CI)
Short-Term Complications of Diabetes					
2009	38.8	21	42 (24-59.9)	49.5 (25.3-73.8)	--
2010	44	19	37.5 (20.7-54.4)	52 (27.3-76.8)	--
2011	43.1	20	38.6 (21.7-55.5)	56.8 (31.2-82.3)	--
18 to 64	46.1	17	39.4 (20.7-58.1)	60.5 (31.7-89.2)	--
65 plus	29.4	<10	--	--	--
Male	45.1	<10	--	--	--
Female	41	12	44.7 (19.4-70)	70.1 (30.4-109.7)	--
Filipino	25.1	<10	--		
Hawaiian	44.2	<10	--		
Japanese	18	<10	--		
Other Race	88.1	<10	--		
White	58.9	<10	--		
Long-Term Complications of Diabetes					
2009	83.6	56	102.7 (75.8-129.6)	120.5 (83.6-157.4)	73.2 (36.2-110.3)
2010	87.3	65	117 (88.5-145.4)	135.6 (96.8-174.3)	86.1 (46.3-125.8)
2011	82.8	44	78 (54.9-101)	96.5 (64.1-129)	47.1 (17.9-76.4)
18 to 64	57.5	25	57.9 (35.2-80.6)	64 (34.4-93.6)	--
65 plus	192.9	19	188.2 (103.6-272.8)	267.9 (136.6-399.2)	--
Male	97.6	21	79.4 (45.4-113.3)	94.3 (48.1-140.5)	--
Female	67.2	23	85.7 (50.7-120.8)	105.1 (56.6-153.7)	--
Filipino	68.3	13	117.7 (53.7-181.7)		
Hawaiian	105.9	10	95 (36.1-154)		
Japanese	66.3	<10	--		
Other Race	118.5	<10	--		
White	88.1	<10	--		
Uncontrolled Diabetes					
2009	4.5	<10	--	--	--
2010	4.3	<10	--	--	--
2011	6.8	<10	--	--	--
18 to 64	6.1	<10	--	--	--
65 plus	9.1	<10	--	--	--
Male	7.3	<10	--	--	--
Female	6.1	<10	--	--	--
Filipino	--	<10	--		
Hawaiian	9.6	<10	--		
Japanese	4.6	<10	--		
Other Race	11.8	<10	--		
White	6.7	<10	--		

--Rate suppressed due to low case count

	State	Kauai County		Hospital Service Areas	
				East & North Kauai	West Kauai
	Rate	Cases	Rate (95% CI)	Rate (95% CI)	Rate (95% CI)
Rate of Lower-Extremity Amputation					
2009	20.6	12	21.5 (9.3-33.7)	--	--
2010	19.4	<10	--	--	--
2011	17.4	<10	--	--	--
18 to 64	10.5	<10	--	--	--
65 plus	48.2	<10	--	--	--
Male	22.7	<10	--	--	--
Female	12.2	<10	--	--	--
Filipino	15.5	<10	--		
Hawaiian	24.5	<10	--		
Japanese	9.6	0	--		
Other Race	33.7	0	--		
White	14.2	<10	--		
Hypertension					
2009	21.6	13	24.1 (11-37.2)	--	--
2010	27.4	13	23.6 (10.8-36.5)	--	--
2011	26.7	16	28.6 (14.6-42.6)	--	--
18 to 64	17.3	<10	--	--	--
65 plus	67.5	<10	--	--	--
Male	23.2	10	37.8 (14.4-61.2)	--	--
Female	29.7	<10	--	--	--
Filipino	24.5	<10	--		
Hawaiian	25	<10	--		
Japanese	20.6	<10	--		
Other Race	48.8	<10	--		
White	26.7	<10	--		
Heart Failure					
2009	282.4	130	232.9 (192.9-272.9)	269.9 (214.1-325.7)	178 (122.8-233.2)
2010	286	127	221.4 (182.9-259.9)	195.6 (148.8-242.4)	259.6 (193.9-325.3)
2011	267.4	130	225.1 (186.4-263.8)	243.4 (191.4-295.5)	197.8 (140.6-255)
18 to 64	131.3	37	85.7 (58.1-113.3)	88.9 (54.1-123.8)	79.7 (34.6-124.7)
65 plus	913.9	93	921.2 (733.9-1108.4)	988 (735.9-1240.1)	824.4 (547.3-1101.4)
Male	319	67	253.3 (192.6-314)	282.9 (202.9-363)	200.3 (110.2-290.3)
Female	230.9	63	234.9 (176.9-292.9)	210.2 (141.6-278.9)	278.3 (173.3-383.3)
Filipino	330.5	25	226.4 (137.7-315.2)		
Hawaiian	292.2	30	285.1 (183.1-387.2)		
Japanese	225.6	26	340 (209.3-470.8)		
Other Race	381.2	11	194.6 (79.6-309.6)		
White	282	38	243.7 (166.2-321.2)		

--Rate suppressed due to low case count

	State	Kauai County		Hospital Service Areas	
				East & North Kauai	West Kauai
	Rate	Cases	Rate (95% CI)	Rate (95% CI)	Rate (95% CI)
Angina without Procedure					
2009	18.4	14	25.4 (12.1-38.7)	--	--
2010	21.8	12	21.4 (9.3-33.4)	28.5 (10.8-46.2)	--
2011	16.7	<10	--	--	--
18 to 64	11.4	<10	--	--	--
65 plus	39.6	<10	--	--	--
Male	16.5	<10	--	--	--
Female	16.6	<10	--	--	--
Filipino	18.7	<10	--		
Hawaiian	9.6	<10	--		
Japanese	13.8	<10	--		
Other Race	26.4	<10	--		
White	21.3	<10	--		
Bacterial Pneumonia					
2009	242	166	301 (255.2-346.8)	302.9 (243.8-362)	298 (225.6-370.5)
2010	206.7	142	251.1 (209.8-292.4)	213.6 (164.6-262.7)	308.2 (235.5-380.9)
2011	205.1	141	247.1 (206.3-287.8)	226.1 (175.9-276.2)	279.2 (210.2-348.1)
18 to 64	72.2	40	92.6 (63.9-121.3)	92.5 (56.9-128)	92.9 (44.3-141.6)
65 plus	821.5	101	1000.4 (805.3-1195.5)	870.8 (634.1-1107.5)	1188 (855.4-1520.7)
Male	222.3	69	260.9 (199.3-322.4)	253.5 (177.7-329.2)	274.1 (168.7-379.4)
Female	196.6	72	268.4 (206.4-330.4)	204.4 (136.7-272.1)	381.4 (258.5-504.3)
Filipino	235.2	40	362.3 (250-474.6)		
Hawaiian	125.6	19	180.6 (99.4-261.8)		
Japanese	233.6	32	418.5 (273.5-563.5)		
Other Race	284.1	10	176.9 (67.3-286.6)		
White	245.6	40	256.5 (177-336)		
Low Birth Weight					
2009	6.2	67	7.9 (6-9.8)	8.2 (5.8-10.6)	7.4 (4.4-10.4)
2010	6	41	5.1 (3.5-6.6)	4.8 (2.9-6.7)	5.5 (2.8-8.2)
2011	6	42	5.1 (3.5-6.6)	5.3 (3.3-7.3)	4.7 (2.3-7.1)
Male	5.8	21	5.2 (3-7.4)	5.2 (2.4-8)	--
Female	6.2	21	5 (2.9-7.2)	5.5 (2.6-8.3)	--
Filipino	8.4	<10	--		
Hawaiian	5.4	11	8 (3.3-12.7)		
Japanese	4.9	<10	--		
Other Race	6.4	18	6 (3.2-8.7)		
White	3.9	<10	--		

--Rate suppressed due to low case count

	State	Kauai County		Hospital Service Areas	
				East & North Kauai	West Kauai
	Rate	Cases	Rate (95% CI)	Rate (95% CI)	Rate (95% CI)
COPD or Asthma in Older Adults (Ages 40+)					
2009	327.1	103	304.6 (245.8-363.5)	313 (236.9-389.1)	291.3 (198.7-384)
2010	282.6	97	280.5 (224.7-336.3)	249.7 (182.5-316.9)	329.5 (232.1-426.9)
2011	293.4	111	317.2 (258.2-376.2)	288.4 (216.6-360.2)	362.9 (261.3-464.5)
40 to 64	175.6	47	189.8 (135.6-244.1)	155.8 (94.7-216.9)	252.5 (147-358)
65 plus	580.8	64	633.9 (478.6-789.2)	619.6 (420-819.3)	654.6 (407.7-901.6)
Male	318.3	68	407.8 (310.8-504.7)	360.2 (245.7-474.7)	489.7 (314.5-665)
Female	282.4	43	236.6 (165.9-307.3)	209.3 (125.6-293.1)	283.1 (155.8-410.4)
Filipino	399.9	33	534.2 (351.9-716.4)		
Hawaiian	369.3	24	477.3 (286.4-668.3)		
Japanese	153.4	14	231.5 (110.2-352.8)		
Other Race	402.6	10	301.6 (114.7-488.5)		
White	342.3	30	242.3 (155.6-329)		
Asthma in Younger Adults (Ages 18-39)					
2009	36.7	12	68 (29.5-106.5)	--	--
2010	28.5	<10	--	--	--
2011	25.9	<10	--	--	--
Male	21.9	<10	--	--	--
Female	29.1	<10	--	--	--
Filipino	28.8	<10	--		
Hawaiian	29.1	<10	--		
Japanese	--	<10	--		
Other Race	40.6	<10	--		
White	41.3	<10	--		
Dehydration					
2009	76.2	50	91.8 (66.3-117.2)	99.7 (65.7-133.7)	79.5 (41.7-117.2)
2010	71.3	33	59.1 (39-79.3)	67.9 (40.2-95.7)	45.6 (17.3-73.9)
2011	65.9	28	49.6 (31.2-68)	43.8 (21.6-65.9)	58.7 (26.8-90.6)
18 to 64	32.8	11	25.5 (10.4-40.5)	--	--
65 plus	219.3	17	168.4 (88.3-248.4)	167.5 (63.7-271.3)	--
Male	68.6	16	60.5 (30.8-90.1)	--	--
Female	65.3	12	44.7 (19.4-70)	--	--
Filipino	49.6	<10	--		
Hawaiian	34.6	<10	--		
Japanese	79.7	<10	--		
Other Race	99.4	<10	--		
White	88.1	16	102.6 (52.3-152.9)		

--Rate suppressed due to low case count

	State	Kauai County		Hospital Service Areas	
				East & North Kauai	West Kauai
	Rate	Cases	Rate (95% CI)	Rate (95% CI)	Rate (95% CI)
Urinary Tract Infection					
2009	99.9	73	135.8 (104.7-167)	152.1 (109.5-194.7)	111.5 (66.9-156)
2010	100.5	65	117.9 (89.3-146.6)	112.1 (76-148.2)	126.7 (79.8-173.6)
2011	102.7	66	118.5 (89.9-147.1)	116.8 (80.2-153.5)	121 (75.3-166.6)
18 to 64	46.8	29	67.2 (42.7-91.6)	67.6 (37.2-98)	66.4 (25.2-107.5)
65 plus	363	37	366.5 (248.4-484.6)	334.9 (188.1-481.7)	412.2 (216.2-608.1)
Male	55.6	10	37.8 (14.4-61.2)	--	--
Female	153	56	208.8 (154.1-263.4)	198.6 (131.8-265.3)	226.8 (132-321.5)
Filipino	93.4	<10	--		
Hawaiian	74	10	95 (36.1-154)		
Japanese	115.8	16	209.3 (106.7-311.8)		
Other Race	142.6	<10	--		
White	130.3	25	160.3 (97.5-223.2)		
Perforated Appendix					
2009	21.1	18	27.6 (14.9-40.4)	41.2 (21-61.4)	--
2010	23.1	17	26.8 (14-39.5)	29.6 (13.5-45.6)	--
2011	23.7	20	23.2 (13-33.3)	27.4 (14.8-40.1)	--
18 to 64	21.3	15	21.7 (10.7-32.7)	24.5 (11.2-37.9)	--
65 plus	47	<10	--	--	--
Male	23.4	<10	--	--	--
Female	27.4	13	31.7 (14.5-48.9)	34.4 (14.1-54.7)	--
Filipino	23.1	<10	--		
Hawaiian	19.2	<10	--		
Japanese	34	<10	--		
Other Race	23.4	<10	--		
White	27.6	11	37.9 (15.5-60.3)		
Mental Health					
2009	470.1	252	490 (429.5-550.5)	571.4 (489.7-653)	345.6 (260.9-430.2)
2010	478.8	231	443.2 (386.1-500.4)	489 (413.9-564.1)	362 (276-448.1)
2011	481.6	220	413 (358.4-467.5)	416.6 (348.1-485.1)	406.5 (316.3-496.7)
18 to 64	542.7	198	458.6 (394.7-522.4)	473 (392.7-553.4)	431.5 (326.6-536.4)
65 plus	208.7	22	217.9 (126.9-309)	150.7 (52.2-249.2)	315.2 (143.9-486.5)
Male	578.4	128	483.9 (400.1-567.7)	453.9 (352.5-555.3)	537.6 (390.1-685.2)
Female	386.2	92	343 (272.9-413.1)	379.6 (287.3-471.9)	278.3 (173.3-383.3)
Filipino	202.3	18	163 (87.7-238.3)		
Hawaiian	387.5	21	199.6 (114.2-285)		
Japanese	142.6	13	170 (77.6-262.4)		
Other Race	976.3	54	955.4 (700.6-1210.2)		
White	860.1	114	731.1 (596.9-865.2)		

--Rate suppressed due to low case count

	State	Kauai County		Hospital Service Areas	
				East & North Kauai	West Kauai
	Rate	Cases	Rate (95% CI)	Rate (95% CI)	Rate (95% CI)
PQI Composite – Acute Conditions					
2009	418.2	289	529.2 (468.2-590.2)	554.9 (474.5-635.3)	489.9 (396.6-583.2)
2010	378.7	240	428.7 (374.5-482.9)	393.7 (326.8-460.6)	482 (390.6-573.3)
2011	373.8	235	415.6 (362.5-468.7)	386.6 (320.7-452.6)	459.8 (371-548.6)
40 to 64	151.7	80	185.3 (144.7-225.9)	177.8 (128.5-227.1)	199.2 (127.9-270.4)
65 plus	1403.8	155	1535.3 (1293.6-1777)	1373.2 (1076-1670.4)	1769.9 (1363.9-2176)
Male	346.5	95	359.2 (286.9-431.4)	324.2 (238.5-409.9)	421.7 (291-552.3)
Female	415	140	521.9 (435.5-608.4)	449.7 (349.3-550.1)	649.4 (489-809.8)
Filipino	378.2	52	471 (343-599)		
Hawaiian	234.2	32	304.2 (198.8-409.5)		
Japanese	429.1	51	667 (483.9-850.1)		
Other Race	526.1	19	336.2 (185-487.3)		
White	464.1	81	519.4 (406.3-632.6)		
PQI Composite – Chronic Conditions					
2009	679.5	360	658.6 (590.5-726.6)	710.8 (620.5-801.1)	576.1 (473.9-678.3)
2010	669.1	343	613.4 (548.5-678.3)	604.7 (522.3-687.1)	627.1 (521.7-732.5)
2011	646.1	342	604.4 (540.3-668.4)	640.4 (556.2-724.7)	547.4 (449.4-645.3)
18 to 64	378.2	148	342.8 (287.5-398)	348.6 (279.6-417.6)	331.9 (239.9-423.9)
65 plus	1864.8	194	1921.6 (1651.2-2192)	2076.5 (1711-2442)	1697.2 (1299.6-2094.8)
Male	713.4	188	710.7 (609.1-812.3)	730.9 (602.3-859.6)	674.6 (509.4-839.9)
Female	588.3	154	574.1 (483.4-664.8)	572.3 (459-685.7)	577.2 (426-728.4)
Filipino	707.4	87	788 (622.4-953.6)		
Hawaiian	695.6	77	731.9 (568.4-895.3)		
Japanese	463.4	52	680.1 (495.2-864.9)		
Other Race	943.2	33	583.9 (384.7-783.1)		
White	754.4	93	596.4 (475.2-717.6)		

--Rate suppressed due to low case count

Acute Composite Rate includes Dehydration, Bacterial Pneumonia, and Urinary Tract Infection

Chronic Composite Rate includes Short-Term Complications of Diabetes, Long-Term Complications of Diabetes, Uncontrolled Diabetes, Rate of Lower-Extremity Amputation, Hypertension, Heart Failure, Angina without Procedure, COPD or Asthma in Older Adults (Ages 40+), and Asthma in Younger

	State	Kauai County		Hospital Service Areas	
				East & North Kauai	West Kauai
	Rate	Cases	Rate (95% CI)	Rate (95% CI)	Rate (95% CI)
PQI Composite					
2009	1097.5	649	1187.8 (1096.4-1279.1)	1265 (1144.2-1385.9)	1067.4 (928.8-1205.9)
2010	1047.1	583	1042.1 (957.5-1126.7)	998.5 (892.4-1104.7)	1110 (970.4-1249.5)
2011	1019.4	577	1020 (936.8-1103.2)	1027.4 (920.4-1134.5)	1008.4 (876-1140.7)
18 to 64	529.8	228	528 (459.5-596.6)	526.4 (441.6-611.2)	531.1 (414.7-647.5)
65 plus	3268.6	349	3456.8 (3094.1-3819.5)	3449.7 (2978.6-3920.8)	3467.1 (2898.9-4035.4)
Male	1059.7	283	1069.9 (945.2-1194.6)	1055.1 (900.6-1209.7)	1096.3 (885.6-1307)
Female	1003.3	294	1096 (970.7-1221.3)	1022 (870.6-1173.5)	1226.6 (1006.2-1447)
Filipino	1085.6	139	1258.9 (1049.7-1468.2)		
Hawaiian	929.8	109	1036 (841.5-1230.5)		
Japanese	892.5	103	1347.1 (1087-1607.3)		
Other Race	1468.7	52	920 (670-1170.1)		
White	1218.5	174	1115.8 (950-1281.6)		

--Rate suppressed due to low case count

Appendix C: Key Informant Interview Participants

Completed Interviews

Key Informant Title, Organization	Expertise	Date of Interview
Dileep Bal District Health Officer, Kauai District Health Office, State of Hawaii Department of Health	Access to Health Services Social Environment	12/18/12
Maile Ballesteros Home Care Manager, St. Francis Home Healthcare	Older Adults & Aging	12/7/12
LaVerne Bishop Executive Director, Hale 'Ōpio Kaua'i, Inc.	Family Planning Maternal, Fetal, & Infant Health Social Environment Substance Abuse & Lifestyle	11/28/12
Bev Brody Health and Built Environment Project Coordinator, Get Fit Kauai (Nutrition & Physical Activity Coalition of Kauai)	Exercise, Nutrition, & Weight Transportation	11/27/12
Kathy Clark President & CEO, Wilcox Hospital	Access to Health Services Mental Health & Mental Disorders	11/29/12
Helen Cox Chancellor, Kauai Community College	Education Family Planning	12/6/12
Dr. Paul Esaki Family Practice Physician Director, Board of Directors of the Hawaii Medical Service Association	Immunizations & Infectious Diseases	12/27/12
Beth Giesting Healthcare Transformation Officer, Office of the Governor	Oral Health	12/20/2012
Dr. Josh Green State Senator Executive Medical Director, Hawaii Independent Physicians Association Emergency Room Physician	Diabetes	11/28/12
Renae Hamilton Executive Director, Kauai YWCA	Family Planning Injury Prevention & Safety Substance Abuse & Lifestyle	12/14/12
Robert Hirokawa CEO, Hawaii Primary Care Association	Respiratory Diseases	12/19/12
John Hunt Public Health Administrative Officer, Kauai District Health Office, Hawaii State Department of Health	Injury Prevention & Safety Oral Health	12/14/12
Lola Irvin Healthy Hawaii Initiative, Tobacco Settlement Project Manager, Hawaii State Department of Health	Cancer Exercise, Nutrition, & Weight Respiratory Diseases	12/17/12
DQ Jackson Executive Director, Malama Pono	Family Planning Immunizations & Infectious Diseases	12/27/12

Leslie Lam Executive Director, American Diabetes Association Hawaii	Diabetes	12/28/12
Dee Jay Mailer CEO, Kamehameha Schools	Education	12/17/12
Lori Miler Executive Director, Kauai Hospice	Older Adults & Aging	12/18/12
Dee Dee Nelson Director, Mountain-Pacific Quality Health	Heart Disease & Stroke	12/3/12
Dr. Neal Palafox Professor, John A. Burns School of Medicine, University of Hawaii	Cancer	12/26/12
David Peters Chief Executive Officer, Ho'ola Lahui Hawaii	Access to Health Services Mental Health & Mental Disorders Substance Abuse & Lifestyle	11/29/12
Linda Rosen Chief, Emergency Medical Services and Injury Prevention Systems Branch, Hawaii State Department of Health	Injury Prevention & Safety	12/20/12
Lori Suan Executive Director, American Heart Association, Hawaii Chapter	Heart Disease & Stroke	12/10/12
Toni Torres District Health Nurse, Hawaii State Department of Health	Immunizations & Infectious Diseases Maternal, Fetal, & Infant Health Transportation	12/31/12
Dr. Jackie Young Chief Staff Officer, High Plains Division, American Cancer Society Hawaii Site	Cancer	12/26/12

Attempted Interviews

Following the nomination and voting process, individuals from the following organizations were attempted to be reached but were unavailable for interview.

Organization	Expertise
Department of Education	Education

Appendix D: Identified Community Resources

Statewide Health-Related Resources Identified from Aloha United Way[15]

The following list includes selected resources available to residents of the State of Hawaii, as identified from Aloha United Way. However, it is not an exhaustive directory of all statewide programs. To find more resources for Kauai County, please visit http://www.auw211.org/.

Topic Area(s)	Organization/Program	URL	Phone
Access to Health Services	DISABILITY & COMMUNICATION ACCESS BOARD	http://www.state.hi.us/health/dcab/home/index.htm	(808)586-8121
Access to Health Services	DISABLED RIGHTS LEGAL PROJECT		(808)585-0920
Access to Health Services; Transportation	EYE OF THE PACIFIC GUIDE DOGS FOUNDATION	www.eyeofthepacific.org	(808)941-1088
Access to Health Services; Substance Abuse	HAWAII TOBACCO QUITLINE	www.callitquitshawaii.org	
Cancer	AMERICAN CANCER SOCIETY	www.cancer.org	(808)595-7544
Cancer	BCCCP - BREAST AND CERVICAL CANCER CONTROL PROGRAM	www.queens.org	
Cancer	THE LEUKEMIA & LYMPHOMA SOCIETY	www.lls.org/aboutlls/chapters/sd/	(808)534-1222
Cancer	US TOO INTERNATIONAL AND NATIONAL ALLIANCE OF STATE PROSTATE CANCER COALITIONS	www.naspcc.org/hawaii	(808)521-2630
Cancer; Access to Health Services	CANCER INFORMATION SERVICE	www.cancer.gov	1-800-4-CANCER (1-800-422-6237)
Children's Health	CHILD & FAMILY SERVICES	www.childandfamilyservice.org	
Children's Health	HAWAII KIDS COUNT	http://uhfamily.hawaii.edu/projects/kidscount/home.aspx	
Children's Health	PREVENT CHILD ABUSE HAWAII	www.preventchildabusehawaii.org	(808)951-0200
Diabetes	AMERICAN DIABETES ASSOCIATION - HI	www.diabetes.org	
Diabetes	NATIONAL KIDNEY FOUNDATION OF HAWAII - OAHU	www.kidneyhi.org	(808)593-1515
Diabetes; Children's Health	JUVENILE DIABETES RESEARCH FOUNDATION INTERNATIONAL - HAWAII CHAPTER	www.jdrfhawaii.org	(808)988-1000
Education	OUTREACH COLLEGE	www.outreach.hawaii.edu	(808)956-7221
Exercise, Nutrition, & Weight	EXPANDED FOOD & NUTRITION EDUC-OAHU	www.ctahr.hawaii.edu/site/Extprograms.aspx	(808)956-7138
Exercise, Nutrition, & Weight	OVEREATERS ANONYMOUS - HAWAII	www.oa.org	(808)737-3469
Heart Disease & Stroke	REHABILITATION HOSPITAL OF THE PACIFIC - STROKE PROGRAM	www.rehabhospital.org	(808)531-3511

[15] Data was accessed February 2013

Topic Area(s)	Organization/Program	URL	Phone
Heart Disease & Stroke; Education	LAST MINUTE CPR & FIRST AID	www.lastminutecpr.com	(808)671-4100
Immunizations & Infectious Diseases	HIV EARLY INTERVENTION SERVICES	www.waikikihc.org	(808)926-0742 (808)791-9387
Injury Prevention & Safety	BRAIN INJURY ASSOCIATION OF HAWAII	http://www.biausa.org/hawaii	(808)791-6942
Injury Prevention & Safety; Social Environment	HAWAII STATE COALITION AGAINST DOMESTIC VIOLENCE	www.hscadv.org	
Injury Prevention & Safety; Substance Abuse	MADD HAWAII	http://www.madd.org/local-offices/hi/	(808)532-6232
Injury Prevention & Safety; Social Environment	OHIA DOMESTIC VIOLENCE SHELTER	http://www.pacthawaii.org/ohia.html	(808)526-2200
Maternal, Fetal & Infant Health	H-KISS	http://hawaii.gov/health/family-child-health/eis	(808)594-0066
Maternal, Fetal & Infant Health	LA LECHE LEAGUE	www.lllnorcal.org/groups/Hawaii.html	(808)325-3055
Maternal, Fetal & Infant Health	PARENT LINE	www.theparentline.org	(808)526-1222
Mental Health	NAMI (NATIONAL ALLIANCE ON MENTAL ILLNESS) - HAWAII	www.namihawaii.org	(808)591-1297
Mental Health	WARM LINES	www.unitedselfhelp.org	(808)931-6444
Older Adults & Aging	AGING, EXECUTIVE OFFICE ON	www.hawaii.gov/health/eoa/index.html	(808)586-0100
Older Adults & Aging	ALZHEIMER'S ASSOCIATION - ALOHA CHAPTER	http://www.alz.org/hawaii/	(808)591-2771
Older Adults & Aging	CTR ON AGING, OFFICE OF PUBLIC HEALTH STUDIES	www.hawaii.edu/aging	(808)956-5001
Older Adults & Aging	LEJ DISABILITY VETERANS PROJECT	www.lejdisability.org	(888) 557-9789
Oral Health	HAWAII DENTAL ASSOCIATION	www.hawaiidentalassociation.net/	(808)593-7956
Organ Donation	LEGACY OF LIFE HAWAII	www.legacyoflifehawaii.org	(808)599-7630
Other Chronic Conditions	ARTHRITIS FOUNDATION, HAWAII BRANCH	www.arthritis.org	(808)596-2900
Other Chronic Conditions	AUTISM SOCIETY OF HAWAII	www.autismhi.org/	(808)228-0122
Other Chronic Conditions	EPILEPSY FOUNDATION OF HAWAII	www.hawaiiepilepsy.com	(808)528-3058
Other Chronic Conditions	LUPUS FOUNDATION, HAWAII	www.lupushawaii.org	
Social Environment	OFFICE OF HAWAIIAN AFFAIRS - OAHU	www.oha.org	(808)594-1888
Social Environment; Economy	HAWAI`I HOTEL & LODGING ASSOCIATION	www.hawaiihotels.org	(808)923-0407
Substance Abuse	COALITION FOR A DRUG-FREE HAWAII	www.drugfreehawaii.org	

Topic Area(s)	Organization/Program	URL	Phone
Substance Abuse; Teen & Adolescent Health	COALITION FOR A TOBACCO-FREE HAWAII	www.tobaccofreehawaii.org	

Kauai County Health-Related Resources Identified through Hawaii Department of Health Contracts

The following list includes organizations that have active contracts with the Hawaii Department of Health in 2013.

Geography	Topic Area(s)	Organization/Program
Kauai County	Access to Health Services	MALAMA PONO HEALTH SERVICES
Kauai County	Access to Health Services; Family Planning	LIFE FOUNDATION
Kauai County	Access to Health Services; Family Planning	MALAMA PONO HEALTH SERVICES
Kauai County	Children's Health; Access to Health Services	EASTER SEALS OF HAWAII – KAUAI
Kauai County	Environment	COUNTY OF KAUAI
Kauai County	Environment	COUNTY OF KAUAI DEPARTMENT OF WATER
Kauai County	Maternal, Fetal & Infant Health; Access to Health Services; Family Planning	KAUAI COMMUNITY COLLEGE
Kauai County	Maternal, Fetal & Infant Health; Access to Health Services; Family Planning	KAUAI RURAL HEALTH
Kauai County	Mental Health	HALE OPIO KAUAI, INC.
Kauai County	Mental Health	PARENTS AND CHILDREN TOGETHER (KAUAI)
Kauai County	Substance Abuse	KAUAI COUNTY POLICE DEPT.

Kauai County Licensed Health Care Facilities Reported by the Centers for Medicare & Medicaid Services[16]

The following list includes the places of service reported by the Centers for Medicare & Medicaid Services for Kauai County. However, it is not an exhaustive directory of all facilities in the county.

Facility Type	Facility Sub-Type	Facility Name	Address
Ambulatory Surgical Center	AMBULATORY SURGICAL CENTER	ASC OF KAUAI MED GROUP, INC	4366 KUKUI GROVE ST LIHUE HI 96766
End Stage Renal Disease Facility	END STAGE RENAL DISEASE	KAUAI DIALYSIS SATELLITE FACIL	3224 ELUA STREET LIHUE HI 96766
End Stage Renal Disease Facility	END STAGE RENAL DISEASE	LIBERTY DIALYSIS HAWAII, LLC WEST KAUAI DIALYSIS	4643-A WAIMEA CANYON DRIVE WAIMEA HI 96796
End Stage Renal Disease Facility	END STAGE RENAL DISEASE	LIBERTY DIALYSIS-HAWAII LLC-KAUAI	3224 ELUA STREET LIHUE HI 96766

[16] The Centers for Medicare & Medicaid Services published this list in the 4th Quarter of 2012.

Facility Type	Facility Sub-Type	Facility Name	Address
		DIALYSIS	
End Stage Renal Disease Facility	END STAGE RENAL DISEASE	WEST KAUAI DIALYSIS FACILITY	4643-A WAIMEA CANYON DRIVE WAIMEA HI 96796
Extension or Branch	OPT EXTENSION	HEALTHSOUTH REHABILITATION CENTER OF ELEELE	4485 WAIALO ROAD, SUITE 15B ELEELE HI 96705
Federally Qualified Health Center	FEDERALLY QUALIFIED HEALTH CENTER	HLH KAUA'I COMMUNITY HEALTH CENTER	4643 B WAIMEA CANYON DRIVE WAIMEA HI 96796
Federally Qualified Health Center	FEDERALLY QUALIFIED HEALTH CENTER	KAUA'I COMMUNITY HEALTH CENTER	4800 KAWAIHAU ROAD KAPAA HI 96746
Federally Qualified Health Center	FEDERALLY QUALIFIED HEALTH CENTER	WAIKIKI HEALTH CENTER - HO'OLA LIKE PROJECT	QUEEN LILIU'OKALANI PROTESTANT CHURCH HANALEI HI 96714
Home Health Agency	HOME HEALTH AGENCY	HAWAII PROFESSIONALS HOMECARE SERVICES, INC	2970 KELE STREET, SUITE 213 LIHUE HI 96766
Home Health Agency	HOME HEALTH AGENCY	INTERIM HEALTHCARE LIHUE	4370 KUKUI GROVE STREET SUITE LIHUE HI 96766
Home Health Agency	HOME HEALTH AGENCY	ST.FRANCIS HOME CARE SERVICES - KAUAI	4473 PAHE'E STREET, SUITE N LIHUE HI 96766
Hospice	HOSPICE	KAUAI HOSPICE	4457 PAHE'E STREET LIHUE HI 96766
Hospice	HOSPICE	SAMUEL MAHELONA MEMORIAL HOSPITAL	4800 KAWAIHAU ROAD KAPAA HI 96746
Hospital	Critical Access Hospitals	KAUAI VETERANS MEMORIAL HOSPITAL	4643 WAIMEA CANYON DRIVE WAIMEA HI 96796
Hospital	Critical Access Hospitals	SAMUEL MAHELONA MEMORIAL HOSPITAL	4800 KAWAIHAU ROAD KAPAA HI 96746
Hospital	Short Term	KAUAI VETERANS MEMORIAL HOSPITAL	4643 WAIMEA CANYON ROAD WAIMEA HI 96796
Hospital	Short Term	SAMUEL MAHELONA MEMORIAL HOSPITAL	4800 KAWAIHAU RD KAPAA HI 96746
Hospital	Short Term	WILCOX MEMORIAL HOSPITAL	3-3420 KUHIO HIGHWAY LIHUE HI 96766
Intermediate Care Facility-Mentally Retarded	TITLE 19 ONLY	ARC IN HAWAII - WAILUA	6342 KOUKALAKA PLACE KAPAA HI 96746
Nursing Facility	TITLE 19 ONLY	G N WILCOX MEM HOSP - SNF/ICF	3420 KUHIO HWY LIHUE HI 96766
Nursing Facility	TITLE 19 ONLY	HALE KUPUNA HERITAGE HOME, LLC	4297A OMAO ROAD KOLOA HI 96756
Nursing Facility	TITLE 19 ONLY	KAUAI CARE CENTER	9611 WAENA ROAD WAIMEA HI 96796
Nursing Facility	TITLE 19 ONLY	SAMUEL MAHELONA MEMORIAL	4800 KAWAIHAU RD KAPAA HI 96746

Facility Type	Facility Sub-Type	Facility Name	Address
		HOSPITAL ICF	
Outpatient Physical Therapy/Speech Pathology	OPT OR SPEECH PATHOLOGY	HEALTHSOUTH REHABILITATION CENTER OF KAUAI	3170-A JERVES STREET LIHUE HI 96766
Skilled Nursing Facility/Nursing Facility (Dually Certified)	TITLE 18/19	GARDEN ISLE HEALTHCARE	3-3420 KUHIO HIGHWAY, SUITE 300 LIHUE HI 96766
Skilled Nursing Facility/Nursing Facility (Dually Certified)	TITLE 18/19	HALE KUPUNA HERITAGE HOME, LLC	4297A OMAO ROAD KOLOA HI 96756
Skilled Nursing Facility/Nursing Facility (Dually Certified)	TITLE 18/19	KAUAI CARE CENTER	9611 WAENA ROAD WAIMEA HI 96796
Skilled Nursing Facility/Nursing Facility (Dually Certified)	TITLE 18/19	KAUAI VETERANS MEMORIAL HOSPITAL	4643 WAIMEA CANYON RD WAIMEA HI 96796
Skilled Nursing Facility/Nursing Facility (Dually Certified)	TITLE 18/19	SAMUEL MAHELONA MEMORIAL HOSPITAL	4800 KAWAIHAU ROAD KAPAA HI 96746

Appendix E: Referenced Reports

While only some of the following reports are referenced throughout the report, the list below includes all previously published reports which contributed to the authors' understanding of the health needs of Kauai County. These reports may be useful for further assessment and planning.

Chronic Disease Disparities Report 2011: Social Determinants
Chronic Disease Management and Control Branch, Hawaii State Department of Health
http://hawaii.gov/health/family-child-health/chronic-disease/reports/CD_BurdenReport_FINAL.pdf

The Burden of Cardiovascular Disease in Hawaii 2007
Hawaii State Department of Health, Community Health Division
http://hawaii.gov/health/family-child-health/chronic-disease/cvd/CVD2007.pdf

State of Hawaii Maternal & Child Health Needs Assessment Summary 2010
Family Health Services Division, Department of Health, State of Hawaii
http://hawaii.gov/health/doc/MCH-NASummary2010

State of Hawaii Primary Care Needs Assessment Data Book 2012
Family Health Services Division, Hawaii Department of Health
http://hawaii.gov/health/doc/pcna2012databook.pdf

Hawaii Community Health Needs Assessment
Kaiser Foundation Health Plan of Hawaii
https://healthy.kaiserpermanente.org/static/health/pdfs/how_to_get_care/hi_community_voices_on_health.pdf

Special Action Team Report to the Governor on Revitalization of the Adult Mental Health System and Effective Management of the Hawaii State Hospital Census October 2012
Hawaii Department of Health
http://www.amhd.org/SAT%20Report.pdf

A Costly Dental Destination
The Pew Center on the States, Pew Research Center
http://www.pewstates.org/uploadedFiles/PCS_Assets/2012/A%20Costly%20Dental%20Destination(1).pdf

Falling Short: Most States Lag on Dental Sealants
The Pew Center on the States, Pew Research Center
http://www.pewstates.org/uploadedFiles/PCS_Assets/2013/Pew_dental_sealants_report.pdf

The State of Children's Dental Health: Making Coverage Matter
The Pew Center on the States, Pew Research Center
http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/State_policy/Childrens_Dental_50_State_Report_2011.pdf

Appendix F: Road map to IRS Requirements in Schedule H Form

All IRS 990 requirements are met by this CHNA in the referenced sections:

Community Health Needs Assessment Requirements - SCHEDULE H (Form 990) http://www.irs.gov/pub/irs-pdf/f990sh.pdf	**Reference**
The definition of the community served by the hospital facility	Section 1.2.1
Demographics of the community	Section 3.1
Existing health care facilities and resources within the community that are available to respond to the health needs of the community	Appendix D
How data was obtained	Section 2.1-2.4
The health needs of the community, including the primary and chronic disease needs and other health issues of uninsured persons, low-income persons, and minority groups	Section 3.2
The process for identifying and prioritizing community health needs and services to meet the community health needs	Section 5
The process for consulting with persons representing the community's interests	Section 2.3
Information gaps that limit the hospital facility's ability to assess all of the community's health needs	Section 4.1.2
Make CHNA widely available to the public	URL

Appendix G: Authors

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Appendix H: Assets Mapping: Kaua‘i Island