Improving Health Awareness

Through an Education and Health Screening Program

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Abstract

In Healthy People 2010: Understanding and Improving Health (U.S. Department of Health and Human Services, 2000a), access to quality health services (which includes rural health care awareness) was rated as the top ranking rural health priority. Rural is described as a slower pace of life, a sense of community, and a closer connection to nature and tradition, characteristics commonly associated with rural areas. Rural is defined more formally as an area within a particular geographical, political, or economic status. In an effort to appreciate the health care needs of a rural community on Hawaii Island, results from a combination of focus groups, residents’ participation in common health screening recommendations and residents’ health awareness were analyzed. The Health Literacy Skills Framework (Squiers, Peinado, Berkman, Boudewyns, & McCormack, 2012) was used to analyze the results. In addition to the common challenges identified in rural communities, such as provider shortages, isolation, long distance travel, poor access to health care, scarcity of specialty care, and under-resourced infrastructure, this project revealed unique influences on use, understanding, and participation in health care. These included the strong spiritual beliefs of the community, use of Hawaiian healing practices, a strong sense of ohana (family), and the importance of trust in participating in health care outside of the community.

Keywords: rural communities, health literacy, health awareness health screening, traditions, health disparities, access, socioeconomics
Chapter 1

Program Introduction

Introduction and Background

Most visitors to the Hawaiian Islands see the beautiful scenery, the friendly people, and delicious cultural foods. The differences visitors see between Hawaii and their hometown is the manner in which local people speak, the diversity of their looks, and the size of the houses. What most people do not see when visiting the Hawaiian Islands are the disparities in health care that exist in this rural state. Like many rural states, many inequalities related to health care and other resources exist amongst the people in rural Hawaii.

In defining the concept *rural health care*, it is clear that many issues embrace this concept. *Rural* is described as a slower pace of life, a sense of community, and a closer connection to nature, traditions, and characteristics commonly associated within rural communities. Rural more formally is defined as an area within a particular geographical, political, or economic status. Rural communities are faced with many of the same health care issues and disparities confronting the rest of the world. However, there are many unique issues associated with a rural lifestyle, which can be seen as barriers to achieving optimal health care in rural communities. There are distinctive challenges to receiving health care in rural areas including: isolation, illiteracy, provider shortages, poor or no access to health care, and multiple chronic medical conditions. Physical issues include lack of communication networks, long distances to hospitals, lack of transportation to access resources, and under-resourced infrastructures. Socioeconomic status, whether assessed by income, education, or occupation, is linked to a wide range of health problems and disease. Barriers which prevent the use of health services may include cultural, financial, social and geographic barriers, education, and access.
Issues include poor communication, lack of educational and health resources, and isolation from the rest of society. Spiritual beliefs and cultural healing are practiced predominately in rural health care settings. Health disparities cover a wide variety of poor health care outcomes for both racial and ethnic backgrounds, regardless of genetic makeup or cultural practices, differences in social resources, environmental factors, or health care interventions.

In 2010, rural health was addressed as a unique mixture of influences that create disparities in remote rural areas. As Jon Bailey, Research Director of the Center for Rural Affairs, points out, access to care is important because of the high rates of chronic disease and minimal practice of preventive care (Bailey, 2010). According to Nelson and Gingerich (2010), a national survey confirms rural health care providers and stakeholders are important counterparts in providing access for quality health care maintenance. McKenzie and Bushy (2004), exert that minorities living in rural populations have poorer health, higher rates of specific types of cancer, and serious disease.

In Healthy People 2020 (McKenzie & Bushy, 2004), rural health was not addressed as a specific initiative. Instead of addressing rural health access, evaluation of major risks to health and wellness, shifting public health priorities, developing issues around the nation’s public health preparedness, and prevention were emphasized.

However, the National Rural Health Association (NRHA) continues to address many of the concerns that rural communities face on a daily basis. Intervening in health care inequities requires an understanding of disparities. In rural areas, the need for primary care is not the only issue faced by residents. Providing and sustaining healthcare and health care access spans personal resources and environmental conditions. Residents are underserved in a variety of ways. Physician shortages in rural areas result in a lack of primary and preventive health care
services. According to Garrison-Jakel (2010), only three percent of physicians will choose rural or remote areas to practice medicine. The use of health information via computerized technology has optimized communication between health care providers, facilities, and the patients; however, in rural communities, technology is still very limited (McCullough, Casey, & Moscovice, 2009). Mental health and oral health care in rural populations are also limited due to shortage in provider coverage and lack of medical insurance (Ziller, Anderson, & Coburn, 2010). In rural areas, the need for primary care is not the only issue faced by residents. Sexton, Carlson, Leukefeld, and Booth (2008) determined that there were barriers to obtaining drug abuse treatment and the barriers included interrelated categories such as geography, organizations, socioeconomic, psychological and emotional factors (Sexton et al., 2008). In addition, Shortridge and Moore (2010) determined that there was a lack of dental care and the same contributing factors affecting the drug abuse treatment—lack of care, and geographical and economical impediments—also existed for dental care. In summary, rural communities experience a multitude of barriers that affect health care. The health problems include lack of primary care, drug abuse treatment, and dental care, all of which contribute to poor health outcomes.

**Problem Statement**

In rural Hawaii, poor health outcomes manifest themselves as increased comorbidities, exacerbation of chronic illnesses, increased hospitalizations with longer length of stay, and increased morbidity and mortality.

**Significance of the Problem**

In rural Hawaii, issues such as access, education, and choices influence awareness of the need for health care and the need to seek health care services; consequently, rural Hawaiians lead
the county of Hawaii in health care problems that may be prevented. The significant impacts of this problem of lack of health care awareness are many and varied. Specific issues that lead to poor health outcomes in rural communities are isolation, lack of communication, inadequate health resources, limited access to care, lack of knowledge about preventive health care, and lack of health insurance.

There are also issues that temper the barriers and have the potential of influencing negative outcomes. For example: although the people are poor, have limited access to care, and have minimal education they have cultural beliefs such as caring for one another as ohana. Residents use cultural healing practices and nurturing to support limited health resources. It is the strength of the individual residents and collective community that may be the strongest contributor to overcoming health care inequities in these rural communities.

By increasing awareness of the need for preventive services and minimizing some of the barriers to receiving health care services, better health outcomes may occur. Such interventions would reduce the health care needs of the individuals residing in rural communities, prevent early death through complications, and improve quality of life.

Goal

This Practice Inquiry Project (PIP) will address the health issues and problems in a rural community in East Hawaii. The overarching goal of this PIP is to determine the gaps in health care in a rural Hawaiian community and to develop a plan for how identified health care gaps can be bridged. The objectives stated below are designed to meet the goal of the PIP.

Specific Aim 1. Identify the health care needs of a rural community in Hawaii.

Objective 1. Identify a core group of kupuna (elder residents) who have a vested interest in the rural area and individuals living in that area who can discuss the health care needs of the
community, identify the key stakeholders in the community, and provide access to residents of
the community.

**Objective 2.** Use a preventive health-screening tool from discussions with the key
stakeholders aimed at primary and secondary health care needs of the community.

**Objective 3.** Determine the health care baseline of the residents of the community using
the preventive health-screening tool.

**Specific Aim 2.** Improve awareness of the need for primary and secondary health care
prevention.

**Objective 1.** Develop an educational program to meet the health needs of the community
based on the preventive health-screening tool.

**Objective 2.** Disseminate the educational information through learning activities in the
community.

**Objective 3.** Assist participants to develop a personal health care plan and assist them to
implement the plan.

The outcome from this PIP has three primary objectives: 1) improve rural residents’
awareness of health care screening by improving health literacy, 2) increase awareness of the
importance of satisfactory health care and increase the residents’ knowledge of their personal
health care needs, and 3) assist residents to enroll in a health care plan in order to receive health
care services. Improving health awareness through health screening is the fundamental tenant of
this project.
Chapter 2

Conceptual Framework and Literature Review

In this chapter, conceptual frameworks will be introduced and discussed as they relate to the project. There are two conceptual frameworks guiding this project: the Health Literacy Skills Framework (HLSF) and the Framework for Optimizing Rural Health Care Awareness. An extensive review of literature will also be presented.

Health Literacy Skills Framework

Prominent on the public health agenda is improvement of health literacy among the population (Institute of Medicine, 2004). Health literacy levels are linked to limited or poor use of preventive services, poor understanding of medical conditions, lack of understanding of treatment regimens, non-compliance to medical instructions, and eventually, increased morbidity and mortality rates. Lower levels of health literacy have also been linked to higher costs for health care to maintain or improve health (Baker, Wolf, Feinglass, & Thompson, 2008). To improve health literacy, an individual must have a basic skill set that incorporates reading, writing, and mathematics in order to effectively analyze, communicate, and question existing information. Health literacy assists an individual to make sense of life during times of uncertainty and illness.

Building on previous health literacy frameworks, Squiers, Peinado, Berkman, Boudewyns, and McCormack (2012) describe how health literacy and health related outcomes are linked to how health literacy functions at the level of the individual. External factors such as family, culture, media, etc., are also identified as influencing health literacy. The HLSF (see Figure 1, p. 14) proposed by Squiers et al. (2012) describes moderators for health literacy and mediators for health outcomes. Four primary components are described in the framework:
factors that influence the development and use of health literacy skills, health related stimuli, health literacy skills needed to understand the stimulus and carry out the task, and the mediators linking health literacy to health outcomes.

According to Squiers et al. (2012), the HLSF could also be used to pilot the growth of skills to improve health literacy, serve as an incentive advancement of future health literacy discussions, and direct research into health literacy. Understanding that effective communication of health information is an essential skill set for all health care providers will in turn enable patients to make informed choices regarding their health.
Figure 1. Health Literacy Skills Framework adapted from Squiers et al. (2012)

Framework for Optimizing Rural Health Care Awareness

Rural communities are faced with many of the same health care issues and challenges confronting the rest of the world. Socioeconomic status, whether assessed by income, education, or occupation, is linked to a wide range of health problems and diseases including low birth weight, cardiovascular disease, hypertension, arthritis, diabetes, and cancer, to name a few. Accessibility to health care should be a mandatory commodity rather than a privilege for those who can afford health care. Quality of care and dignity are rights for all, not a privilege for a few. Issues related to access include poor communication, lack of educational and health
resources, and isolation from the rest of society. However, a national survey places access to quality health services as the top-ranking priority among rural health care stakeholders and leaders (Nelson & Gingerich, 2010). According to the Rural Healthy People 2010 survey (Gamm, Hutchison, Bellamy, & Dabney, 2002) access to quality health service (which includes access to primary care) was identified as the top-ranking rural health priority.

Concepts: A Framework for Optimizing Rural Health Care Awareness (see Figure 2) developed by the author (Y. Kealoha-Wong, 2016) depicts the many factors that influence rural health care. These factors include cultural healing, socioeconomic influences, availability of health resources, alternatives to health care, communication, access, isolation, disease, and spiritual beliefs. For example, alternative health care is practiced in many rural communities, and spiritual beliefs and cultural healing influence decisions about health care. How these factors influence rural health care will be discussed in greater detail in the review of literature.
**Figure 2.** Concepts: A Framework for Optimizing Rural Health Care Awareness (Y. Kealoha-Wong, 2016)

**Comprehensive Review of Literature**

**Data Sources**

A review of nursing research literature of rural health issues was conducted via an online electronic search through the University of Hawaii at Hilo Mookini Library system. Academic Search Premier EBSCO, CINAHL, ProQuest, Sage Premier, Google, Google Scholar, and MEDLINE databases were researched. Online searches explored included research articles,
publications in English, and research conducted in rural geographic regions. The articles were not restricted for any specific time period.

This literature review will briefly describe factors that may have exacerbated inequality among the rural health care population, followed by evidence of inequality to health care through lack of communication, limited health resources, health literacy, socioeconomic status, access to care, and health care barriers addressed and faced by individuals and families in rural communities.

Health Literacy

Achieving optimum health outcomes is a goal of patients, families, health care providers, insurance underwriters, and policy makers. To achieve those outcomes, there are numerous barriers, including socioeconomic status, health care access, health resources, patient engagement, beliefs and choices, and co-morbidities. According to Davis, Williams, Marin, Parker, and Glass (2002), while all of these barriers are important, an often-overlooked barrier to optimal health is health literacy.

The American Medical Association (1999) defined health literacy as an arrangement of skills, including the capability to accomplish basic reading tasks required to function in the health care milieu. The capability to read and interpret prescription labels, follow appointment slips, complete forms, and digest risk-benefit profiles is sometimes difficult even for those with adequate health literacy because the context is so unfamiliar (Baker, Parker, Williams, & Clark, 1998; Baker, Parker, Williams, Clark, & Nurss, 1997; National Center for Education Statistics, 1992; Parker, Baker, Williams, & Nurss, 1995; Williams et al., 1995). This definition of health literacy does not include the external factors that might be characteristic of health literacy. Defined more broadly, health literacy might capture the complexity of social interactions and
sociocultural perspectives. The Institute of Medicine (IOM) (2004) defines health literacy as the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (Ratzan & Parker, 2000). There have been modifications of this definition: “The degree to which individuals can obtain, process, understand, and communicate about health related information needed to make informed health decisions” (Berkman, Davis, & McCormack, 2010; Berkman, Sheridan, Donohue, Halpern, & Crotty, 2011; McCormack et al., 2010). The World Health Organization (WHO) defined health literacy as “...the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health” (Nutbeam, 1998, p. 10).

The importance of obtaining, understanding, and using information for decision-making rather than possessing literacy skills is reflected in these latter definitions, whereas the AMA definition addresses the “deficit.” The WHO definition adds a further dimension to health literacy by including both understanding of health information and the ability to use information discussion to make appropriate health decisions. Nutbeam (2008) asserts that the definition adopted by WHO envisions health literacy as empowering the person to take control of their health.

In 2004, the IOM published a report, *Health Literacy: A Prescription to End Confusion*. According to the IOM Committee on Health Literacy, tens of millions of adults did not have the ability to make health care decisions because they lack the capacity to acquire, process, or preserve basic health care information. Therefore, the challenge of improving health literacy in order to enable patients to understand their health problem and treatment and make the best decisions for their health was underscored (IOM, 2004). Also in 2004, the Agency for
Healthcare Research and Quality (AHRQ) addressed the relationship between health outcomes and health literacy linking poorer outcomes to low literacy and offered interventions to alleviate the impact of low literacy (Sue & Dhindsa, 2006). The National Institutes of Health (NIH) and U.S. Department of Health and Human Services (US HHS) further recognized the critical association between health outcomes and health literacy (Nielsen-Bohlman, Panzer, & Kindig, 2004). In 2004, these agencies issued calls for funding addressing health literacy concepts, theory, and interventions.

Healthy People 2010 (US HHS, 2000b) provided a comprehensive plan to address health promotion and disease prevention. Three of the leading health focus areas were access to quality health services, health communication, and immunizations. Access and immunization were leading health indicators. Tracking clinical preventive care through health insurance coverage and health behavior counseling monitored accessing quality health care services. Objective two focused on ongoing primary care, including having a primary care provider, delays in obtaining health care, cultural diversity, and racial and ethnic representation in health professions and admissions for ambulatory-care sensitive conditions (pediatric asthma, uncontrolled diabetes, and immunization preventable admissions for pneumonia and influenza) (Centers for Disease Control, 2011). For immunizations, the key focus was on increasing the proportion of vaccinations in children and adults in categories such as pneumonia and influenza for adults and all immunizations for children. Health communication, although not identified as a leading health indicator, emphasized health literacy and was carried through in Healthy People 2020 (Koh et al., 2012).

In Healthy People 2020 (US HHS, 2000c), health literacy continues to be addressed within the topic “Health Communication and Health Information Technology (HC/HIT).” The
action plan for HC/HIT-1 is to “Improve the health literacy of the population” (US HHS, 2016, para. 1). Reportable actions within the objective include easily-understood instructions on the health problem, assistance describing how they will follow the instructions given, and assistance with filling out forms.

In a report given by Dr. Michael Paasche-Orlow to the National Academy of Sciences (NAS, 2015), with regard to the use and delivery of health care, Paasche-Orlow reminded the committee that health care is useless without access. Health literacy is a fundamental tenet underpinning use, access, and delivery of health care (NAS, 2015). Health literacy remains a core value in developing the relationship between individuals and health systems thereby “increasing equity, addressing disparities, promoting patient-centeredness, improving outcomes and quality, and reducing costs” (NAS, 2015, p. 28). Health literacy is identified as a significant mediator of health outcomes. Health literacy for all persons has yet to be accomplished. According to Paasche-Orlow, three specific areas requiring attention include: 1) improve understanding and use of health care by patients, families and social networks; 2) activate and empower health care systems to improve health care products by decreasing complexity in all patient interactions; and 3) initiating health literacy policy rather than unfunded mandates.

Emerging from the Affordable Care Act (ACA) was the National Quality Strategy (US HHS, 2011) document led by the AHRQ. The triple aim of the NQS was better care, improved care, and healthy people and communities (US HHS, 2011). Better care was defined as improved overall quality of care through patient centered care that is reliable, accessible, and safe. Individual and population health improvements emphasized interventions relating to behavioral, social, and environmental determinants of health. The National Action Plan
embedded in the NQS included a directive on improving health literacy. The following goals are included in the health literacy plan.

- Develop and disseminate health and safety information that is accurate, accessible, and actionable.
- Promote changes in the health care system that improve health information, communication, informed decision making, and access to health services.
- Incorporate accurate, standards-based, and developmentally appropriate health and science information and curricula in childcare and education through the university level.
- Support and expand local efforts to provide adult education, English-language instruction, and culturally and linguistically appropriate health information services in the community.
- Build partnerships, develop guidance, and change policies.
- Increase basic research and the development, implementation, and evaluation of practices and interventions to improve health literacy.
- Increase the dissemination and use of evidence-based health literacy practices and interventions (US HHS, 2011).

Support for health literacy to improve health outcomes is growing and researchers have begun to identify factors that improve health literacy. It is important that all individuals feel a sense of responsibility to care for themselves. Using culturally sensitive approaches to assist individuals to gain knowledge about health increases this sense of responsibility. The manner in which health information is delivered is also important. Not only is health information delivery related to one’s language necessary, but providing information in an environment that is comfortable for the individual is also important. Cristancho, Peters, and Garces (2014) gathered
894 adult Hispanic residents through a federally-funded community-based program. Data revealed that education in their native tongue is a culturally-appropriate preferred strategy to disseminate health education and information. In addition, Cristancho et al. (2014) determined that length of residence in the country was a determining factor in Hispanic/Latino immigrants’ preference for the manner in which health information was delivered. Overall, immigrants preferred community-based workshops to home-based instruction. However, acculturation that is the length of time a person has lived in the country, impacts health literacy approaches. Cristancho et al. (2014) identified acculturation was a factor. First generation or less-educated immigrants preferred face-to-face instruction and second generation immigrants preferred mailed printed material.

Current research results reveal that level of education is directly related to a patient’s ability to understand health information. Residents of rural and underserved communities with low health literacy often lack sufficient knowledge related to health care. They do not use preventive services, are often not following a medication regime and have a poorer health status than those knowledgeable about their health (Chew, Bradley, & Boyko, 2004). However, physician factors were also found to be a predictor of patient comprehension. Physicians who valued health education during patient encounters had patients with a better understanding of the health information compared to physicians who judged themselves effective educators (Lukoschek, Fazzari, & Marantz, 2003).

In a sample of 3,260 elderly individuals, self-reported health status and vaccination rate were lower in persons without a high school education. Adjusting for health related variables and demographic status, health literacy was found to explain 22% to 41% of self-reported health status in those without a high school degree, suggesting that health literacy was an important
factor to health status even in individuals without a high school degree (Howard, Sentell, & Gazmararian, 2006).

Pawlak (2005) proposed that determinants of health literacy were age, genetics, ethnicity (culture), education (reading level and technologic competence), employment, socioeconomic status, and environment. In addition, Baker (2006) suggested that several factors contribute to the measurement of one’s health literacy level, including reading confidence, prior understanding, complexity of health information, oral complexity, culture, social norms, and barriers.

There is evidence to support solutions to health literacy and better health outcomes. Van Dyk (2010) described how a pilot group in an underprivileged community presented evidence-based information on Diabetic Self Management Education (DSME) using posters to direct and motivate discussions on healthy eating, exercise, and disease process.

Using a focus group design, Wathen and Harris (2007) interviewed 40 women living in a rural, medically-underserved county in Canada regarding their health-information-seeking behaviors and the strategies used to locate information about acute and chronic health concerns. The interviews revealed that information-seeking was influenced by rural and gender factors that interact with self-reliance, health literacy, and availability of professional and non-professional roles to give support. There was a mismatch noted between the women’s lived experiences and policy assumptions supporting e-health strategies being developed for residents of rural or remote communities.

In summary, health literacy is the keystone to improved health outcomes. An interesting phenomenon, health and literacy share a myth associated to low literacy (Hemming & Langille, 2006). As health care personnel, it is necessary for us to understand the extent of literacy and be
sympathetic, empower the residents in using plain language, and use effective teaching tools and readable materials in every age level. Health data can be collected once understanding the needs of the community. Collecting data using a questionnaire tool effective in the language, word choices, and cultural sensitivity will express the health and literacy needs and knowledge of rural and specific communities (Merry, Strohschein, & Gagnon, 2005). The IOM reveals that the key status in literacy is education in the health care system, culture, and society (Rootman & Ronson, 2005). The International Adult Literacy Survey (Statistics Canada, 1994) reveals that a person’s educational level accounts for 60% of his or her health literacy level.

Health Resources

The United States spends more money on health care than any other nation (Brulle & Pellow, 2006; Hunt & Knickman, 2005; Kovner & Knickman, 2005; Raphael, 2000). In 2002, the U.S. per-capita health spending accounted for 14.6% of the gross domestic product (GDP) (Anderson, Hussey, Frogner, & Waters, 2005). Yet, the overall health of the population is worse in comparison to most industrialized countries (Brulle & Pellow, 2006). There are a million persons without health care resources despite enactment of the ACA.

There are many issues related to lack of health care resources. The change in health care is rapidly and invasively touching every corner of the United States, with a higher concern in rural communities. Disparities in health care continue to pose a problem to rural communities. Rural families continue to be under-resourced and endure less-than-privileged health care. The residents in rural communities continue to suffer the disparities of the lack of professional care providers, the availability of medical resources, and the lack of technology and treatment with the ability to access medical information between patient and professional caregiver (Ricketts,
As a result, rural communities lag behind in attaining the medical benefits and health care outcomes that urban communities have achieved.

A critical issue in accessing health resources is obtaining health care coverage. Many insurance providers will not accept new patients with existing medical issues. This scenario is widespread since many individuals have not seen a primary care provider until existing undiagnosed health problems have escalated (Levy & Sidel, 2009). This is especially the case in isolated rural communities. Kakai, Maskarinec, Shumay, Tatsumura, and Tasaki (2003) and Warner and Procaccino (2004) suggest that there is limited research on how rural communities choose to get general health resources.

Community health promotion is one avenue for improving access to health resource information. Colby, Johnson, Eickhoff, and Johnson (2011) suggest that preference for health promotion communication methods are important when developing health promotion programs. According to a random phone survey, rural community residents favored different methods to get information on health resources. The younger population preferred information from the Internet (28.3%), the elderly preferred information from newspapers (26.4%), and obese residents preferred information through the mail (22.3%).

Chan (2013) points out how demographic and social economic status effect health outcomes, and providing health care resources considerably increases the life expectancy for those disadvantaged rural communities. Knowing this, Chan (2013) implies that additional effort, especially during economic hardships, is needed to access health care services and resources. In addition, rural communities are encouraged to educate and provide medical resources for preventive care.
Health Care Screening

An aim of Healthy People 2020 is to prevent disease or injury before it ever occurs. Prevention has three tiers: primary, secondary, and tertiary. Primary prevention focuses on preventing exposures to hazards that cause disease or injury, altering unhealthy or unsafe behaviors that can lead to disease or injury, and increasing resistance to disease or injury should exposure occur. Examples of primary prevention include: legislation and enforcement to ban or control the use of hazardous products (e.g., asbestos) or to mandate safe and healthy practices (e.g., use of seatbelts and bike helmets). Education about health and safety habits (e.g., eating well, exercising regularly, or not smoking) and immunization against infectious diseases are also examples of primary prevention (Albee & Gullotta, 1996).

According to Healthy People 2020 (Koh, 2010), secondary health care prevention aims to reduce the impact of a disease or injury that has already occurred. This is done by detecting and treating disease or injury as soon as possible to halt or slow its progress, encouraging personal strategies to prevent re-injury or recurrence, and implementing programs to return people to their original health and function to prevent long-term problems (Merrill, Frankenfeld, Mink, & Freeborne, 2015). Examples of secondary prevention include regular exams and screening tests to detect disease in its earliest stages (e.g., mammograms to detect breast cancer). Daily low-dose aspirin, good dietary choices and exercise programs to prevent further heart attacks or strokes, and suitably modified work so injured or ill workers can return safely to their jobs are also part of secondary prevention. McCall-Hosenfeld and Weisman (2011) point out that rural women are less likely to receive preventive health care and counseling; demographics, health behaviors, and access to health care resources contributed to this disparity.
The aim of tertiary prevention is to assist individuals to manage existing health problems. Management may include programs that support persons with long-term chronic illness or injuries with the intent to help them regain function, maintain function, increase quality of life, and prolong life expectancy. Examples include education and support for chronic diseases such as diabetes or arthritis, cardiac or stroke rehabilitation programs, or vocational redirection and support (Institute for Work & Health, 2006).

Health screening is an important aspect of keeping people healthy and falls under secondary prevention. Screening tests assist in finding a disease in its earliest stages, when treatment is simplest to treat. Examples of screening may include bone mineral density testing to monitor for osteoporosis or hemoglobin A1C lab values to screen for diabetes. Some screening tests should be performed yearly and yet others may be performed sooner or perhaps later (for example, colonoscopies), depending on age and history. Other health screenings may be done in the primary care clinic, and others may require testing at a facility or clinic that specializes in a particular screening test and equipment.

The importance of health screening in secondary prevention has evolved over time and has been embraced by many third-party payers, and many health-screening services are now available through the ACC. Selected health measures have been identified primarily for comparison among health care systems (including private medical practices) and also secondarily for quality improvement. Healthcare Effectiveness Data and Information Set (HEDIS®), a registered trademark of the National Committee for Quality Assurance (NCQA), is a health care screening tool managed by at least 90 percent of healthcare plans in the United States which measures performance and scores of care and services. In comparison to a report card, grades are given, HEDIS® measures specific and standardized components in clinical areas.
on how data is collected, reviewed, and reported. Patient experience and customer satisfaction are also audited by health screening using a rigorous process.

**Health Care Awareness**

Optimal health care awareness includes the state of well-being in social, mental, and physical aspects. Health care awareness in a particular society reflects the dominant cultural norms that transcend professional behaviors and health services. Disparities in health care awareness are many, the outcome very unique; as individuals choose to take care of their illness, many make personal choices that are uniquely integrated such as western medicine, spiritual beliefs, cultural healings, or other alternative decisions (McLaughlin & Braun, 1998).

There is no clear definition of health care awareness. Instead there is a focus on various mechanisms and barriers as a way to size the overall health care awareness of a given geography and population. Yet, the importance of exercising for 30 minutes a day improves and increases a change in attitudes, belief, and knowledge (Summers, 2009). However, there is sufficient proof that rural communities face hurdles such as extreme rates of poverty, inadequate access to medical coverage, lack of medical attention, lack of emergency facilities, and insignificant education. This is especially true for diabetes. All the hurdles stated above aggravate and complicate the treatment for diabetes (Massey, Appel, Buchanan, & Cherrington, 2010). Residents in rural areas experience a higher rate (~17%) of diabetes with significant morbidity and mortality rates; heart disease and cancer trail the group.

Type 2 diabetes is prevalent in rural communities related to the high obesity rates, poorly managed lifestyle/habits, and lack of exercise (Keppel, Pearcy, & Klein, 2004). Unpretentious implementation of an exercise program for 12 weeks revealed a positive outcome, which increased a change in attitudes, belief, and knowledge. The object was to teach, discuss,
negotiate, encourage, and educate a group of health care providers in a low-income group from a rural community in a clinic, free of charge (Summers, 2009).

Non-adherence is a problem. Despite adequate blood pressure management guidelines and medication, hypertension is not controlled in over 50% of patients. According to Krousel-Wood, Hyre, Muntner, and Morisky (2005), health care professionals need to consider non-adherence as a cause of uncontrolled blood pressure. In order to achieve better outcomes, the health care providers need to consider patient specific barriers that consider social, psychological, and biological variables that interfere with patient adherence.

**Health Disparities**

The U.S. Department of Health and Human Services (2008) defines a health disparity as “a particular type of health difference that is closely linked with social or economic disadvantage” (“Health Disparity,” para. 1). Socioeconomic status, whether assessed by income, education, or occupation, is linked to a wide range of health issues; diabetes is one of the many health problems amongst these people. Greiner, Glick, Kulbok, and Mitchell (2008) noted in the systematic review of rural nursing research, the need for increased availability of specialized nursing knowledge, resources, and support for nurses in rural and remote areas. These collaborative partnerships will assist in mentoring rural nurses on researching and critiquing literature that is pertinent to their practice (Lenz & Barnard, 2009). Socioeconomic status (SES) is one of the most consistent predictors of health status (Adler & Newman, 2002; Lee & Paxman, 1997; Ware & Livingston, 2004; Williams & Collins, 1995) and is the number one predictor of poor health (Institute for the Future, 2003). Education is a popular measurement of SES because of its stability throughout adulthood and its relation to individuals who are not in the active labor force (Krieger, Williams, & Moss, 1997).
Community-based approaches are recommended for effectively addressing social determinants of health. In order to prevent health disparities, application of Pacquiao’s (2008) “model of culturally competent ethical decisions” stresses commitment to the “universal core ethical principles” of “social justice” and “protection of human rights” (pp. 412-413). Pacquiao (2008) defines social justice as “doing what is best for a person or group based on their needs and…inalienable rights”—rights which include “quality healthcare” (pp. 412-413). Pacquiao (2008) highlights that society and the government, rather than the individual, should be accountable for human rights. Pacquiao (2008) also cites that “culturally competent action” should include “cultural preservation” which “maintains the core values, beliefs, and practices significant to the individual or group”; and “repatterning,” which “attempts to help individuals and groups change their way of life to achieve healthy, safe and meaningful existences” (p. 414).

Socioeconomic and racial/ethnic disparities in health care quality have been extensively documented. Recently, the elimination of disparities in health care has become the focus of a national initiative (Fiscella, Franks, Gold, & Clancy, 2000). Yet, there is little effort to monitor and address disparities in health care through organizational quality improvement.

**Access to Health Care**

As pointed out by Paasche-Orlow and Wolf (2007) health care is useless without access. Intervening in health care inequities requires an understanding of the access to all personal resources and environmental conditions that are needed to provide and sustain health and health care access. There are many obstacles to obtain health care and access to health care in rural areas: transportation, poor communication, socioeconomic class, unemployment, education status, culture, and homelessness (Drainoni et al., 2006).
According to Brundisini et al. (2013), three barriers challenge health care access: first, the lack of availability of health care professionals and absence of support from colleagues; second, distance from nearest medical facility and health care services; and third, being culturally ostracized, especially in urban health care environments where they feel vulnerable (Brundisini et al., 2013). Rural residents see themselves as self-reliant and have a sense of community belonging. If health care is provided in rural communities, patients approve of services from consistent health care providers as they may share the same feeling as self-trust and belonging (Brundisini et al., 2013). Consequently in accessing health care, rural residents choose service close to home where feelings of vulnerability are minimized.

For those living in rural communities, accessibility is an issue. The lack of transportation access to local health care services, travel distance, and limited resources have significant impact on the numerous outcomes of health disparities in rural populations (U.S. Rural Assistance Center, 2005). Physical barriers include inconsequential transportation, bus service that has no regular set times, families that do not possess a vehicle, education on how to access health care, and health care resources in rural populations. However, health care information and records are not limited to hard copy or traditional archives. They are kept and stored on computer disc for easy and convenient accessibility no matter where in the world you are.

Health disparities related to inadequate access impact health outcomes. Increased earnings create wealth that provides individuals with a greater ability to access health care and resources (Ware & Livingston, 2004). Transportation is limited; therefore, rural residents cannot get to the health clinics and pharmacy to see a health care provider or to obtain prescribed medications, nor can they shop for groceries or attend school. Patients without vehicles depend on the good will of family and friends when they need to access health care. Goodridge,
Hutchinson, Wilson, and Ross (2011) elaborate that distance and the lack of transportation are barriers to accessing health care. Access to health care providers is also a barrier. Most healthcare providers will not accept new patients with existing medical issues, which is predominantly the case since they may have not seen a physician or practitioner until the need is vital or the disease process has advanced to an untreatable state (Kinney, 2013; Massachusetts Medical Society, 2013).

The limited research addressing rural Black, Hispanic, and American Indian/Alaska Native populations suggests that disparities in health and in health care access found among rural racial/ethnic minority populations are generally more severe than those among urban racial/ethnic minorities (Probst, Moore, Glover, & Samuels, 2004). It is suggested that disparities in health care and access to health care must be understood as both shared and related phenomena. Rural racial/ethnic minority disparities in part stem from the aggregation of disadvantaged individuals in rural areas (Probst et al, 2004). Disparities also emerge from a context of limited access to educational and economic opportunity (Probst et al, 2004).

New, locally based health access programs are being developed to meet the health care needs of the growing number of uninsured or under-insured families. Access to health care should be provided by a regular source of care. Without access to a regular source of care, patients have difficulty providing care for themselves and families, fewer doctor visits, and difficulty obtaining prescription medications that are important for their course of medical treatment. Without health insurance, patients are likely to go without medical care and put off their medical appointments. Access to care for the uninsured should be provided and made available. Emergency room visits should not be utilized as a primary arena for well visits or
follow-ups. In the long term, it costs the consumer more than it would if they had a primary care physician (Kane, 2001).

According to Blewett, Ziegenfuss, and Davern (2008), patients deprived of health care insurance are more likely to cancel medical care, more likely to go without needed medications, and likely to go without follow-up visits. Rural residents share a feeling of helplessness by their health issues or experience with a health care provider; therefore, they will not seek medical attention (Brundisini et al., 2013). Residents in communities feel self-reliant and a sense of belonging and are therefore willing to care for themselves and others within the community. This may or may not exacerbate the residents’ susceptibility to disease and illness.

Winters et al. (2007) conducted a research study on how rural areas access health care and how information gathered is integrated with daily practices and routine care. Residents of rural communities usually are timid and less likely to accept and share information to outsiders. A descriptive windshield survey is perhaps a much acceptable choice of method for gathering information from the residents who actually live and participate in the interviewers’ observations (Winters et al., 2007). Rural residents are somewhat secretive in their lifestyle; these small-interconnected communities have many relatives.

**State of Health in Hawaii: Diseases & Comorbidities**

The Hawaii State Department of Health (Hawaii DOH) points out that the leading causes of mortality worldwide—heart disease, obesity, stroke, respiratory diseases, and diabetes—are mentioned as chronic diseases, diseases of long duration and gradual succession (Krupitsky, Reyes-Salvail, Baker, & Pobutsky, 2009). These diseases are amongst the most widespread, costly, and preventable of all health problems. Obesity increases the probability of developing
numerous chronic ailments. Controlling a healthy lifestyle (avoiding tobacco use, being physically active, and eating well) may lower a person’s risk for developing chronic disease.

According to Pobutsky, Bradbury, and Wong Tomiyasu (2011), chronic conditions such as heart disease, cardiovascular accidents, diabetes, asthma, hypertension, cancers of some sort, pulmonary disease, obesity, and high cholesterol, accounts for at least 82% of all chronic disease, most prevalent in rural Hawaii. The Chronic Disease Center, Agency for Healthcare and Quality, asserts that the high cost for treating chronic disease will double to $6.7 billion as projected in 2020, compared to $3.8 billion in 2010 (Whiteford et al., 2013).

Obesity is considered an epidemic in Hawaii, with adult rates more than doubling since the mid-1990s; about one in every three children entering kindergarten in our state is overweight. Obesity is the culprit to many chronic and lifelong diseases such as diabetes, heart disease, cancer, and some respiratory ailments. It is also costly to our society each year. Hawaii spends roughly $427 million in obesity-related health care costs. Reducing the risk of obesity and chronic disease consists of two preventable strategies: healthy eating and exercising. Healthy lifestyle habits assist in weight control and strengthen muscles, bones, and joints (Krupitsky et al., 2009).

Diabetes is a leading cause of chronic metabolic disease especially in rural communities partly due to the lifestyle and nutrition habits, in part related to lack of education and financial situations. Diabetes mellitus is a group of chronic metabolic diseases described by elevated blood sugar levels (Krupitsky et al., 2009).

The diseases and illnesses prevalent among rural population are many; however, cardiovascular and diabetes are amongst those rated highest. According to the Hawaii DOH (Krupitsky et al., 2009), as of 2005, Native Hawaiians or other Pacific Islanders in rural
communities were all significantly more likely to have been diagnosed with diabetes, cardiovascular disease, cerebrovascular disease, obesity, teen pregnancy, behavior health disorders, or assorted types of cancers. The rural populations, young and old, suffer from these illnesses and precursors to illness for reasons of poor initiatives on their part and cultural lifestyles that perhaps prevent them from taking a step forward. Rural populations consume a diet high in salt and rich in fat that contributes to their cardiovascular, cerebrovascular, and obesity problems, among other disease and illness. The Centers for Disease Control (CDC) (2011) concurs that tobacco is the utmost single preventable cause of disease and pre-mature death in Hawaii, while Mokdad, Marks, Stroup, and Gerberding (2004) state that poor nutrition and lack of activity trail closely behind. Asthma, diabetes, cardiac disease, stroke, and many forms of cancers are believed to be caused by the three major chronic diseases (Remington, Brownson, & Wegner, 2010).

Obesity is another major health disparity and precursor to other health ailments. The obesity rate in the state was 22.1% for adults in 2014 and 13.4% for high school students in 2013 (Levi, Segal, Rayburn, & Martin, 2015). Exercise is not a priority for most individuals, especially in rural areas where people have a laid-back lifestyle of eating, sleeping, and being happy. Sometimes, poor nutrition and dietary consumptions are used to measure mortality rates; at other times they are used to determine disease and illness. Genetics are also responsible for many other health ailments that plague rural populations. Teenage pregnancies are one of the leading disparities among this population (Krupitsky et al., 2009). Lack of education on pregnancy prevention and cultural norms contribute to the high pregnancy and consequent high school dropout rate. According to the U.S. Census Bureau (2000), 39.5% (58) of the people of
age 25 or older in Kalapana (U.S. ZIP Code 96742) had a high school degree, compared to the national average of 80.4% (U.S. Census Bureau, 2003).

Health Outcomes

Engaging rural families in health care was of interest to researchers who noted that farm-setting families have health issues like those of other families in rural areas (Brumby, Willder, & Martin, 2009). Families from rural farming towns are more prone to disease causing illnesses than those in urban cities, perhaps because they are in contact with environmental poisons and other occupational hazards. Farmers in rural communities share health diseases similar to non-farmers in rural communities not exposed to occupational hazards. Both these communities are vulnerable to high rates of cancer causing illness, cardiovascular disease, and suicides. However, the differences between occupational health in the farm setting communities and rural non-farming communities are not fully known.

The project Sustainable Farm Families (SFF) was initiated to address the comorbidities seen in farm families and rural communities. Knowledge was gained through active learning, education, and physical assessment of the farm families of community. Using information from focus groups, surveys, and physical assessment, and through collaboration with nearby universities and local industries, lead to the development of an effective model engaging adults in healthy living and safe working practices. Results indicated high-level collaboration resulted in positive learning experience and participation. SFF has proven to be an excellent tool to support attitudinal and interventional promotion of healthy lifestyles in rural farm families at risk for high morbidity and mortality (Brumby et al., 2009).

In an effort to provide placement for an increasing number of nursing students, the University of New England in Australia opened a student-led clinic in rural South Wales. The
goals of the project were twofold: first, to increase access to care in an underserved area; and second, to provide a service-learning opportunity for student nurses (Stuhlmiller & Tolchard, 2015). Through the efforts of the students and faculty, over 1500 local indigenous Australians received health services that were culturally appropriate in the first year of the clinic. This effort led to improved health outcomes for the community and cost savings to health services estimated to be $430,000. The students learned from members of the community, and community members learned from the students in a collaborative process. Community members benefited from access to drop-in help that was self-determined. Members of the community learned to self-manage health and well-being strategies. Students gained practical experience in an interdisciplinary setting and through exposure to a community with unique and complex needs. By offering free health services in a disadvantaged community, overall health and well-being improved and a model of trust was established between the rural community and the students (Stuhlmiller & Tolchard, 2015).

**Spiritual Beliefs**

Ross (1995) defines spirituality in the western system as a fulfillment in life with hopes to make all good. Spiritual beliefs and cultural healing are practiced predominately in rural health care settings. A spirituality belief is an essential lifestyle of the older population (Armer & Conn, 2001; Chatters, Taylor, & Lincoln, 2001; Fortner & Neimeyer, 1999; Reed, 1987; Wyatt, Friedman, Given, Given, & Beckrow, 1999).

Rural communities rely on the sources readily available; therefore, the first choice of care is not health care from the professional (Davis et al., 1991; Weinert & Long, 1987). Spiritual healing practices are performed for ailments such as diabetes, hypertension, bleeding disorders, ulcers, headache, dizziness, bone and muscle ailments, women disorders, respiratory,
genitourinary, gastrointestinal, and psychiatric disorders (Moodley & West, 2005). A folk home remedy or spiritual health practice is sought prior to seeking western health care, exclusive from western or over-the-counter medications (Yoder, 1972).

The prevailing view in many cultures is that God heals the sick through healers with special powers, belief in God by prayer, or meditation. Healers such as the kahuna (shaman or priest) in the Hawaiian culture and the curanderos (folk healers) in the Mexican culture are thought to heal the sick through prayer and healing practices (Marsh & Hentges, 1988).

La’au lapa’au is a traditional Hawaiian herbal medicine practice. Healing practice consists of spiritual healers offering a prayer, asking permission, and giving thanks for the medicines before gathering and preparing them and asking for spiritual approval to assist in la’au lapa’au. This healing art uses medicinal plants such as ti leaf and limu, animals, herbs, salt, and indigenous plants along with other botanicals (medicine) as part of the spiritual healing (Jordan, 2006).

Like the Hawaiians, African Americans share similar spiritual traditions, which perhaps followed post migration, discrimination, and enslavement (Boyd-Franklin, 1989). These spiritual practices offered relief and hope; unfortunately, harassment, racism, and discrimination continued well into 1863 (Bennett, 2007). Poor medication adherence exists in both cultures for the same reasons like mistrust, belief treatment is not necessary, fear of the adverse effects from taking the meds, and thinking therapy is experimental.

**Advocacy**

Based on similarities of rural health disparities in rural communities across the globe, an activist lobby group advocating for rural health care worldwide, mainly in rural communities, was initiated in 1992. Known as the Wonca Working Party on Rural Practice (WWPRP),
members from diverse committees found inspiration and vigor in developing and allocating health education and health systems improvements adaptable to different rural venues (Couper, Strasser, Rourke, & Wynn-Jones, 2015).

Even earlier, a group of 10 literacy teachers from individual villages in South India came together as a result of a campaign in literacy. In 1981, this group of 10 women identified themselves as Rural Women’s Social Education Center (RUWSEC) with the goal to challenge and advocate for women’s tyranny. The work of the RUWSEC collaborating within the communities of South India on women’s rights and attitudes in society, identifying self-value, and instilling confidence, has expanded the organization into other remote villages (Ravindran, 1985).

**Influence of Hawaiian Culture and Lifestyle**

Of the State of Hawaii’s 1.2 million residents in 2000, 23.3% identified themselves as part Native Hawaiians or Pacific Islanders (U.S. Census Bureau, 2001). U.S. Public Law 103-150 defines Native Hawaiians as descendants of the aboriginal people who occupied and exercised sovereignty over the land prior to 1778 that is now the State of Hawaii (Aloha ‘Aina, n.d.). These first Hawaiians, navigators from Polynesian cultures, established a society along the archipelago later named the Sandwich Islands by Captain Cook and now known as the Hawaiian Islands. It is believed that these first settlers bringing their ancient traditions arrived along the south coasts of the island of Hawaii and then established colonies along the entire island chain. They brought with them food (breadfruit, taro, sugar cane, sweet potato, and bananas) and animals (pigs, chickens, and dogs) that continue to be part of their rich culture today. For some unknown reason, after the 14th century, the people in these island colonies had no further contact with other Pacific island cultures, and further development occurred in isolation.
Over the centuries, the Hawaiian lifestyle flourished steeped in the culture of strong community, love of the land, and spirituality. As a community, they were skilled in agriculture and aquaculture and developed engineering feats to overcome obstacles. Community responsibility was an important aspect of the Hawaiian culture. Using one’s talents to contribute to the community is the kuleana (responsibility) of each member. Mana (spirituality) is increased through the fulfillment of duties and by recognizing the accomplishment of other members. The Hawaiian language was strong and the beauty of it is seen today in the mele (songs) of centuries ago.

The Hawaiian ohana share bloodlines but they also include others not related by blood that share a sense of aloha (love and compassion). Strong ties, not even broken by death, bind the ohana with ancestors for generations in the past. The structure of the ohana respects the elder of the immediate family, who is known as the kahuna and serves as the caretaker. Under the Hawaiian kingdom, the kahuna was the surgeon, dentist, priest, caretaker, and physician. The kahuna believe in Hawaiian gods and goddesses; the kahuna can work in a positive and in a negative way. The Hawaiians believe in spiritual gods called aumakua (ancestral spirits), which take on animate or inanimate forms, invisible to humans. They are said to be guardian angels in disguise, a shark, turtle, Hawaiian owl, lizard, or stones, used for fertility, healing, or protection.

The historic challenges to the Hawaiian culture and lifestyle began with the landing of Captain Cook, close to the original settlement centuries before. It culminated with the overthrow of the Hawaiian monarchy, banning of the Hawaiian language and dance (hula) and deeming the Hawaiian culture subversive. It was during this bleak period that population disparities emerged. The Hawaiian culture became fragmented and the sense of ohana, need for sustainability through the land, and the sense of self-reliance were threatened. Through this historic difficulty for
Native Hawaiians, socioeconomic, disadvantage, discrimination, and cultural misunderstanding occurred.

Today, Native Hawaiians live in urban and rural environments across the Hawaii island chain. They continue to define themselves through their relationships with their *ohana*, ancestors, and the land. The ongoing reliance on each other and the community are preserved, their reliance on westernized culture, including medicine, is marginal; and they continue to suffer the effects of social disparities especially in rural Hawaiian communities.

The setting for this project takes place in Kalapana, a small rural town in the Puna District of Hawaii Island. It is not far from the site where their Hawaiian ancestors landed. Kalapana has a population of 68,020 compared to 1.42 million for the State of Hawaii. In 1960, the population for Pahoa-Kalapana was 1,326; today the population in Kalapana alone is 9,980. The mean household income in 2000 was 33,948, compared to 2013 with 43,048. In 2000, the income per capita was 12,500, and in 2013 it was 15,000 (City-Data.com, 2016). Kalapana remains an isolated village due to the persistent nearby volcanic eruptions and lava flows.

Kalapana, once a thriving fishing village, lies 30 miles south of Hilo, nine miles from the closest community. This isolation empowered the Hawaiian language and culture to prosper (western education was not one of the priorities in life). For native Hawaiians living in Kalapana in the 1960s, life was clean and free from all the disease, illness, and lifestyles. The people worked hard and lived a very simple but happy life. Everyone knew each other; they shared and helped one another. There was no modern day electricity or running water, food was harvested from the ocean and land, crops and vegetables were grown, and goats, pigs, deer, and chickens were raised for protein consumption. Water for personal consumption and drinking was boiled. Laundry was done in the nearby streams or ocean ponds and dried over the rocks and brush.
Cooking and preparing meals were done in a small house called the *hale kuke’* (cooking house, separated from the main *hale* or house). The dining area was a room within the main *hale.* Sleeping quarters in the main house were separated into three to four large rooms which accommodated the *keiki* (children) and adults together. Even as late as the 1960s, there were no amenities, running water, electricity, or sewage systems in Kalapana. The toilets were called outhouses—with a large hole dug six-feet deep with a toilet seat over the hole (Y. Kealoha-Wong, personal observation, 2016).

The elder *kupuna* told stories of walking long distances, as there were no cars for transportation. They reminisced about walking to school with their cousins and the fun times they had talking and playing. Each Sunday the *ohana,* dressed in their Sunday best, would walk to church with the *kupuna.* After church, they would have breakfast. Chores were assigned to the *keiki* and adults cleaned and cooked in preparation for the next meal. The afternoon was a time to get together, swim, play ukulele, sing, and have fun. Families living in Kalapana predominately speak Pidgin today (Y. Kealoha-Wong, personal observation, 2016). Pidgin and Hawaiian language are often intertwined. Tamura (1993) explains that Pidgin English as a language originated and was spoken in the plantations between the workers, families, and their children in the 1920s.

As the children grew into adulthood and married, the *kupuna* slowly passed, and with that passed on their way of life, which was work hard and live life to its fullest. The next generation saw a different future as outsiders as well as *ohana* from other surrounding communities eventually moved in to this still-isolated community. Outsiders brought with them new habits and ideas. In the early 1980s, a federal highway was built from Hawaii Volcanoes National Park. This highway allowed families from other communities as well as visitors the right of way
into this once-quiet rural community. Although the new road brought a new way of life, the old-time residents kept their own lifestyle. Visitors settled, new subdivisions with *Haole* (English) names like Royal Gardens and Black Sand were built. With the influx of people, outside influences were integrated and lifestyles became intertwined. Kalapana became a growing town with vandalism, litter, automobiles, television, welfare, violence, disrespect for the land, and a different lifestyle from the early days (Y. Kealoha-Wong, personal observation, 2016).

From the early 1980s to the early ’90s, Kalapana was slowly plagued by lava from the Kilauea Volcano named Kupaianaha vent. The Hawaiians understood the Hawaiian fire goddess Pele was cleaning up the *opala* (rubbish) the foreigners brought in from the western world. Pele was displeased with the *kapulu* (disrespect) that was happening to her land. The lava created by Pele took all in its path except for a few scattered homes, which the Hawaiians believed to be spared by Tutu Pele. Ironically, the homes and families spared were the relatives of the old Hawaiians born and raised in Kalapana. Today, as a result of the persistent volcanic eruptions and lava flows of Kilauea volcano, Kalapana remains an isolated village preserving some of the old lifestyle but ironically catering to the outsiders, the visitors who help their poor economic plight (Y. Kealoha-Wong, personal observation, 2016).

Despite their challenging lifestyle, residents were proud to say that they lived this difficult but trying lifestyle. Life in the country was healthy, no air pollution, food was fresh from the sea, no preservatives, and eggs were fresh from the nest without poisons injected into the chickens. Disease and illness were not an issue as seen today among the Native Hawaiian population.
Hawaiian herbal medicines were passed down the generations through the family. Exchanging of herbs and the traditional customs of performing Hawaiian medicines were learned through sharing. In Kalapana, old Hawaiian customs and folk home remedies are still practiced and handed down from generation to generation. The people of this rural community believe in their own spiritual practice and beliefs in healing as an adjunct to western medicines (Y. Kealoha-Wong, personal observation, 2016).

Despite the belief of many of the residents of Kalapana and other rural communities that their lifestyle is healthy, epidemiological studies have shown that Native Hawaiian populations in general have a higher prevalence of obesity, numerous chronic conditions, and greater impoverishment than other ethnic groups living in the state (Liu, Blaisdell, & Aitaoto, 2008). In addition, residents in rural Kalapana can attribute their disparities and lack of health care screening to demographics, behavior, and access as well.

In rural communities like Kalapana, low health literacy and the lack of willingness to share health information with professionals and non-professionals are limited by their cultural roots in self-reliance and result in health care disparities. Residents in Kalapana have their own medication regime, use Hawaiian medicinal plants, and have no preventive medication regime; and therefore health problems often go unrecognized (Y. Kealoha-Wong, personal observation, 2016). Also, low health literacy may contribute to the high cost of health care in these rural communities (Clark, 2011).

The Hawaiian population is vulnerable and subjected to many health disparities and chronic disease. The lifestyles and habits subject the residents of rural communities to disease causing illnesses. Native Hawaiian health researchers are linking poor health and contemporary times to a cascade of adverse historic events resulting in health inequities (Johnson, Oyama,
LeMarchand, & Wilkens, 2004) and clusters of aggregate symptoms and disease processes. Researchers have articulated the strengths of traditional Native Hawaiian culture, including those cultural values and practices on health, social support, and caregiving that might be integrated which offer the prospect of increased longevity and enhanced quality of life (Thompson, 2011).

The forced illegal occupation and annexation of Hawaii in 1898 coercively assimilated and “dehawaiianized” the Hawaii Kingdom with further suppression of la’au lapa’au. According to Sotero (2006), historical trauma has been called a “disease of time” to where the poor health status of affected populations can be argued as the result of the accumulation of disease and social distress across each succeeding generation. Understanding historical trauma and its impact on community health provides a model in addressing health disparities among the Native Hawaiian populations that impact health outcomes.

**Conclusion**

This literature review focused on health, social, cultural, and spiritual challenges facing rural communities. A specific emphasis was placed on health literacy and health awareness as key issues needing to be addressed in order to improve health outcomes. Many of the disparities in health care, including health access and socioeconomic status, were addressed. Key to the discussion were the historical roots of health and oppression for Native Hawaiians that have in part lead to the complexity of their state of health. Finally, many solutions are offered to improve health literacy, health access, and health outcomes for rural populations.

**Chapter 3**

**Project Description, Methodology, Development, and Evaluation Plan**

In this chapter, the methods and timeline of the PIP are addressed. The two specific aims and consequent objectives of this PIP are discussed. The methodology to accomplish each
corresponding objective is identified. A description of the project, a development, and an evaluation plan are explained following each objective. Human subject approval for participation in this PIP is provided (see Appendix A, p. 108).

**Goal**

This PIP addressed the health issues and problems in rural communities. The overarching goal of the PIP was to determine the gaps in health care in a rural Hawaiian community and develop a plan for how identified health care gaps can be bridged. The objectives stated below were designed to meet the goal of the PIP.

**Specific Aim 1.** Identify the health care needs of a rural community in Hawaii.

**Objective 1.** Identify a core group of *kupuna* who have a vested interest in the rural area and the individuals living in that area who can discuss the health care needs of the community; identify the key stakeholders in the community and provide access to the residents of the community.

A. A focus group was used to determine the health care needs of the community. A focus group is defined as a varied group of residents gathered to participate in a discussion that includes some direct questions aimed at stimulating conversation related to health care needs, health care resources, and community concerns. The aim of the focus group was to get feedback for construction of a preventive health-screening tool.

B. A focus group was assembled using key stakeholders from the community including a former county council member, an influential leader, a *kupuna*, a *kahuna*, a religious person, and others as needed.
C. Sample questions for the focus group were used to initiate a talk story session. “Talk story” is a method used by Hawaiians as a way to communicate about the events in their lives. These questions are listed in Appendix E (see p. 115).

D. Data from the talk story sessions were compiled using qualitative methods that analyze the results for themes and important needs of the community. The analysis of the sessions resulted in determining the overall needs of the community related to health care, identifying families or residents to participate in a health care screening program, and assisting in organizing a health care awareness program in the community.

Objective 2. Determine the health care baseline of the residents of the rural community using a preventive health-screening tool.

A. The stakeholders assisted in obtaining access to residents in order to collect data using the Adult Health Screening Tool (AHST). The AHST was given to male and female adults aged 18-75 who live in the rural community designated for this project. Residents interviewed using the AHST were in their individual homes, a local night market, or a local awa (fruit) bar.

The AHST (see Appendix H, p. 119) is a compilation of primary and secondary health screening measures advocated by various health initiatives including the CDC and HEDIS® that emphasize quality measurement for best health outcomes. HEDIS®, considered the gold standard, provides a set of standardized health care performance measures used by health care plans, employers, and regulators. The AHST consists of 25 items; those items include secondary screening recommendations, such as mammograms, colonoscopies, and adult immunizations. The participants filled out a demographic survey that included age, gender, employment status, and other socioeconomic variables.
B. The results of the AHST have been analyzed using both qualitative and quantitative methods, specifically descriptive statistics.

**Specific Aim 2.** Improve awareness of the need for primary and secondary health care prevention.

**Objective 1.** Develop an educational program to meet the health needs of the community based on survey results.

A. Identify the gaps in health care knowledge and participation in health care screening using the results of the data collected in the talk story session and the AHST. Health Awareness was determined using the Health Awareness Screening Tool (HAST). The HAST consisted of 20 Likert-type questions, with a 7-point scale from “strongly disagree” to “strongly agree.” Questions queried the participants on their knowledge of health issues.

B. Develop a health education program for the community based on the gaps of the health care knowledge and participation in health care screening.

**Objective 2.** Disseminate the educational information through a learning activity.

Communication and access to up-to-date medical information were determined by the focus group.

**Objective 3.** Assist participants to develop a personal health care plan and to implement the plan.

A. Review each resident’s health maintenance and screening history to determine their health care needs.

B. Determine each resident’s health care insurance status and assist with paperwork as needed to obtain health care resources.
C. Assist with implementation of the health care plan, which may include access to health care providers.

Chapter 4
Program Evaluation and Results

In Chapter 4, the results of this PIP Improving Health Awareness through an Education and Health Screening Program will be discussed. In order to achieve the goal of the project, two specific aims were formulated. Results of each aim and objectives for each aim will be presented. Qualitative analysis related to these data will be addressed.

Problem Statement

The PIP project specifically addressed the problem stated below. In rural Hawaii, poor health outcomes manifest themselves as increased comorbidities, exacerbation of chronic illnesses, increased hospitalizations with longer length of stay, and increased morbidity and mortality.

Goal

The overarching goal of this PIP was to determine the gaps in health care in a rural Hawaiian community and to develop a plan for how identified health care gaps can be bridged.

Setting

The setting for this project was Kalapana, a small rural village in the Puna District of Hawaii Island. The population for Kalapana is 9,980. According to City-Data.com (2016), the mean household income in 2013 was $33,948; compared to 2000 when the income per capita was $27,920. It remains an isolated village due to the persistent volcanic eruptions and lava flows.
Participants

Participants included in this project were 30 adults who met the inclusion criteria, that is, adults 18-75 years of age who were residents of Kalapana for at least 10 years. Individuals were of pure Hawaiian, part Hawaiian, Caucasians, and multi-racial and multi-cultural backgrounds. Kalapana is an integrated community; therefore, most of the participants are related to one another, either by blood relatives or hanai, which in Hawaiian translates to an informal adoption, not a legal officiate. Those excluded from the project included tourists visiting Kalapana and transient individuals who frequent Kalapana. Demographic Information was gathered through the demographic survey (see Appendix I, p. 120).
Table 1

**Participant Demographic Information**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td>Male.............17/30 (57%) Female .........13/30 (43%)</td>
</tr>
<tr>
<td>2. Marital Status (Married, Single, Divorced)</td>
<td>Single .........15/30 (50%) Married ............5/30 (17%)</td>
</tr>
<tr>
<td></td>
<td>Divorced ........10/30 (33%)</td>
</tr>
<tr>
<td>3. Language spoken</td>
<td>English.........30/30 (100%)</td>
</tr>
<tr>
<td>4. Ethnicity</td>
<td>Hawaiian ..........13/30 (43%) Part Hawaiian ..........15/30 (50%)</td>
</tr>
<tr>
<td></td>
<td>Native American ...2/30 (07%)</td>
</tr>
<tr>
<td>5. Home: Rent or Own</td>
<td>Rent.............19/30 (63%) Own...............11/30 (37%)</td>
</tr>
<tr>
<td>6. Employed, Part time, Full time, Retired, Unemployed, Disabled</td>
<td>Part time ........8/30 (27%) Full time............7/30 (23%)</td>
</tr>
<tr>
<td></td>
<td>Unemployed ..........12/30 (40%) Disabled ............2/30 (07%)</td>
</tr>
<tr>
<td></td>
<td>Retired..........1/30 (03%)</td>
</tr>
<tr>
<td></td>
<td>23% of the residents worked full time and 27% of the residents worked part-time. Of the remaining, 40% were unemployed, 7% disabled, and 3% retired.</td>
</tr>
<tr>
<td>7. Residence of this community since</td>
<td>Up to 20 years .......10/30 (33%) 21-30 yr..............5/30 (17%)</td>
</tr>
<tr>
<td></td>
<td>31-40 yr ..........5/30 (17%) 41-60 yr ..........8/30 (26%)</td>
</tr>
<tr>
<td></td>
<td>61-75 yr ............2/30 (07%)</td>
</tr>
<tr>
<td>The mean residency of this community was 10 years.</td>
<td></td>
</tr>
<tr>
<td>8. Born in the US?</td>
<td>Yes ..................30 (100%) All born in the United States</td>
</tr>
<tr>
<td>9. Household Income</td>
<td>$1-$8,000 ..........3/30 (10%) $14,000-$16,000 ........5/30 (17%)</td>
</tr>
<tr>
<td></td>
<td>$20,000-$24,000 ....5/30 (17%) $36,000-$45,000 ..........6/30 (20%)</td>
</tr>
<tr>
<td></td>
<td>$50,000 ..........1/30 (03%) N/A ..............10/30 (33%)</td>
</tr>
<tr>
<td>According to City-data.com (2016), estimated median household income in 2013: $33,948 Pahoa-Kalapana (it was $27,920 in 2000).</td>
<td></td>
</tr>
<tr>
<td>10. Education: Level completed</td>
<td>11th Grade ..........2/30 (07%) 12th Grade ..........18/30 (60%)</td>
</tr>
<tr>
<td></td>
<td>Some College:........10/30 (33%)</td>
</tr>
<tr>
<td>A small percentage of those not graduating from high school versus 60% completing their education upon graduating and another 33% continuing on to college.</td>
<td></td>
</tr>
<tr>
<td>11. Family size</td>
<td>1-4 ..................10 5-10 ..................7</td>
</tr>
<tr>
<td></td>
<td>11-12..................1</td>
</tr>
<tr>
<td>Family size ranged from 1-4, to a medium range of 5-10, and one with a family of 12. The total number of families is only 18 instead of 30, because some of the families included more than one member within the group of 30 participants.</td>
<td></td>
</tr>
</tbody>
</table>

Demographic information was gathered through the demographic survey (see Appendix I, p. 120). Table 1 illustrates the demographic data of the 30 adult residents aged 18-75 that were residents of Kalapana for at least 10 years or more.

As shown in Table 1, 57% (n=17) were male and 43% (n=13) were female. Only 17% (n=5) were married, 33% (n=10) were divorced, and 50% (n=15) were single.
All participants spoke English. Most (93%, n=28), were full Hawaiian or part Hawaiian with only 7% (n=2) being Native American.

More than half of the residents, 63% (n=19), rented their homes compared to 37% (n=11) who owned their homes.

Unemployment rates were high at 40% (n=12), while 23% (n=7) of participants were employed full-time and another 27% (n=8) were employed part-time. Two participants (7%) were disabled, and only one participant (3%) reported being retired.

Ten of the participants (33%) have lived in Kalapana for up to 20 years. Five residents (17%) have been there for 21-30 years, another five (17%) for 31-40 years, eight (26%) for 41-60 years, and two (7%) have lived in Kalapana for 61-75 years. All participants (100%, n=30) were U.S. citizens born in the United States.

The range for household income was a low of up to $8,000 annually (10%, n=3) to a high of $50,000 (3%, n=1). Education level ranged from not completing high school to some college. For two participants (7%), education ended at high school grade 11, another 18 completed their education when they finished high school (60%), and 10 more (33%) went beyond high school graduation to enter college.

**Specific Aim 1.** Identify the health care needs of a rural community in Hawaii. Data surrounding the achievement of each specific aim is presented below. In order to achieve Specific Aim 1, two objectives were formulated and results are presented below.
**Objective 1.** To achieve objective 1, a focus group was used to determine the health care needs of the community.

An invitation to participate in the focus group was extended to several stakeholders who were familiar with Kalapana. Four individuals who were born and raised in this rural community of Kalapana were selected. The talk story session was held at a luncheon meeting at a local restaurant in Hilo on February 2nd, 2016, from 11:00 a.m. to 2:30 p.m.

The focus group was carefully assembled using residents from the community who had a vested interest in community well-being; key stakeholders from the community included a former county council person who was an influential leader in the community, a *kupuna*, a *kahuna*, a religious person, and a local resident of Kalapana. These focus group members were well known to the residents of this rural community, where most are related either by blood or marriage. Their ages ranged from 26 to 78; there were three females and one male.

A very influential former county council member provided valuable insights for this PIP. She has conquered all the common hardships many in Kalapana still struggle with—poverty, housing shortage, the invasion of substance abuse, *ohana* health crisis, and lack of education. She provided for safety in the community with new fire and police stations in Puna.

A *kahuna* known as “Uncle” was the second member of the focus group. He is well loved and influential in the community. He is a highly respected cultural expert and an advocate on Hawaiian lifestyles, language, foods, and Hawaiian herbal medicinal plants. He lives without modern amenities or the taste of fast foods; instead he says his food is from the ocean and land. Uncle is the oldest living *kupuna* in Kalapana and perpetuates living the old Hawaiian lifestyle. Uncle shares his fishing tales and secrets. He is a Hawaiian activist who deems that simple is best, there is no need for outside *opala* (rubbish), referring to fast foods and modern living.
The third member was a *kapuna* of the community known as the Chief and the peacekeeper. She has a stern voice and demeanor. She is the Officiate for the Christian Service and after-church Bible study teacher at Uncle Robert’s Awa Club improvised church. The people in this community look to her for help in almost anything they need; she contributes her time and self as a caregiver, taxi-driver, cook, babysitter, yard woman, and whatever else is requested.

The fourth member was a single local resident who works daily at the *awa* bar. Born and raised in Kalapana, she has no aspiration to move outside of the community. She is living the so-called Hawaiian Kingdom lifestyle, attempting to make a living on sustainable growing, fishing, and selling products from the farm. As a local resident, she said she just wants to learn to live healthy, as she knows many of her family members are obese and in her few words said, “not healthy.”

Prepared questions were used to initiate the talk story session with the focus group. The questions and focus group responses are provided below:

1. **How is health information obtained by the residents: mail, Internet, info boards, physician office, flyers?**

   The focus group response to the questions above suggest that health information obtained by the residents was by school (high school students), followed by mail, newspaper, and Internet. Although two of the four members in the focus group access health care information via their physicians, overall, the focus group did not feel that the residents knew about the availability of health care resources and education.

2. **How is health care accessed in this rural community?**
One of the questions asked, “Where is health information available and accessed for this rural community?” Replies from the group were: Uncle Robert’s Awa Club, where most residents frequent as a meeting place to relax, talk stories, party, and attend weekly night market and Saturday open flea market; and improvised church services. Another replied, “Bay Clinic, parks within the area,” and another was not sure. Two others from the focus group decided that health care is accessed via the physician.

3. How much is known by the residents about the availability of health care resources?

Focus group participants gave mixed responses. Some say enough, some say hardly and others say none know the availability of health care in this community.

4. How important are spiritual, home remedies, lack of health care resources, and cultural health care compared to western health care?

All members agreed that spirituality, home remedies, and cultural health care rank as high priorities in this rural Hawaiian community. These practices are performed not only for health problems but for financial issues, misunderstanding, or conflicts not resolved.

5. Is there a support group for HTN, DM, and kidney disease (which seem to be the highest concerns in this rural community), which advocate to improve health care?

One member stated that the people of this rural community are very much engaged with health care, health status, and how to care for themselves and their families. Two other members stated that they didn’t know, and another was not aware. Overall consensus on this question was an absolute No. When asked why, responses from the focus group included lack of knowledge themselves about the disease, and denial that there are health issues that need to be addressed.
6. Is there available transportation for medical appointments for this rural community?

A group member who frequents the use of medical opportunities voiced that there is a van sponsored by *Hui Malama Na O‘iwi* (Hawaiian-sponsored health care). *Hui Malama* assists in transportation to medical as well as dental appointments on specific dates and time when scheduled. *Hui Malama Ola Na*, in collaboration with *Alu Like*, also will assist with low cost and free medical services.

7. Where can health information be available and accessed for this rural community? Is there a community board?

At this time, there is no community board. Information is passed through word of mouth. Consensus was encouraging on erecting a bulletin board at Uncle Robert’s Awa Club. This is an excellent location as local residents, friends, and newcomers attend Wednesday night market and Saturday open flea market and routinely congregate there as a community gathering place.

8. How engaged are the residents of this community related to their health care and health status and how to care for themselves and their families?

The focus group is not convinced that this community is engaged in health care of their families and themselves. A focus group member commented on the many available health care activities she attends, including swimming, nutrition care, and other health-related events on specific dates and times. However, residents do not engage in these activities. Focus group members believe transportation, shame, time, illiteracy, and laziness seem to be some of the many explanations.

9. How can this project increase awareness of health disparities?
Education on the different health issues most prominent in this community would be helpful. All four focus group members discussed the importance of health awareness; this included the need to know where to go and how to access care. Health awareness through educating and providing access to health screening and post screening would improve overall health in the community.

10. Is the lack of health insurance, pride, illiteracy, and shame an issue?

All agreed that pride and the shame of being illiterate are why the residents do not seek help and therefore have no insurance for health care or dental care, and some have no welfare assistance.

Analysis of the talk story prepared questions were helpful in starting the focus group to talk story about the important issues facing the community. Spontaneous discussions emerged as a result of the prepared questions. Written data from the focus group discussion was sorted by themes.

First, all members agreed that spiritual healing and beliefs are very important in this rural community. Several themes emerged—spiritual beliefs, use of Hawaiian healing, la’au lapa’a'u, and shame. The focus group revealed that the use of prayer, forgiveness, reconciliation, meditation, and healing practices by a Hawaiian kahuna with special powers as a healing method. Many believe that God cures the sick and impecunious people through a special and gifted person on earth. A member of this focus group admitted that her uncle is the kahuna in this community today and continues to practice traditional healing. The focus group related to the strong upbringing and existence of ho’oponopono practice as it remains today.

Ho’oponopono, a spiritual and prayerful tradition to make right, to resolve and make right a
conflict, continues in this community as ancestors have passed on the teachings to their children and family.

The second theme centered on the use of Hawaiian healing practices due to the prevalence of diabetes, hypertension, and renal issues. Some residents have established physicians, whereas most trust the use of la‘au lapa‘au or the use of different Hawaiian medicines, others trust in their spirituality practice, and yet others are in denial.

The third key theme emerging from the focus group’s talk story session was shame. The focus group members believe some residents may not seek health care because of feelings of shame. Residents feel that not knowing or being aware suggests they are ill-advised or uneducated, causing feelings of shame. Many of the residents speak Pidgin English, in which nouns and pronouns are often not used properly. For these rural people, seeking knowledge was not a general practice because educated persons from the outside community despise the use of Pidgin. Pride and the shame of being illiterate are why the residents do not seek help.

Theme four was trust. The people of this community are folks with self-importance. The residents of this community are noble and stoic folks with self-importance. They will open up to outsiders only if a family member, a kahuna, or someone reliable, introduces them from the community. This focus group confessed that keeping their illiteracy a secret is common, which means avoiding questions related to education on improving their health awareness and health care needs. Therefore, health care is sought from consistent providers who know of their health concerns and history and whom they trust and feel comfortable with sharing their concerns.

The four members of this focus group provided a great deal of information on the health status and cultural beliefs. This focus group is concerned with the overall health issues and concerns for this community. There is no reliable access to obtaining health care because most
of the residents don’t know where resources are available. Illiteracy due to lack of education, lack of interest, denial of health concerns, financial instability, and high unemployment rates all contributed to lack of awareness, according to the focus group. Families in this community continue to be under-resourced and experience less than privileged health care.

In summary, the focus group supported the project plan to have a health fair on February 13, 2016, to showcase the importance of health care awareness, how to advocate for their families, and how to access assistance for medical needs. Local residents who attend Wednesday night market and Saturday open flea market suggested erecting a bulletin board at Uncle Robert’s Awa Club because of its location and its frequent use.

**Objective 2.** Determine the health care baseline for the residents of the rural community using a preventive health-screening tool.

The focus group assisted in obtaining access to residents by acknowledging and validating the trustworthiness of the project director. The focus group members opened the doors to many of the residents who participated in the health screening. Without their endorsement, residents may not have participated. Data were collected using the Adult Health Screening Tool (AHST). The AHST was given to male and female adults aged 18-75 who lived in the rural community. Residents were interviewed using the AHST in their individual homes, at a local night market, or at a local *awa* bar.

The participants completed a demographic survey that included age, gender, employment status, and other socioeconomic variables. These results are reported in Table 1 (see p. 51). The AHST was completed with the assistance of the PIP director and focus group members. The AHST consists of 22 items which include secondary screening and recommendations such as mammograms, colonoscopies, and adult immunizations. AHST results are reported in Table 2.
The focus group assisted with completing the applications for health insurance and all paperwork was returned to the Hawaii State Department of Human Services the next working day.
Table 2

Results from the Adult Health Screening Tool

<table>
<thead>
<tr>
<th>Tests/Procedures</th>
<th>Yes</th>
<th>No</th>
<th>Percent (%) and Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Colonoscopy/Sigmoidoscopy: Start age 50, unless familial for colon CA, or symptomatic until 75 yrs. of age.</td>
<td>5</td>
<td>9</td>
<td>36% said yes to colonoscopy, 64% did not have a colonoscopy at age 50.</td>
</tr>
<tr>
<td>2. Pap: Every 3 yrs. until age 65, start at age 21.</td>
<td>9</td>
<td>7</td>
<td>44% have not started at age 21, or have not done a Pap every 3 years. Only 56% within age group answered yes to screening/prevention.</td>
</tr>
<tr>
<td>3. Hepatitis: Once</td>
<td>8</td>
<td>22</td>
<td>73% have not had hepatitis immunization.</td>
</tr>
<tr>
<td>4. Mammogram: Start age 40, or family hx of breast CA, then start before age 40, every 2 yrs. until age 74.</td>
<td>8</td>
<td>8</td>
<td>50% have no family history, 50% have family history and started before age 40, every 2 years.</td>
</tr>
<tr>
<td>5. DEXA: Start age 60, every 2 years, unless hx. Of fracture or depo use.</td>
<td>0</td>
<td>1</td>
<td>Only one woman was older than 60 but did not have a DEXA scan done.</td>
</tr>
<tr>
<td>6. Vitamin D: DM, HTN, Fatigue</td>
<td>8</td>
<td>22</td>
<td>73% said No to performing this health screening</td>
</tr>
<tr>
<td>7. Lipids: Ma &gt;35 yrs. Fe &gt;45 yrs. Start age 20 if M/FE high risks</td>
<td>2</td>
<td>5</td>
<td>Of females, 2 said yes (29%), 5 said no (71%).</td>
</tr>
<tr>
<td>8. Influenza: Yearly</td>
<td>12</td>
<td>18</td>
<td>60% deny, 40% yes</td>
</tr>
<tr>
<td>9. Pneumovax: Age 65, Smoker, DM, COPD, Asthma</td>
<td>0</td>
<td>2</td>
<td>Only 2 were eligible; neither of them had the pneumovax.</td>
</tr>
<tr>
<td>10. Td: Every 10 yrs. TDAP: Once as an adult</td>
<td>13</td>
<td>17</td>
<td>57% deny having Td or TDAp, 43% either Td or TDAP after accident.</td>
</tr>
<tr>
<td>11. Hepatitis B: DM, &lt; 60 yrs.</td>
<td>4</td>
<td>24</td>
<td>Unclear health history.</td>
</tr>
<tr>
<td>12. Zostavac: Once 60 yrs. and older</td>
<td>0</td>
<td>3</td>
<td>3 eligible and none immunized.</td>
</tr>
<tr>
<td>13. Hepatitis A: International travel, Liver Diagnosis</td>
<td>2</td>
<td>28</td>
<td>7% have immunization.</td>
</tr>
<tr>
<td>14. Spirometer: Smoker, Asthma, COPD</td>
<td>3</td>
<td>27</td>
<td>90% deny use of spirometer, 10% hospitalized.</td>
</tr>
<tr>
<td>15. Screening AAA: X1 screening male &gt;65-75, who smoke, with Ultra sound</td>
<td>2</td>
<td>28</td>
<td>93% (n=28) was not performed, 7% (n=2) male &gt; 65-75 who smoked and were eligible.</td>
</tr>
<tr>
<td>16. CXR: HTN, Smoker, COPD, Asthma</td>
<td>4</td>
<td>26</td>
<td>87% deny any CXR performed.</td>
</tr>
<tr>
<td>17. EKG: HTN, Heart disease, Diabetes</td>
<td>7</td>
<td>23</td>
<td>77% deny this preventive health screen.</td>
</tr>
<tr>
<td>18. Eye Exam: Once 20-29 yrs. twice 30-39, then 2 yrs</td>
<td>13</td>
<td>17</td>
<td>57% deny an eye exam, no insurance.</td>
</tr>
<tr>
<td>19. Skin Check</td>
<td>3</td>
<td>27</td>
<td>90% deny need for skin checks.</td>
</tr>
<tr>
<td>20. Dental: Yearly</td>
<td>14</td>
<td>16</td>
<td>53% have poor dental care, no insurance.</td>
</tr>
<tr>
<td>21. HbA1c: If have constant elevated finger stick blood sugars</td>
<td>7</td>
<td>23</td>
<td>76% have not done preventive health screening.</td>
</tr>
<tr>
<td>22. Advance Directives</td>
<td>4</td>
<td>26</td>
<td>86% deny having an AD; 13% agree to having an AD.</td>
</tr>
</tbody>
</table>

Table 2 demonstrates the results of the baseline health status of the participants prior to education of preventive health screening and its importance. There were 30 participants who completed the AHST.
Colonoscopy screening starts at age 50, but only 36% (n=5) of those residents between 50-75 years of age have been screened for colon cancer and 64% (n=9) of the qualifying residents have not been screened. Screening reports for cervical cancer via a Papanicolaou (Pap) test were 56% (n=9) of participants in the relevant age range who admitted to every-three-year screening, the other 44% (n=7) of those in the age range have not done a Pap test or have not been routinely tested starting at age 21.

When asked about health screening for hepatitis as a one-time evaluation, 73% (n=22) reported that they have not completed a preventive screening, but 27% (n=8) said that they have taken part in a one-time hepatitis health screening. Female preventive health includes initial mammogram screening at age 40. Fifty percent (n=8) of women at least 40-years old in the group without a family history of breast cancer did not have a mammogram before the age of 40, and 50% (n=8) of women with a family history of breast cancer did have a mammogram before the age of 40. Only one woman was eligible for Dexa screening and she did not have a Dexa.

Vitamin D screening was performed by 26% (n=8), and 73% (n=22) voiced that they have not done a health screening for Vitamin D. Yearly immunizations for influenza were only 40% (n=12), while 60% (n=18) refused to be immunized against the flu. Most of the participants, 57% (n=17), denied having taken or known of the Td or TDAP immunization, and 43% (n=13) had received Td or TDAP after an injury.

Hepatitis B test was denied by 86% (n=24) of the residents younger than 60, and 14% (n=4) said that they have been screened as part of an entrance test for employment. For hepatitis A, 93% (n=28) of the participants denied having a history of liver disease or travelling abroad, but two participants (7%) have taken the test for their peace of mind.
Seven percent (n=2) were males aged 65-75 who smoked and were eligible for one-time screening for Aortic Abdominal Aneurysm; they said they were screened for high-risk behavior, while 93% (n=28) of the group were not screened. Eighty-seven percent (n=26) denied a chest x-ray to rule out Coronary Obstructed Pulmonary Disease (COPD), while 13% (n=4) admitted to being smokers and said yes to having a CXR to rule out lung cancer. Seventy-seven percent (n=23), reported not having preventive screening for cardiac diagnosis including hypertension, while 23% (n=7) have done this screening.

No regular annual eye care or vision screening was done by 57% (n=17) of participants, although 43% (n=13) admitted to regular eye and vision care. Skin care checks were not performed on 90% (n=27) of the residents. Indication of poor or no preventive dental care was 53% (n=16), 47% (n=14) having yearly preventive dental care. In the seven DM patients, HbA1 is constantly elevated for three months, while 77% (n=23) denied preventive health screening for elevated blood sugar for three months. Only 13% (n=4) of participants had advance directives and 87% (n=26) refused to discuss the topic and denied having a plan.

Asthma is one of the leading respiratory ailments in Hawaii, particularly in Kalapana due to the close proximity of the active volcano. The participants were not asked if they had asthma, although some admitted that they did.
Specific Aim 2. Improve awareness of the need for primary and secondary health care prevention.

Objective 1. Develop educational programs to meet the health needs of the community based on survey results.

A. In order to identify the gaps in health care knowledge and participation in health care screening, participants were queried using the Health Awareness Screening Tool (HAST) consisting of 19 Likert-type questions with a 7-point scale from strongly disagree to strongly agree. Questions examined the participant’s knowledge of health issues.
Table 3

Results from the Health Awareness Screening Tool

<table>
<thead>
<tr>
<th>Questions</th>
<th>Disagree (1-3)</th>
<th>Neither (4-5)</th>
<th>Agree (6-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Able to define health literacy</td>
<td>4 (13%)</td>
<td>8 (27%)</td>
<td>18 (60%)</td>
</tr>
<tr>
<td>2. Aware of available health education resources</td>
<td>2 (6%)</td>
<td>11 (37%)</td>
<td>17 (57%)</td>
</tr>
<tr>
<td>3. Where to obtain medical assistance</td>
<td>4 (13%)</td>
<td>7 (23%)</td>
<td>19 (63%)</td>
</tr>
<tr>
<td>4. Available medical assistance</td>
<td>4 (13%)</td>
<td>6 (20%)</td>
<td>20 (67%)</td>
</tr>
<tr>
<td>5. Depend on culture medicine</td>
<td>2 (6%)</td>
<td>13 (43%)</td>
<td>15 (50%)</td>
</tr>
<tr>
<td>6. Use medications not prescribed by MD</td>
<td>10 (33%)</td>
<td>8 (27%)</td>
<td>12 (40%)</td>
</tr>
<tr>
<td>7. Knowledge of medical issues</td>
<td>10 (33%)</td>
<td>8 (27%)</td>
<td>12 (40%)</td>
</tr>
<tr>
<td>8. No insurance, I depend on cultural practices</td>
<td>13 (43%)</td>
<td>10 (33%)</td>
<td>7 (23%)</td>
</tr>
<tr>
<td>9. Knowledge of new medical issues</td>
<td>9 (30%)</td>
<td>6 (20%)</td>
<td>15 (50%)</td>
</tr>
<tr>
<td>10. I know where to get medical help</td>
<td>4 (13%)</td>
<td>3 (10%)</td>
<td>23 (77%)</td>
</tr>
<tr>
<td>11. I go to the doctors on a regular schedule</td>
<td>13 (43%)</td>
<td>1 (3%)</td>
<td>16 (53%)</td>
</tr>
<tr>
<td>12. I rate my health care good</td>
<td>6 (20%)</td>
<td>7 (23%)</td>
<td>17 (57%)</td>
</tr>
<tr>
<td>13. I try to keep healthy</td>
<td>1 (3%)</td>
<td>7 (23%)</td>
<td>22 (73%)</td>
</tr>
<tr>
<td>14. I eat a healthy diet</td>
<td>4 (13%)</td>
<td>9 (30%)</td>
<td>17 (57%)</td>
</tr>
<tr>
<td>15. I seek support concerning health literacy</td>
<td>4 (13%)</td>
<td>10 (33%)</td>
<td>16 (53%)</td>
</tr>
<tr>
<td>16. I intend to seek health info through a support</td>
<td>6 (20%)</td>
<td>5 (17%)</td>
<td>19 (63%)</td>
</tr>
<tr>
<td>17. Confident in seeking health education to assist myself in health info</td>
<td>5 (17%)</td>
<td>6 (20%)</td>
<td>19 (63%)</td>
</tr>
<tr>
<td>18. I have received patient health education and resources</td>
<td>2 (7%)</td>
<td>9 (30%)</td>
<td>19 (63%)</td>
</tr>
<tr>
<td>19. Good health needed to work</td>
<td>4 (13%)</td>
<td>5 (17%)</td>
<td>21 (70%)</td>
</tr>
</tbody>
</table>

Responses from the HAST are reported in Table 3. Likert-type response categories were collapsed to assist in a clearer presentation of the data. Responses 1-3 were grouped as Disagree, 4-5 were grouped as Neither (agree nor disagree), and responses 6-7 were grouped as Agree.

In Question #1, 60% (n=18) of the participants agreed that they could define health literacy, whereas 13% (n=4) disagreed. However, 93% (n=28) have graduated from high school or have some college background (see Table 1, p. 51, Question #10). In Question #2, 57% (n=17) agreed that they were aware of the availability of health education resources. Answers to Questions #3 and #4 show 63% and 66% of participants, respectively, agreed that they had knowledge about where to obtain medical assistance and had knowledge of the availability of medical assistance. Most participants agreed that they know how to attain medical assistance.
Conversely, in Question #3, 23% (n=7) of the participants either didn’t know or 13% (n=4) disagreed about knowing where to obtain medical assistance. In Question #4, 13% (n=4) disagreed or were not sure if medical assistance was available. Coincidently, Questions #3 and #4 complement one another: not knowing if medical assistance were available, one would not know where to obtain medical assistance.

In Question #5, half of the participants, 50% (n=15), depend on the use of culture medicine, 43% did not agree or disagree on the use of culture medicines, and only 6% (n=2) disagreed on the use of culture medicine. For Question #6, medications not prescribed by physicians may include cultural medications, spiritual practice, or another person’s prescribed medication; 40% (n=12) agreed to taking these medications, whereas 33% (n=10) disagreed to any of these practices, and 27% (n=8) did not agree to using medications not prescribed by a physician.

In Question #7, 40% (n=12) agreed that they have knowledge of medical issues, 33% (n=10) disagreed about having any knowledge of health issues, and 27% (n=8) neither agreed nor disagreed. Question #8 revealed that only 23% (n=7) agreed on having no insurance and depending on cultural practices, and 33% (n=10) neither agreed nor disagreed. In response to Question #9, 50% (n=15) agreed that they have knowledge of new medical issues, 30% (n=9) disagreed, and 20% (n=6) neither agreed nor disagreed.

Most participants (77%, n=23) agreed on Question #10, which queried them on knowing where to get medical help; 10% (n=3) disagreed and 13% (n=4) neither agreed nor disagreed. Question #11 asked about having regular scheduled doctor appointments; 53% (n=16) agreed, 43% (n=13) disagreed, and one person (3%) neither agreed nor disagreed.
For Question #12 most participants 57% (n=17) agreed that their health care was good, 20% (n=6) disagreed, and 23% (n=7) neither agreed nor disagreed. In question #13, 73% (n=22) of the participants agreed that they try to keep themselves healthy, whereas only 3% (n=1) did not agree, and 23% (n=7) neither agreed nor disagreed. Most participants 57% (n=17) responded to Question #14 that they agreed that they ate a healthy diet, whereas 13% (n=4) disagreed and 30% (n=9) did not agree or disagree to eating a healthy diet.

In Question #15, 53% (n=16) agreed that they seek support concerning health literacy, 13% (n=4) disagreed, and 33% (n=10) neither disagreed nor agreed on seeking support concerning health literacy. When answering Question #16, the majority of participants, 63% (n=19) agreed that they will seek health information through a support system, 20% (n=6) disagreed, and 17% (n=5) neither agreed nor disagreed.

For Question #17, about whether participants were confident in seeking health education to assist in their health information, 63% (n=19) agreed, 17% (n=5) disagreed, and 20% (n=6) neither agreed nor disagreed. Most participants have received health education and resources as asked in Question #18 with 63% (n=19) agreeing, 7% (n=2) disagreeing, and 30% (n=9) neither agreeing nor disagreeing.

For Question #19, 70% (n=21) agreed that good health was necessary for their job, 13% (n=4) disagreed, and 17% (n=5) neither agreed nor disagreed.

B. Develop a health education program for the community based on gaps in health care knowledge and participation in health care screening. Evidence-based guidelines will be used to guide the development of the educational program.
**Objective 2.** Disseminate the educational information through a learning activity.

Analysis of focus group data indicated a health fair was an effective way of disseminating information to the people of this rural community. A Health Fair was held at Uncle Robert’s Awa Club on Saturday, February 13, 2016, from 7 a.m. to 2 p.m. The focus group agreed that the health fair would take on a positive outcome if held at this location, as most of the residents of this community frequently gather on Saturday for the open farmers market. It was at the health fair that participants were recruited. Two of the focus group members assisted in managing the health fair booth. Education questions were answered and education was provided. During the health fair, the HAST, AHST, and demographics were completed. Data from the HAST and AHST are presented in Tables 2 (see p. 61) and 3 (see p. 65).

The Adult Health Screening Tool, Health Awareness Screening Tool, and Demographic Information Tool were issued to those residents ages 18-75 who were residents for at least 10 years. Most of the participants required assistance in completing the AHST and HAST, either with comprehension or reading. The participants were also invited and encouraged to participate in the hands-on demonstrations and skills.

**Objective 3.** Assist participants to develop a personal health care plan and assist them to implement the plan.

A. Review each resident’s health maintenance and screening history to determine their health care needs.

A fair amount of residents do not mingle with society but agreed to be interviewed in their makeshift homes. Access was provided through the trusted focus group members who knew the residents. The focus group explained how to get to their homes. Their living conditions made them vulnerable to many disease and illnesses. The focus group members
suggested that I go into their homes and assess their living situation, medical, and dental insurance. The residents were willing to have their blood pressures taken and volunteered to have their blood glucose test. As part of the visit, the residents were assisted in answering the HAST and AHST questionnaires. The PIP director explained what each screening tool was and the important use of getting yearly screening or monthly exams done as recommended. The focus group members assisted residents to answer complete questions as they could relate to and understand the participants. Each participant was given ample time to ask questions. Education on blood pressure and blood glucose results was given. Residents were assisted with medical, dental, and welfare applications.

**B.** Determine each resident’s health care insurance status and assist with paperwork as needed to obtain health care resources.

Participants were assisted in applying for medical, dental assistance, health education, support, and resources.

**C.** Assist with implementation of the health care plan, which may include access to health care providers.

Participants were supplied with addresses and telephone numbers of physicians who were accepting new patients. *Hui Malama* as a health care provider was suggested along with Bay Clinic, if participants refused to see a physician, education about healthy living, nutritional diet, exercise, scrotal, and breast exams was reinforced.

**Summary**

In this chapter, qualitative and quantitative results of the project were presented. Focus group themes were identified as spirituality, Hawaiian healing practices, trust, and shame. A health fair endorsed by the focus group members provided the venue for connecting with
residents of the community. At the health fair and visits to isolated residents, AHST and HAST were completed. These results were presented along with activities occurring with each resident.

Chapter 5

Discussion and Recommendations

The overarching goal of this project was to determine the gaps in health care in a rural Hawaiian community and develop a plan for how identified health care gaps can be bridged. The Health Literacy Skills Framework (HLSF) (Squiers et al., 2012) will serve as the structure for explaining the results presented in Chapter 4. HLSF is the process used by individuals to move from health literacy to initiated health behaviors in order to improve health outcomes. The response from a selected focus group and the results of health screening and health awareness tools provide knowledge of the existing resources and identify health care needs of this rural Hawaiian community. Lastly, this chapter provides insights into the future needs of the community.

Building on previous health literacy frameworks, the HLSF outlines how health literacy and health related outcomes are linked. The moderators that sway the progress of literacy are social economic status, education, communication skills, culture, and spiritual understanding. These factors in turn influence health literacy and health-related outcomes. The four primary components described in the framework focus on factors that influence the development and use of health literacy skills, health related stimuli, health literacy skills needed to understand the stimulus and carry out the task, and the mediators linking health literacy to health outcomes. The four components can be summarized as:

1. “Factors that influence the development and use of health literacy skills.”
2. “Health related stimuli” (e.g., websites, printed material, conversations).
3. “Health literacy skills needed to comprehend the stimulus and perform the task”: information-seeking skills; ability to process and comprehend information (prose literacy); understand use of numbers (quantitative literacy); listening, speaking, and negotiating skills (communication literacy).

4. “Mediators between health literacy and health outcomes”: individual (attitudes, emotions, health status, motivation) and ecological (culture, social and community support, access to health resources, insurance coverage) (Squiers et al., 2012, p. 46).

In order to achieve the goal of the project, the specific aims concentrated on three detailed activities: first, the use of a focus group to determine the issues with health related issues of the community; second, determine the current participation by individuals in common primary and secondary preventive services; and third, the participants’ health awareness. Themes emerging from the focus group talk story validate the environmental factors influencing health awareness and the health literacy of the residents of the Kalapana community while results of the AHST and the HAST provide insight into the health related behaviors and outcomes.

Focus Group Themes

The focus group members all had a vested interest in the Kalapana community, either from family roots or long-term residency. Focus group participants answered prepared questions that lead to a spontaneous talk story session. Four themes emerged from the focus group session: trust, spirituality and healing practices, shame, and Hawaiian lifestyle.

Trust

Trust was an essential element in the ability to enter the Kalapana community and approach the residents. Entry into the community was possible through the assistance and support of the focus group members. Although having a family history in this community helped
to facilitate meeting families, nevertheless, times have changed; the older adults have passed, and
the project director no longer knew their grown children, now the gatekeepers in this community.

The focus group was instrumental in providing strategies to approach the residents in this
community. Focus group members also assisted in locating and gaining access to residents who
chose not to come out of their isolated residential home environments for the health fair,
indicating familiarity and trust still needed to be established in some cases. These families
remained isolated but they trusted the stakeholders and allowed an outsider into their homes.
Without the influence of these stakeholders, this unique viewpoint would not have been possible.
Once the doors were open and trust was established, it was very easy to go in and gather
information for the project. Once the residents saw and accepted the director as a cousin and
aunt, participants were comfortable; they were not intimidated with the interaction and shared
their information freely. The interaction was a positive learning experience for each person.
Conversation was simple but everyone understood one another. Keeping in mind the HLSF,
gaining access to the residents was the first factor necessary to develop and assess health literacy
skills. Access to the community helped identify the individual resources, capabilities, and
assessment of prior knowledge of health issues.

Spirituality and Hawaiian Healing Practice

Another key theme discussed by the focus group was spirituality. Spiritual beliefs are
very present in this rural community. High priority is given to spirituality, home remedies, and
use of cultural healing practices. The residents believe in worshipping gods or deities in
different forms. Hawaiian healing takes place through many different beliefs and practices.

_Aumakua_ as discussed in earlier chapters is still practiced in this community. Hawaiian
gods called _aumakua_—usually family ancestors that have gone beyond—return as ancestral
spirits to protect and care for those here on earth. These spiritual beings take on different animate as well as inanimate forms. Many believe in this form of spiritual healing. One of the members in the focus group strongly believes in aumakua gods for which prayers are offered for such things as physical, financial, educational, and spiritual health.

The focus participants voiced, “Move on in life; you have to make pono and forgive. That’s the only way.”

Residents can recall a healer named Reverend Kamoku who practiced ho’oponopono. He worked the spiritual healing using the Bible. He would have the ill or troubled person open the Bible and could tell the person all the problems and issues and why all the problems or illnesses were upon them (Y. Kealoha-Wong, personal observation, 2016). At times, people were scared to see what the answer would be. Since Reverend Kamoku’s passing, ho’oponopono is not practiced in the same way; according to Isaia Kealoha (personal communication, 2016), not everyone does the healing work of God but some instead use curses to make others sick.

The use of spiritual and Hawaiian cultural medicine is common. The Hawaiian healing practice of la’au lapa’au is more widely used today. In practicing la’au lapa’au, there is a spiritual belief component that is associated with the healing process. It is essential when la’au lapa’au is practiced that the person have a strong belief that the illness will be healed. God will heal with the use of the plants and herbs. God has created them for our use here on earth. Western medicines and Hawaiian la’au lapa’au healing are never mixed; however, residents may believe in both practices. As one participant affirmed, “My family uses only Hawaiian medicine because we don’t have insurance.” Several researchers have described how many rural communities rely on health resources that are readily available to them, and this health care is not always from health professionals (Davis et al., 1991; Weinert & Long, 1987; Moodley &
West, 2005). Rather, spiritual healing practices or folk home remedies are performed for many ailments before seeking western health care (Yoder, 1972). The HLSF points out that ecological factors external to the framework influence the development of health literacy skills. These external mediators including culture and access to resources play a pivotal role in decision-making related to health literacy and health outcomes (Squiers et al., 2012). Post-enslavement African-Americans have also relied on spiritual practices as a source of hope and relief when there was mistrust of western medicine (Boyd-Franklin, 1989; Bennett, 2007).

**Shame**

Several methods were described by the focus group to access health information; yet overall, there was a lack of health care information available to the community. The focus group believes that illiteracy contributes to the lack of education regarding the resident’s health status and illiteracy leads to shame. Although the demographic table (see Table 1, p. 51) exhibits that 93% of participants completed high school and some college, many are illiterate. This assumption was supported by the need for individual assistance when completing paperwork for insurance, repeated explanations about the information presented, inability to answer questions in the AHST or HAST, lack of comprehension about their own health status, and preference for word-of-mouth spread of health information.

Health information was spread by word of mouth but no support groups were available for those with chronic illnesses. There is little opportunity for use of other media stimuli such as printed material in brochures, flyers, etc., as there is no common place for posting information in the community. Another concern is the usability of the printed media as many of the residents cannot read either because they need eyeglasses or because they are thought to be illiterate. Internet access is difficult as band coverage is not available to the rural area in general and other
sources of Internet access such as data plans or dishes are either not affordable or not considered necessary. According to the HLSF (Squiers et al., 2012), access and use of health related stimuli are an important component of attaining health literacy. For this community, there is a clear need to improve access and use of media whether it be printed, in classes, during conversation, or available on websites. Once stimuli are available, this community may also benefit from education that assists individuals to develop skills necessary to comprehend and process the information. Skills necessary to facilitate health literacy include not only the ability to interpret written material (prose literacy) but also knowing how to listen, speak, and negotiate (communication literacy) (Squiers et al., 2012).

Although the demographics illustrate language spoken as 100% English, residents speak a language other than English known to this community as Pidgin English. Health care materials are not written in Pidgin; therefore, it is difficult for them to comprehend health issues, outcomes, and how to better care for themselves and their families. Pidgin English originated in the plantations of Hawaii in the 1920s as a language of communication among the many ethnic people who lived and worked on the islands. Speaking Pidgin was part of the local identity for those who were born and raised in Hawaii, allowing for a broader ethnic background and a sense of belonging. English was associated with the educated and those of higher economic mobility (Tamura, 1993; Drager, 2012). However, many negative attitudes against the use of Pidgin prevail, causing stigmatization for those who use it (Drager, 2012).

These people have pride and are very noble; they do not like to share their illiteracy with those outside of the community. Exposure to their illiteracy is felt as shame (an uncomfortable feeling, hiding a personal issue). The people of this isolated community do not tolerate being exposed to outsiders; they don’t have trust in them. They will open up to others (non-residents)
only if they are introduced. They will seek health care providers only if they trust them; otherwise they depend on kahuna, families, and familiar people. According to Winters et al. (2007), rural communities are secretive in their lifestyles and are timid and less likely to accept and share information with outsiders. In this community, speaking Pidgin makes the residents feel vulnerable, especially when talking with more-educated people like care providers.

The HLSF suggests that poor use of preventive services, poor comprehension, and lack of knowledge-related medical circumstance precipitate poor health outcomes. The focus group believes that diseases and illnesses go undiagnosed because of shame (being uncomfortable, thus hiding personal issues). Illiteracy is one of the factors causing shame. Shame because they do not understand how to obtain medical assistance.

**Hawaiian Lifestyle**

The experience doing this project revealed an understanding of how and why the people of this isolated community continue to live the ancient lifestyle of their ancestors. The families who live in isolation did not come out into the community. It was a challenge to get to these families, as they live in an isolated commune with poor road access and without water and electricity. These families have a family member who delivers the necessities of daily living. These families grow simple vegetables and raise live cattle for food consumption. Most of these families live simply on a tight budget with minimal assistance from the government. Through the focus group explanations, the importance of respecting the ways of the ohana, including lifestyle and practices, emerged as a strong force in achieving trust. Culture as depicted in the Hawaiian lifestyle is an ecological mediator of health literacy and health outcomes (Squiers et al., 2012). According to one focus group member, most of the residents use Hawaiian medicine
such as *liko ohia* (young leaves from the *ohia* tree, boiled for an hour) to prevent the flu; it is plentiful and free.

**Health Fair**

Focus group members were concerned with the overall health issues for this community. They felt that health issues were not addressed for a number of reasons, including illiteracy despite education, lack of interest, denial of health concerns, financial instability, high unemployment rate, and shame. All four members of this focus group agreed that a health fair would increase the importance of health care awareness, how to advocate for their families, and how to access medical and dental care in this rural community. The health fair booth was filled with medical and dental information, pamphlets, brochures, transportation assistance, and applications for medical, dental, and housing. Displays were also provided and explanations given for how to perform monthly breast and scrotal exams for lumps. Blood pressure checks, heart rate, height and weight, and finger sticks for blood glucose levels were measured on a voluntary basis.

Providing education and answering questions about individual concerns were part of the health fair format. The HAST (see Appendix G), the AHST (see Appendix H), and the Demographic Screening Tool (see Appendix I), were disseminated to those qualified participants as they were invited to participate in the hands-on demonstrations and skills. The positive outcomes of the health fair were demonstrated by interest and participation by the eligible residents.

**Status of Health Screening and Health Awareness in the Community**

Results from the AHST indicated a lack of participation in primary and secondary prevention measures. Some of the participants take part in health care and immunizations,
regular checkups, and secondary health screening. However, most participants did not have age-appropriate immunizations and screening such as colonoscopy and mammography performed. Reviewing the results of the AHST (see Table 2, p. 61) it is evident that participants are not engaging in performing mandatory health screening at specific ages and milestones in life. Most participants did not have immunizations against influenza and pneumonia. Primary health promotion and prevention are very important to initiate early teaching and treatment management. Primary prevention has been supported in Healthy People 2010 and 2020. Health communication and immunizations were two of the key indicators (Quinn, Thompson, & Ott, 2005; Koh, 2010). Yet, primary prevention is lacking in rural Hawaii.

Nor did participants engage in secondary health screening for prevention of such things as colon, breast, or cervical cancer. With care insurance being an issue, it was not surprising to see the lack of vision and dental screening. Knowing this rural community and talking with the members of the focus group would lead one to think that the participants are in denial about the importance of secondary prevention. It is not clear whether the participants are in denial about the importance of secondary prevention or whether they actually understand what screening is and why it is performed. Although they may know that these exams are necessary and important, other issues may prevent them from participating in these health-screening exams. Many life issues and barriers plague this community, such as financial, transportation, illiteracy, cultural and spiritual beliefs, and fear, to name a few. In rural areas, the need for primary care is not the only issue faced by residents in rural Hawaii. Chan (2013) points out that not only individuals but communities need to provide education and resources for preventative care in order to improve life expectancy in disadvantaged rural communities.
Examining the AHST (see Table 2, p. 61) and HAST (see Table 3, p. 65) results, there is a contradiction. Although the participants say that they can define health literacy, tests and procedures that would be activated by health literacy skills are not performed. According to the HAST, participants agree that they know health literacy and seek help concerning health literacy. They are aware of how to access health care, health education, and health resources; they know where to get medical care; and they seek scheduled appointments on a regular schedule. The AHST results suggest that they are not having the tests or procedures necessary to keep healthy. Interestingly, the residents say that they do not use or depend on cultural medicines and that they do not have insurance but yet eat a healthy diet, rate health as good, and try to keep healthy. According to the focus group, residents have a lack of education regarding their own health status and they are ashamed to admit that they use spiritual and Hawaiian cultural medicines.

In the WHO definition, health literacy is the ability to understand and use information to make health decisions (Nutbeam, 2008). Differences concerning both tables demonstrate that the participants are aware of health screenings; however, answers to their health screening proves that they do not take part in executing secondary health prevention according to specific yearly, monthly, or bi-annual health recommendations.

In an attempt to explain the contradiction between health screening and health awareness, perhaps these residents comprehend the message (health awareness) but cannot act on it for other reasons. Chew, Bradley, and Boyko (2004) found that residents of rural and underserved communities with low health literacy lack sufficient knowledge about health care. Wathen and Harris (2007) using a focus group found that information-seeking was tied to rural and gender factors that interfere with self-reliance, health literacy, and availability of support from professional and non-professionals. Physician involvement was another factor in patient
comprehension of health education. Lukoschek, Fazzari, and Marantz (2003) reported that physicians who valued health education during patient encounters had patients with a better understanding of health information than physicians who thought they were effective educators. In a report given by Dr. Michael Paasche-Orlow to the National Science Foundation (NAS, 2015), health literacy was identified as the fundamental tenet underpinning use, access, and delivery of health care. In his address, Dr. Paasche-Orlow stated that there was a need to improve understanding and use of health care by patients, families, and social networks. The health care provider is not the only pathway to improve understanding and encourage motivation of health-seeking behaviors; mediators such as decision-making skills, social support, fatalism, perceived relevance to the message, and cultural beliefs must also be addressed (Squiers et al., 2012). Awareness of what should be done but not doing it indicates a need to examine the moderators and mediators to improve health literacy skills (Squiers et al., 2012).

**Discrepancy in AHST & HAST Responses**

In comparing results of Table 2 (AHST) and Table 3 (HAST), a clear discrepancy emerges between health awareness and health behaviors. Participants have knowledge about health screening; however, they do not complete the tests. Using the moderators and mediators described in the HLSF may offer some insights. The HLSF illustrates that the moderating factors in the first half sway the progress of literacy, social economic status, education, communication skills, and cultural and spiritual understanding. The second half of the framework depicts the mediating factors that impact health literacy and health outcomes (Squiers et al., 2012). Hemming and Langille (2006) suggest empowering strategies to improve literacy, including the use of plain language, effective teaching tools, and readable materials.
The use of health information via computerized technology optimized communication between health care providers, facilities, and the patients; however, in rural communities, technology is still very limited (McCullough et al., 2009). When collecting screening information, it is important to use questionnaires in the language of the participant, word choices that are culturally sensitive that reflect the health and literacy needs of the community (Merry et al., 2005).

Although they may know that these preventive procedures are necessary and important, other issues may prevent them from participating in health-screening exams. Many life issues and barriers plague this community, such as financial, transportation, illiteracy, and cultural and spiritual beliefs, among a few. Sexton, Carlson, Leukefeld, and Booth (2008) determined that barriers to drug abuse treatment included interrelated categories such as geography, organizations, socioeconomic, psychological, and emotional factors. Shortridge and Moore (2010) determined that there was a lack of dental care and that similar contributing factors, lack of care, geographical, and economical impediments existed. According to Drainoni et al. (2006), in addition to transportation, poor communication, socioeconomic class, unemployment, education status, culture, and homelessness were obstacles to accessing health care. Transportation is another cause of why western medicine is not practiced. The Kalapana community confronts most of these obstacles. Distance and lack of transportation were identified as barriers to accessing health care (Goodridge et al., 2011). Living in isolation sometimes means using what is available.

Disparities

Disparity, which is the difference in equality or lack of similarity among groups, can be seen as a moderator of health literacy skills. Disparities in health care continue to pose a
drawback to this rural community as evidenced by the responses from the focus group and results from the AHST. The rural families in this community continue to be under-resourced and experience less than privileged health care as witnessed by high rates of residents not knowing how to obtain health resources. Ricketts (2000) suggests that rural communities lag behind in achieving medical care and positive health care outcomes because of an inability to access medical information by patients and providers. There is a continued lack of professional care providers, technology in accessing medical resources, and treatment care plans. Cristancho et al. (2014) advocates the use of culturally sensitive approaches for individuals to gain knowledge about their health. Use of the native tongue or Creole versions of English (Pidgin) may be most effective. Acculturation was also a factor that impacts health literacy, according to their study with Hispanic/Latino immigrants. Furthermore, preference for media stimuli was interesting, as immigrants preferred community-based workshops to home instruction and less-educated or first-generation immigrants preferred face-to-face-instruction while second-generation immigrants preferred mailed printed material (Cristancho et al., 2014).

Access and insurance coverage are especially critical for isolated rural communities; without access or insurance, residents are diagnosed later, not accepted by providers if there are standing health problems, or they have no source of care and use emergency rooms for primary care (Levy & Sidel, 2009; Kane, 2001). Locally based health care access needs to be developed to meet these health care issues (Kane, 2001). Liu, Blaisdell, and Aitaoto (2008) found that Native Hawaiian populations in the State of Hawaii have a higher prevalence for obesity, chronic conditions, and impoverishment than other ethnic groups. The prevalence of these health problems cannot be explained simplistically. An alternative view put forth by Liu et al. (2008) for the poor health of contemporary Native Hawaiians is related to a cascade of events resulting
from historical events that resulted in health inequities. Aggregated symptoms and disease processes resulted (Johnson et al., 2004). This is consistent with the view put forth by Sotero (2006), who suggested that poor health status results from the accumulation of disease and social distress across generations. This historical trauma hypothesis may be a model for addressing health outcomes.

**Gaps**

Kalapana is a rural community with many barriers that lead to gaps in seeking knowledge about health care issues and making choices to improve health. Keeping in mind the objectives of Healthy People 2020, a priority for this community is to improve health outcomes by expanding the use of primary and secondary prevention methods. The HLSF recognizes that literacy skill and health knowledge proficiency mediate health behaviors and ultimately health status (Squier et al., 2012). McCormack et al. (2010) define health literacy as the ability of an individual to make an informed health decision given their capacity to obtain, process, understand, and communicate health related information. This definition is an integral part of the Health Literacy Skills Framework, which hypothesizes the relationship between health literacy and health related outcomes. Although the individual is at the forefront of the skills acquisition, the interdependence at the individual level is mediated and related to external factors such as culture, community, family, setting, and access to media. The four components of the HLSF provide the structure for analysis of gaps that could potentially undermine health status of the community.

1. Influencing factors leading to the development and use of health literacy skills were most notable and could explain the low rates of involvement in recommended health behaviors. Economic factors ranked high with many people underemployed,
unemployed, or retired, resulting in little or no health insurance. Personal factors also influenced health behaviors. Although educated, there may be a component of illiteracy that is transparent only when residents interact with outsiders. Illiteracy and needing to seek assistance are perceived as shame. Trust was an issue; not going to the provider because the family did not know them. Some have preference for Hawaiian healing over western medicine, maybe cannot afford western medicine, or have family influence to avoid it. Environmental factors included isolation, lack of transportation, and access to providers. Although health awareness is measured through lenses of the dominant culture, individuals make personal choices in how they care for their illnesses and make decisions (McLaughlin & Braun, 1998).

2. Availability of meaningful health related stimuli was a hidden and significant gap related to health literacy skill acquisition leading to a decrease in health behavior activity. User-friendly health information was not available. Most health information was provided by word of mouth from residents who were seeking outside health care. Information was passed on at the **awa** bar or Saturday market. There was a lack of user-friendly health information. Little or no printed material was available in a language that was understandable (reading level or Pidgin). Most residents do not have access to the Internet, data plans, or other methods to access online websites. No informal or formal support groups were available for those with chronic diseases.

3. There is some concern for the comprehension of the health related stimuli. Compounding the availability of health related stimuli were the ability to comprehend the health related stimuli and use the information to perform the tasks necessary to achieve health outcomes. Some residents had no interest in participating in
preventive health practices and others were aware of resources that made it possible
to participate in health related behaviors. Their health awareness scores were high yet
there was little behavioral indication connecting awareness to preventive health
services. Consistent with the HLSF, Pawlak (2005) and Baker (2006) found that
determinants of health literacy are tied to age, genetics, ethnicity, education, technical
skills, reading confidence, complexity of information, oral complexity, culture, and
social norms. These may be considered as barriers.

4. Several mediators play a part in the link between health literacy and health outcome
in this community. Disparities are prevalent and lead to poor health outcomes.
Disparities emerge from the poor economic status of the residents, lack of a strong
health care system presence, and perhaps historical trauma. Individual mediators also
influence health outcomes. These include attitudes toward western medicine,
motivation to seek health care, trust, and decision-making skills. Social issues are
also prevalent and include the choice to live the traditional Hawaiian lifestyle and the
influence of the ohana on decision-making. Imperative spiritual, cultural, and home
remedy practice is free and passed down as a family tradition; disbelief or change in
practice will cause animosity within the family. Illiteracy, or not knowing or
understanding health care, prevents the residents from seeking out knowledge
because of feeling humiliated. Spirituality and use of Hawaiian medicine (la’au
lapa’au) was embedded in the community even in those who used western medicine.
Exercising the use of marijuana, known as pakalolo or awa, for pain, as a muscle
relaxant, or to induce sleep, is prevalent in this rural population. With widespread
diabetes, hypertension, and renal disease, some have established physicians, whereas
most trust the use of la'au lapa'au or Hawaiian medicine, others trust in their
spirituality practice, and yet others are in denial.

Practice Recommendations

Like many rural communities, Kalapana is isolated. Lack of transportation is cited as a barrier in seeking outside health care. There are significant socioeconomic issues since residents are unemployed and have no health care insurance. There is a question about literacy despite the majority of participants having completed high school or some college. Pidgin is the language used and understood by the residents but often looked down upon by outsiders. There is a lack of trust when residents are exposed to persons who are not familiar to themselves or family members. There is a strong Hawaiian culture and traditional lifestyle with the ohana as center. Spiritual beliefs and Hawaiian healing are highly valued and practiced.

First consideration when offering recommendations is to consider the desires of the individual residents and the community as a whole. What does this community want or need from western medicine and how does this western practice fit with the care values and beliefs of the community (Pacquiao, 2008)? Is the objective to keep them healthy in ways that are strictly western? Some may want it, others may not. The use of repatterning, a practice that assists individuals and groups to achieve a healthy lifestyle (Pacquiao, 2008), is a method that should be considered for this community. Keeping in mind and respecting the lifestyle, cultural beliefs, and attitudes of the residents, the following practice recommendations are made. These recommendations are based on focus group observations, knowledge of the community, and analysis of the AHST and HAST data. Through openness, respect, and understanding of the cultural beliefs and traditional lifestyle, a culture of trust may begin to develop with a few residents and slowly spread.
1. Bring health care to the community. Engage the Puna Community Medical Center, a non-profit organization that operates as a clinic in Pahoa village 5-6 miles from Kalapana, as a community partner. The clinic van *Ka’a Ho’ola*, which means health on wheels, is already in vicinity close to Kalapana. The residents should be encouraged to spread the news of the van. In order to establish trust and increase participation by the community, the van can be brought to Wednesday night or Saturday morning markets at Uncle Robert’s Kava Bar on a regular schedule. An established clinic may be one method to provide access to health care in this community. Rural residents tend to be self-reliant and have a sense of belonging to the community. They tend to approve of providers that are consistent in the community and share the same feelings of self-trust and belonging and where feelings of vulnerability are minimized (Brundisini et al., 2013).

2. Local support groups for those with chronic illnesses could be started. Instead of these support groups being formally run by a health care provider, residents can begin to meet to talk story about their problems and their needs. A trusted health care provider from the community could be there to guide the discussion and repattern existing ideas of diseases.

3. Improve health care information dissemination. A community message board with information on such things as health care resources, the *Hui Malama* van schedule, *Ka’a Ho’ola* van schedule, and availability of immunizations may improve awareness. Understanding that this is a verbal society and most people may not use the message board, having information posted will help get the message out by those
who can use printed media. Printed material should reflect the reading level of the community and may even be written in a recognizable language such as Pidgin.

4. Establish trust with a provider in the community that is close. The mobile van may be the first step. One of the residents offered to build a shed for the project director. Engaging adults in a healthy and safe living environment results in high-level collaboration, changing attitudes, positive learning experiences, and participation (Summers, 2009; Brumby, 2009).

5. Collaborate with the University of Hawaii-Hilo to bring health resources via students from the School of Nursing and the College of Pharmacy. Affiliation with the University, although intimidating at first, may lead to a mutually beneficial relationship where students learn and the health and well-being in the community improve and trusting relationships are established (StuhlMiller & Tolchard, 2015).

6. Continue use of the Saturday market at Uncle Robert’s Kava Bar for a health fair offering health education, screening, understanding prescriptions, and assistance with insurance. This strategy is consistent with the ohana structure providing support. Chan (2013) suggests that additional effort by the community to provide education and medical resources can result in increased life expectancy for disadvantaged rural communities.

7. Encourage getting secondary prevention procedures done. Improving health literacy skills by addressing mediators and moderators of health literacy may be a first step.

8. Organize group trips for provider visits, screening procedures, and specialty clinics. Provide transportation for group trips. Engage Hui Malama to make regular trips to Kalapana rather than having residents schedule rides individually. Use of public
transportation may also be arranged with help from service groups or the Mayor’s office.

9. Encourage family members who are providing services to their isolated relatives to talk story about health care needs. These are the members of the family that are interacting outside of the community and have the trust needed to assist their families to obtain health care services.

10. Engage the younger generation to be involved in health education to members of their ohana. The younger group speak the language and have the knowledge and the trust to make an impact. They may need to have training such as the blood pressure awareness program started in the middle schools several years ago.

**Strengths of the Project**

Use of the focus group provided a strong ally for the project. Their insight and access to the community were invaluable. The project director’s familiarity and knowledge of the community and the Hawaiian lifestyle aided in understanding and interpreting the project results. The health fair was a first step to bringing information to the community rather than expecting the residents to come to the health information.

**Limitations of the Project**

Follow-up communication was not done with each participant. At this time, access to up-to-date medical information has not been started. Recommendations to improve health behaviors and health outcomes need to be sustained. Health outcomes could not be measured at this time. The number of participants represented only a small portion of the community. Focus group members may have been biased by their own health beliefs.
Conclusion

The overall goal of this project was to identify gaps in the health care in this rural community and provide solutions for overcoming the gaps. The focus group members assisted in determining the health care needs of this rural community, identifying the key stakeholders, and providing access to the residents. Gaps in preventive health screening were found while at the same time health awareness seemed strong. The dissonance between participation in health screening activities and health literacy was explained by focus group themes including trust, spirituality, shame, and Hawaiian lifestyle.

The HLSF provides an alternate way to examine participation by this rural community in their individual and community health outcomes. The framework puts forth the idea that health literacy and health related outcomes function at the level of the individual. The HLSF provides a plausible explanation for how individual, system, and ecological moderators of health literacy and external factors such as family, culture, and media influence health literacy skill acquisition and identifies mediators that link health literacy to health behaviors, health related decisions, and ultimately, health outcomes. The HLSF also puts into perspective the importance of the themes identified by the focus group members: trust, shame, spirituality, and Hawaiian lifestyle. By understanding the development or lack of development of health literacy skills, the link to poor use of available resources including preventive health services can be explicated. While development of health literacy skills may improve health outcomes, in this native Hawaiian population, the concept of historical trauma must be considered. Given the historical trauma suffered by Native Hawaiians (Sotero, 2006), accumulation of disease and social distress has occurred over many generations and has had an impact on health beliefs, attitudes, and participation in western health care.
The Hawaiian culture remains a strong presence in the daily lifestyle of rural communities in Hawaii. The Hawaiian culture continues to influence individuals and families in their choice to learn about health, seek health care, and follow health regimens. Improvements in the health of rural Kalapana residents can only occur with an understanding of the cultural influences, social disparities, health literacy, health screening, and health access needs of the community. This is a community that, if engaged and provided with the necessary resources, may be able to improve health outcomes through use of primary and secondary prevention while preserving their traditional Hawaiian lifestyle and beliefs.
References


doi: 10.1111/j.14680009.2008.00529.x


doi: 10.1111/j.1525-1497.2006.00530.x


doi: 10.17226/21714


doi: 10.17226/10883


Rootman, I., & Ronson, B. (2005). Literacy and health research in Canada: Where have we been and where should we go? *Canadian Journal of Public Health/Revue Canadienne de Sante’e Publique, S62-S77*.


http://www.ressources actuarielles.net/EXT/ISFA/1226.nsf/0/bbd469e12b2d9eb2c12576000032b289/$FILE/Sotero_2006.pdf

doi: 10.1080/10810730.2012.713442


Appendix A

IRB Application

APP 01 – Application for Exempt Status for Human Subjects Research

Please type the information below. Mahalo!

* Please note - If the Researcher / Principal Investigator (P.I.) is a student, per UH policy, the Faculty Advisor serves as the primary P.I. and the student serves as the co-P.I.

<table>
<thead>
<tr>
<th>Researcher (P.I.) / student co - P.I. name:</th>
<th>Phone number:</th>
<th>Yvonne K. Wong</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email address: [email protected]</td>
<td></td>
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<tr>
<td>Department: Nursing</td>
<td></td>
<td></td>
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<tr>
<td>Campus: UHH</td>
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<tr>
<td>Status: Faculty [ ] Staff [ ] Student [X]</td>
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<tr>
<td>(If the Researcher/ Principal Investigator is a student, per UH policy, the Faculty Advisor serves as the P.I., and the student serves as the co-P.I.)</td>
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<tr>
<td>For degree: Masters [ ] Ph.D. [X] Other: DNP</td>
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<tr>
<td>Student's Faculty Advisor / Primary - P.I. Name:</td>
<td>Advisor phone number: [ ]</td>
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<tr>
<td>Advisor email: [ ]</td>
<td></td>
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<tr>
<td>Title of Research Project: Improving Health Awareness Through an Education and Health Screening Program</td>
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</table>

Signatures

I certify that the information in this application is accurate and complete.

Researcher (P.I.): [Signature] Date: 11/30/2015

I have reviewed and approved this application:

[Advisor: Please review your student's application for the following required documents. Thank you.]

[X] Description of Project (Section II) questions answered

[X] Survey / Interview questions

[X] Informed consent(s) / assent(s) form

[X] Recruitment flyer(s) / script (if applicable)

Advisor: [Signature] Date: 12-1-15

This box is for Human Studies Program Use Only:

[ ] Training (P.I. only, if applicable) Is this study involving [ ] Yes [ ] No

Reviewer comments / recommendations:

Approved by: [ ] Date: [ ]

APP-01 Application for Exempt Status, v. 04-08-15

University of Hawai'i Human Subjects Program

(808) 656-3507, uhirc@hawaii.edu

Page 1
Application for Exempt Status for Human Subjects Research

Aloha! Research involving living human beings at the University of Hawaii must be approved prior to being conducted. Please read and follow all instructions carefully when filling out this application.

For more information, please go to the Human Studies Program website at: https://manoa.hawaii.edu/researchcompliance/human-studies or contact our office with any questions. Underlined words are defined in the Glossary on the HSP website.

To help you determine whether or not your project meets the definition of "research" or "human subjects research," and therefore warrants a need to complete an application see Worksheet 301 – Is my project "human subjects research?" BEFORE completing this application.

Graduate students planning to file a Form II with the Office of Graduate Education but whose projects are "Not Human Subjects Research" are required to complete an exempt application. The Human Studies Program will review the application to verify that the project is "Not Human Subjects Research" and will provide necessary documentation of this verification.

I. Categories of Exemption

Complete all the categories below that apply to your research. If a category does not apply to your study, check "Not Applicable" (N/A). If your research does not meet the requirements for any of the six categories below, please complete and submit the standard Non-Exempt Biomedical or Social & Behavioral Research - Initial Review application form available on the Human Studies Program website at https://manoa.hawaii.edu/researchcompliance/submit-new-protocol.

<table>
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<th>Research on Educational Practices (Federal Category 3)</th>
<th>N/A</th>
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<td>Your research will take place in an established or commonly accepted educational setting involving normal educational curriculum (appearing as normal classroom activities).</td>
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</table>

If Yes, complete Section II and Section III of this application.

<table>
<thead>
<tr>
<th>Research Involving Surveys or Interviews (Federal Category 2)</th>
<th>N/A</th>
<th>Yes</th>
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<tbody>
<tr>
<td>1. Your research will involve the use of</td>
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<tr>
<td>a. educational tests, (educational tests may include cognitive, diagnostic, aptitude, and achievement tests) or</td>
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<tr>
<td>b. surveys or interviews for participants ages 18 and older</td>
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<tr>
<td>2. The research data that you collect (including field notes) will be recorded in such a manner that if participants can be identified, they would not be at risk of damage to their reputation, financial standing, employability, or criminal and civil liability or this data will be recorded anonymously (so that participants cannot be identified, either directly or through identifiers linked to them).</td>
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If you answered "Yes" to both 1 and 2, complete Section II and Section III of this application. If your survey or interview research does not meet these two criteria, it may not qualify for exempt status. You should instead complete the non-exempt application form.

<table>
<thead>
<tr>
<th>Research Involving Public Observation (Federal Category 2)</th>
<th>N/A</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Your research will involve observation of adult human subjects in a public setting where there is no expectation of privacy, or</td>
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<tr>
<td>b. observation of public behavior of participants younger than 18 when investigators in your research will not participate in the activities being observed.</td>
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If Yes, complete Section IV of this application.
Appendix B

Project Description

Yvonne Wong, IRB Attachment

Description of this Research Project

1. Purpose and objectives

This Practice Inquiry Project (PIP) will address the health issues and problems in rural communities. The overarching goal of this PIP is to determine the gaps in health care in a rural Hawaiian community and to develop a plan for how identified health care gaps can be bridged. The specific aims and objectives stated below are designed to meet the goal of the PIP.

Specific Aim 1: Identify the health care needs of a rural community in Hawai’i

Objective 1. Identify a core group of individuals, (Kupuna’s, local residents), who have a vested interest in the rural area and the individuals living in that area who can discuss the health care needs of the community, identify the key stakeholders in the community and provide access to the residents of the community.

Objective 2. Design a preventative health-screening tool from discussions with the key stakeholders aimed at primary and secondary health care needs of the community.

Objective 3. Determine the health care baseline of the residents of the community using the preventive health-screening tool.

Specific Aim 2: Improve awareness of the need for primary and secondary health care prevention.

Objective 1. Develop educational programs to meet the health needs of the community based on the preventive health-screening tool.

Objective 2. Disseminate the educational information through learning activities in the community.

Objective 3. Assist participants to develop a personal health care plan and assist them to implement the plan.

2. Briefly describe your research design methods.

This is a descriptive study using focus groups, surveys and health screening tools to determine the health needs of a rural community. Focus group with key stakeholders in the community will be used to determine the needs of the community and assist with access to community residents. A series of questions are prepared for the focus group participants during this “talk story” session. Once identified by the key stakeholders, residents will be surveyed on their health knowledge and a community health educational program will be designed for the community to improve the health literacy of the community. Health screening to determine individual health needs will be done with residents who are interested in participating. The health education program and health screening programs will occur together or health screening may occur separately depending upon the needs of the individual to be screened. Data will be analyzed using qualitative and quantitative measures.
3. N/A
4. N/A
5. N/A

6. Participants/Description of population

Individuals included in the project will be adults 18-75 years of age, who have been residents of Kalapana, Hawai’i for at least 10 years. Those excluded from the project include tourists visiting Kalapana and transient individuals who frequent Kalapana. Approximately 50-80 residents are intended to be involved in this research.

Setting

The setting for this project takes place in Kalapana, a small rural town in the Puna district of Hawai’i Island. The population for Kalapana is 9,980. According to City-Data.com, the mean household income in 2000 was 33,948, compared to 2013 is 33,948, in 2000 the income per capita was 12,500, and in 2013 it was 15,000. It remains an isolated village due to the persistent volcanic eruptions and lava flows.

7. N/A

Consents for participating in this project.
Participants will be asked to complete a consent for this study. The consent form is attached.

Attachments

1. Adult Health Screening Tool
2. Awareness Questionnaire
3. Participant Survey questions
4. Consent Form
5. CTTI Training Completion Report
6. Focus Group Questions
Appendix C

Consent to Participate

University of Hawaii at Hilo School of Nursing

Consent to Participate in Research Project:

*Improving Health Awareness Through an Educational and Health screening Program*

My name is Yvonne K. Wong. I am a graduate student at the University of Hawaii at Hilo, School of Nursing, Doctorate of Nursing Program, (DNP). As part of the requirements for earning my terminal Nursing degree, I am undertaking a research project as a requirement for earning my Doctorate Of Nursing degree. The purpose of my Practice Inquiry Project (PIP) will address the health issues and problems in rural communities. The goal of this PIP is to determine the health care needs in a rural Hawaiian community and to develop a plan for how the needs will be met.

**Activities and Time Commitment:**
If you participate in this project, I will meet with you for an interview at a location and time convenient for you. The interview will consist of 10-15 open ended questions. It will take 30 minutes to an hour depending on questions you may have for me to clarify. Interview questions will include questions like, “Do you know how and where to obtain medical assistance from?” Only you and I will be present during the interview. You will be one of about 30 people whom I will interview for this study.

**Benefits and Risks:**
There are no direct benefits for participating in this project. Participation in this study will benefit the participants by creating the opportunity to educate your community by sharing health information. Additionally, it is hoped that this research will be utilized to help improve the body of nursing knowledge regarding needs of residents living in rural Hawaii.

As with any study that involves human subjects, there are risks associated with participating in this study including: (1) Psychological pain – related to the potential of discussing topics during the interview that may potentially upset the participants. We do not anticipate that you will experience any psychological pain by participating in this study. (2) Loss of privacy – Although careful attention will be paid to preventing your identity, there is still a risk of loss of privacy. We do not anticipate that you will have a loss of privacy by participating in this study.

**Privacy and Confidentiality:** I will keep all information secured in this research Project. Only my University of Hawaii advisor and I will have access to the information. All information obtained will be kept on a password-protected computer, in a locked office. Other agencies that have legal permission have the right to review research records. The University of Hawaii Human Studies Program has the right to review research records for this study. If you choose to participate, in the study, you will participate in either a focus group or you will complete surveys that address your understanding of your health and your current state of health. Everyone who participates will complete a demographic information sheet. There will be no audio/video recording in this research project.

**Voluntary Participation:** Your Participation in this research project study is absolutely voluntary. You may choose to withdraw your consent for participation at any time with no penalty or loss to you.

1. If you participate in a focus group, you will be asked to talk story about your knowledge of the health needs in the rural community where you live. This will take approximately an hour of your time.
2. If you participate in the health surveys you will be asked about your understanding about health problems and a survey about your state of health. This will take approximately 45 minutes of your time.

The information collected from you will not include your name or any identifying information. Information collected in this study may be used for publication, but your name will not appear on any documents. You may refuse to answer any questions at any time.

You will receive a $5.00 gift certificate to McDonald’s for your time and effort in participating in this research project.

Questions: If you have any questions or concerns about this research project, you are welcome to contact Yvonne Wong at ywong8@hawaii.edu. You may also contact my Advisor, Dr. Alice Davis at adavis@hawaii.edu. If you have questions about your rights as a research participant, you may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu.

Participant Acknowledgement: If you agree to participate in this project, please sign and date this signature page and return it to:

Please keep the section above for your records.

If you consent to be in this project, please sign the signature section below and return via e-mail to: ywong8@hawaii.edu, or adavis@hawaii.edu.

__________________________________________________________________________________________

Tear or cut here

__________________________________________________________________________________________

Name of participant (print)

__________________________________________________________________________________________

Participants Signature

__________________________________________________________________________________________

Signature of the Person Obtaining Consent

__________________________________________________________________________________________

Date

__________________________________________________________________________________________
Appendix D

Focus Group Invitation

Invitation to participate in a Research Project on:
Improving Health Awareness through an Education and
Health Screening Program

Date: Feb. 02, 2016
Time: 12:00-14:00
Place: Don’s Grill

Participants in this focus group will be asked to talk stories
about your knowledge of the health needs in this rural
community where you live.

Reason: The purpose of this research project will address the
health issues and problems in this rural community. The
goal is to determine health care needs in this rural Hawaiian
community and develop a plan for how the needs will be met.
Summary: Improve awareness of healthcare increase
awarement of healthcare needs, and assist residents to enroll
in a healthcare plan to receive healthcare services. Improve
health awareness through health screening.
Appendix E

Focus Group Questions

Consent to Participate in Research Project:

Interview Questions for the focus group

1. How do they obtain health information?
2. How do they access health care?
3. How much do they know about the available resources in the community?
4. How important are spiritual versus home remedy and cultural health care and wellness?
5. Are there support groups for people with (Diabetes, Hypertension, Kidney disease, Dialysis) that advocate for health care and awareness?
6. Is there available transportation for health care appointments on specified days?
7. Where can information on health care and awareness and disease be available to this community? Is there a community Board access?
8. How willing and interested are the people of this community regarding their health care, awareness of illness and disease, and how to care for themselves and their families?
9. How can this research project increase awareness of health care for the families in this rural community?
10. Is the lack of health insurance an issue?
Appendix F

Invitation to Participants

Title of project: A Research Project: Improving Health Awareness Through an Educational and Health screening Program

Seeking: Adults 18-75 years of age, who have been residents of Kalapana for at least 10 years.

Date: Feb. 13, 2016

Time: 08:00-12:00

Place: Uncle Roberts Awa Pavilion in Kalapana on Saturday Open Market

Reason for the project: The purpose of my Practice Inquiry Project (PIP) will address the health issues and problems in rural communities. The goal of this PIP is to determine the health care needs in a rural Hawaiian community and to develop a plan for how the needs will be met.

Summary of this project: participate in the health surveys you will be asked about your understanding about health problems and a 10-15 open ended questions and survey about your state of heath. Height, Weight, BMI, Blood Pressure, and Blood Glucose testing

Contact Information: If you have any questions or concerns about this research project, you are welcome to contact Yvonne Wong at [Contact Information]. You may also contact my Advisor, Dr. Alice Davis at [Contact Information].
# Appendix G

## Health Awareness Screening Tool

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly disagree</th>
<th>Neither</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  I can define “health literacy.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2  I am aware of patient health education resources that are available to me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  I know where to get medical assistance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  Medical assistance is available when I need it.</td>
<td></td>
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</tr>
<tr>
<td>5  I depend on cultural medications.</td>
<td></td>
<td></td>
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<tr>
<td>6  I use medications that are not prescribed by a physician.</td>
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<tr>
<td>7  I know all about my medical problems.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8  I use cultural medications because of no medical insurance.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>9  I know about new medical problems.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 I know where to get medical help if I need it.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 I go to the doctors on a regular basis.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 I would rate my health care good.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 I try to keep healthy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Strongly disagree</td>
<td>Neither</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>---------</td>
<td>----------------</td>
</tr>
<tr>
<td>14 I eat healthy foods.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 I am confident in my ability to seek support concerning health literacy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 During my lifetime, I have received support concerning health information.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 I am confident in my ability to seek patient health education to assist me with health information.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 In the future, I intend to seek support related to health information.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>19 My health is dependent upon my job.</td>
<td></td>
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</tr>
<tr>
<td>20 I have received patient health education resources.</td>
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</tr>
</tbody>
</table>
Appendix H

Adult Health Screening Tool

Research Project

Health Measurements for a preventative Health Screening

<table>
<thead>
<tr>
<th>Weight</th>
<th>Height</th>
<th>BMI</th>
<th>O2 Saturation</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Pressure</td>
<td>Heart Rate</td>
<td>Cholesterol</td>
<td>Low Density Lipids (LDL)</td>
<td>High Density Lipids (HDL)</td>
</tr>
</tbody>
</table>

Health Maintenance for a preventative Health Screening

<table>
<thead>
<tr>
<th>TEST</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colon: (FOBT, Colonoscopy, Sigmoidoscopy) Start at age 50, earlier if family history of colon Cancer, or symptomatic, until age 75.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAP: Every 3 years, until 65, start at age 21.</td>
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<tr>
<td>Hepatitis: Once.</td>
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<td></td>
</tr>
<tr>
<td>Mammogram: Start at age 40 unless family history of breast Cancer then starts before age 40, every 2 years, until age 74.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DXA: Start age 60, every 2 years, unless history of fracture, depo.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin D: DM, HTN, Fatigue.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lipids: Males &gt; 35 years, Females &gt;45 years, start at age 20 if M/F is increased risk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza: Every year</td>
<td></td>
<td></td>
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<tr>
<td>Pneumovax: Age 65 or smoker, asthmatic, diabetic, and COPD.</td>
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<tr>
<td>TD: Every 10 years. TDAP: Once as an adult</td>
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<tr>
<td>Hepatitis B: Diabetic &lt; 60 years (&gt; 60 if in facility, liver disease, ESRD, , and health worker).</td>
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<tr>
<td>Zostavax: Once &gt; 50 years and over.</td>
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<tr>
<td>Hepatitis A: Liver diagnosis, international travel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spirometry: Smoker, Asthmatic, COPD.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abdominal Aortic Aneurysm: One time screening for male 65-75, who smoke, with ultra sound.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CXR: HTN, smoker, Asthma, COPD.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECG: HTN, Heart Disease, Diabetics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye Exam: Once 20-29 years, twice 30-39, then every 2 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin Check: Yearly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dental: Yearly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HbA1c: If elevated Finger stick Blood Sugar (FBS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advance Directives</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix I

Demographic Survey Questions

Demographic Survey

Research Project for Participants

Thank you for taking the time to complete this survey. The purpose of this survey is to learn about you. The information you share is very important, and will not be shared in anyway.

1. Please indicate your gender
2. What is the highest completed level of education?
3. Is English your native Language?
4. The race/ethnicity that best describes you.
5. Do you rent or own your own house?
6. Do you work full time, part time, not working, or disabled?
7. How long have you been living in this rural community?
8. Where were you born? In the US?
9. What is your current household income?
10. Marital Status?
11. Family size?
Appendix J

SRC- IRB Approval

University of Hawai‘i Hilo
Doctor of Nursing Practice

Practice Inquiry Project
Scientific Review Committee Approval

Student’s Name: Yvonne Wong  Date Submitted: 11/30/2015
Title of Proposal: Improving Health Awareness through a Health Screening Program
Name of Committee Chair: Alice Davis, PhD

Department Scientific Review Decision
Approved: ☑

Not Approved: □  Comments:

Signature of SRC Chair: [Signature]  Date: 11/30/2015

IRB
Date Submitted: December 3, 2015
Committee: Social & Behavioral ☑  Biomedical □

Type of Review (check one)
☑ Exempt
□ Expedited
□ Full Review

Approved ☑

Not Approved □

Comments:

Attach a copy of the IRB approval letter to this form

Updated: 8/7/2013- sd/kr
Appendix K

IRB Approval

January 22, 2016

TO: Yvonne Wong
    Alice Davis, Ph.D.
    Principal Investigators
    Nursing

FROM: Denise A. Lin-DeShetler, MPH, MA
    Director

SUBJECT: CHS #23643 - "Improving Health Awareness Through an Education and Health
Screening Program"

This letter is your record of the Human Studies Program approval of this study as exempt.

On January 22, 2016, the University of Hawai‘i (UH) Human Studies Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45 CFR 46.101(b) (Category 2).

Exempt studies are subject to the ethical principles articulated in The Belmont Report, found at http://www.hawaii.edu/irb/html/manual/appendices/A/belmont.html

Exempt studies do not require regular continuing review by the Human Studies Program. However, if you propose to modify your study, you must receive approval from the Human Studies Program prior to implementing any changes. You can submit your proposed changes via email at uhirb@hawaii.edu. (The subject line should read: Exempt Study Modification.) The Human Studies Program may review the exempt status at that time and request an application for approval as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so. Signed consent forms, as applicable to your study, should be maintained for at least the duration of your project.

This approval does not expire. However, please notify the Human Studies Program when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the Human Studies Program at 956-5007 or uhirb@hawaii.edu. We wish you success in carrying out your research project.
Appendix L

IRB Exempt Approval

January 22, 2016

TO: Yvonne Wong
    Alice Davis, Ph.D.
    Principal Investigators
    Nursing

FROM: Denise A. Lin-DeShetler, MPH, MA
    Director

SUBJECT: CHS #23643 - "Improving Health Awareness Through an Education and Health Screening Program"

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If you have any questions relating to the protection of human research participants, please contact the Human Studies Program at 956-5007 or uhirb@hawaii.edu. We wish you success in carrying out your research project.