

Life Expectancy, Morbidity, and Health Practices of Native Hawaiian Elders: A Review of Hawai`i Surveillance Data

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Hā Kūpuna: National Resource Center
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Myron B. Thompson School of Social Work
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Executive Summary

Background and purpose. In the 2000 United States (US) census, 401,000 Americans (0.1% of the total population) were Native Hawaiian, with approximately 60% residing in the state of Hawai'i. Within Hawai'i, Native Hawaiians comprise about 24% of the population. However, in 2000, only 8.8% of the Native Hawaiian population was age 60 and older, compared to 17.1% of the total Hawai'i population. Why are Native Hawaiians underrepresented among Hawai'i's older adult population? In this report, we examine the available statistical data from Hawai'i to provide more detail about disparities faced by *nā kūpuna* (Native Hawaiian elders) and to draw implications for policy, service, and research.

Method. We requested from the Hawai'i Department of Health (DOH) surveillance data relevant to Hawai'i residents age 60 and older. Sources included the 2005 dataset from Hawai'i Health Survey (HHS) and the 2005-2007 dataset from the Hawai'i Behavioral Risk Factor Surveillance System (BRFSS). Hawai'i DOH provided tables displaying data for adults age 60 and older by four major ethnic groups—Native Hawaiian, Caucasian, Filipino, and Japanese—which allowed us to compare Native Hawaiian elders against elders in the other ethnic groups. We also include a summary of findings from two comparative studies completed by Park and colleagues on life expectancy and Years of Productive Life Lost for the year 2000 for seven major ethnic groups in Hawai'i —Caucasian, Chinese, Filipino, Native Hawaiian, Japanese, Korean, and Samoan.

Findings. Findings help specify health disparities faced by Native Hawaiians, including shorter life expectancies and greater number of Years of Productive Life Lost,

compared to most other ethnic groups in Hawai'i. Additionally, *nā kūpuna* experience a higher prevalence of disability and specific chronic conditions compared to other ethnic groups. A possible reason for disparities is that elders have experienced different levels of advantage and adversities over their life courses. For example, Native Hawaiians tend to have lower levels of educational attainment than Caucasian and Japanese in Hawai'i, which often lead to fewer options for housing, employment, health insurance, and leisure time for physical activity, all of which can shorten lives.

Implications. More research is needed to understand differential health outcomes seen in Hawai'i's multiethnic older population. Programs and policy must support efforts to extend life expectancy for Native Hawaiians and to reduce morbidity experienced by *nā kūpuna*.

Introduction

Pū`ali kalo i ka wai`ole.

For lack of water, taro grows misshapen (For lack of care one may become ill)

Pukui, 1983, p. 296.

In the year 2000 United States (US) census, 401,000 Americans (0.1% of the total population) were Native Hawaiian, with approximately 60% residing in the state of Hawai'i. In Hawai'i, Native Hawaiians comprise about 24% of the population (Cancer Research Center of Hawai'i, 2007).

As for other states, the population of Hawai'i is aging, with more and more people living into old age. In 2000, 17.1% of the state's overall population was age 60 and older, up from 11.8% in 1980. We would expect that 17.1% of Native Hawaiians also would be age 60 and older. However, only 8.8% of the Native Hawaiian population is age 60+. Why are Native Hawaiians underrepresented in the older age groups?

Nationally, the Native Hawaiian population has higher mortality rates for cardiovascular disease and cancer than most other ethnic groups in the US, and they rank second in prevalence of obesity (Fong, Braun, & Tsark, 2003). Findings from past research in Hawai'i suggests that Native Hawaiians as a whole have shorter life expectancies, poorer health, greater rates of disability, higher proportions of impoverishment, more problems with self-care, and an underutilization of services when compared to non-Hawaiians (Braun, Yang, Onaka, & Horiuchi, 1996; Tsark, Aluli, Blaisdell, & Finau, 1998; Johnson, Oyama, LeMarchand, & Wilkens, 2004; Mokuau, Garlock-Tuialii, & Lee, 2008). Few studies, however, have compared health indicators across ethnicities for the older adult population in Hawai'i, nor have many studies been

conducted on Native Hawaiian elders (Alu Like, 1990; Mokuau, Browne, & Braun, 1998).

To expand knowledge about Native Hawaiian elders, *Hā Kūpuna*: National Resource Center for Native Hawaiian Elders was established at the University of Hawai'i Myron B. Thompson School of Social Work in September 2006 with funding from the US Administration on Aging (AoA) Office for American Indian, Alaska Native, and Native Hawaiian Programs. *Hā Kūpuna* is one of three AoA-funded resource centers for native elders in the US (Mokuau, Browne, Braun, & Choy, 2008; Choy, Mokuau, Browne, & Braun, 2008). While *Hā Kūpuna* focuses on Native Hawaiians, the National Resource Center on Native American Aging at the University of Alaska focuses on Alaska Natives, and the National Resource Center for American Indian, Alaska Native and, Native Hawaiian Elders at the University of North Dakota focuses on Native Americans. These centers also serve as focal points for developing and sharing technical information and expertise for native organizations, native communities, educational institutions, and professionals working with elders (AoA, 2010).

In this report, we provide more detail on the health status of Native Hawaiian elders from statistical data collected by the Hawai'i Department of Health, including data from Vital Records, the Hawai'i Health Survey, and the Behavioral Risk Factor Surveillance System. To provide context for the report, we first offer a short historical overview of Native Hawaiians in Hawai'i. We then present information on the sources of our data and the methods by which data were collected and analyzed. We share findings from these data sources, and we discuss implications for policy, service, and research.

Historical Overview

The Polynesian ancestors of *Kānaka Maoli* (Native Hawaiians) were seafaring voyagers from the Southwestern Pacific who sailed from their earlier home islands around A.D. 100 and settled in Hawai'i (Blaisdell & Mokuau, 1991; Finney 1994, 2007). They were a self-sufficient and self-governing population with lifestyles and social structures in harmony with their environment. Their population increased to an estimated 200,000 or perhaps 800,000, and they lived in a highly stratified society in relative isolation until the arrival of Captain James Cook in 1778 (Kirch & Rallu, 2007).

Visiting sailors and others brought infections against which Hawaiians had little or no immunity, including small pox, measles, chicken pox, and sexually transmitted diseases. The introduction of these diseases caused many Native Hawaiians to sicken and die, resulting in the catastrophic loss of more than half of the Native Hawaiian population within several decades of Western contact (Stannard, 1989; Bushnell, 1993). By the late 1840s, American missionaries and businessmen controlled most of the economy in the Kingdom of Hawai'i (Osorio, 2002). Hawaiians were dispossessed of their land, and Hawaiian traditions were outlawed or discouraged, resulting in irrevocable changes to native language, religion, and education. To safeguard American economic interests, the US military overthrew the Hawaiian monarchy in 1893. By this time, the Native Hawaiian population was estimated at 40,000—a stunning 95% reduction of the population since pre-Western contact (Nordyke, 1989; Stannard, 1989).

Concerned about the shortage of workers for Hawai'i's growing sugar industry, foreign laborers were brought to Hawai'i (Nordyke, 1989). For example:

- 50,000 Chinese laborers came to Hawai'i between 1852 and 1898.
- 10,000 Portuguese laborers arrived between 1877 and 1884.
- 200,000+ Japanese workers, including 8,000 from Okinawa, arrived from 1885 to 1924.
- 5,000 came from Puerto Rico in the early 1900s.

- 8,000 came from Korea between 1902 and 1905.
- 30,000 Filipinos migrated to Hawai'i between 1905 and 1920.

Other events triggered immigration as well. Americans were encouraged to come to Hawai'i after the overthrow and annexation of Hawai'i by the US in 1893, ratification of Hawai'i as a US territory in 1900, and admission to statehood in 1959. The 1945 War Brides Act allowed Hawai'i residents to bring home brides from overseas, for example from China, Japan, Korea, and Europe. US control of American Samoa and Guam in 1898 and of Palau, the Republic of the Marshall Islands (RMI), and the Federated States of Micronesia (FSM) after World War II opened the doors for individuals from these US jurisdictions to migrate to Hawai'i. The Vietnamese community in Hawai'i began to grow after the 1975 withdrawal of US troops from Vietnam. Migration continues from many countries for purposes of employment, education, and family reunification, with the largest numbers coming from Korea, the Philippines, American Samoa, and Japan. Hawai'i also hosts 35,000 US military personnel at any given time, and these young soldiers and their families come from a diversity of ethnic groups as well. Intermarriage among ethnic groups is very high in Hawai'i, and almost 60% of babies born in 2006 were of mixed ethnicity.

Despite intermarriage, when individuals are classified by ethnicity according to the algorithms in place in the US and Hawai'i, the state's ethnic distribution is estimated at about 24% Native Hawaiian, 24% Caucasian, 18% Japanese, 16% Filipino, 7% Chinese, 2% Korean, 2% Samoan, and 7% other, including Hispanics, African Americans, and Native Americans (Park, Braun, Horiuchi, Tottori, & Onaka, 2009). The mixing of this variety of ethnic groups has produced a unique local culture in Hawai'i.

A Native Hawaiian renaissance and sovereignty movement, beginning in the late 1960s, has spurred a resurgence of interest in the Hawaiian language and culture. State and federal policies have begun to redress two centuries of dispossession of homeland.

For example:

- In 1978, the Native Hawaiian Amendments to the Hawai'i State Constitution restored the Hawaiian language as the state's official language (along with English), required that Hawaiian language schools be supported by public education dollars, and guaranteed access of Native Hawaiians to the sea and the mountains to assure continuation of their hunting and gathering traditions (ConCon 1978).
- In 1978, The Office of Hawaiian Affairs was established to direct use of funds paid by the state for the use of "ceded lands" taken from the Hawaiian Kingdom by the state for the airport, roads, and other structures.
- In 1988, the US Congress passed the Native Hawaiian Health Care Improvement Act in recognition of serious health disparities experienced by Native Hawaiians. This act established three interrelated entities: Papa Ola Lōkahi, a non-profit organization to promote the health and wellbeing of Native Hawaiians; five Native Hawaiian Health Care Systems, to provide access and education services in urban and rural Hawaiian communities; and the Native Hawaiian Health Scholarship Program, to support the education and licensure of Native Hawaiian physicians, dentists, psychologists, nurses, social workers, public health workers, traditional healers, and others health professionals to serve Hawaiian communities.
- In 1993, the American government officially apologized for its role in the overthrow of the Hawaiian monarchy and instituted discussions on reconciliation (103rd Congress of the US, Nov. 23, 1993).
- From 2000-2010, Senator Daniel Akaka has introduced legislation in the US Congress, referred to as the Akaka Bill, to expand self-determination for Native Hawaiians.

Cultural resurgence in the recent decades has strengthened and advanced changes on behalf of Native Hawaiians. Despite these policies, programs, and achievements, however, Native Hawaiians still are underrepresented among Hawai'i's older adult population, and the general health status of Native Hawaiians continues to lag behind that of other ethnic groups in the state. Scholars have offered a number of explanatory reasons, including the impact of historical cultural trauma, poverty, inadequate access to health care (especially culturally responsive care), institutional and internalized racism, discrimination, and poor health practices (Tsark et al., 1998; Mokuau, 1999; Kaholokula, Nacapoy, & Dang, 2009).

In this report, we examine the available statistical data from Hawai'i to provide more detail about disparities faced by *nā kūpuna*, and suggest a number of recommendations to alleviate or reduce them.

Methods

This report presents findings derived from three surveillance databases of the Hawai'i Department of Health (DOH)—Vital Records, the Hawai'i Health Survey, and the Behavioral Risk Factor Surveillance System. Each of these data sources is described here, along with methods for requesting, analyzing, and displaying data.

Vital Records

The Vital Records program of the Hawai'i DOH routinely gathers information about births, deaths, and marriages that take place in the state. Death record data are used to construct population pyramids and life tables and to estimate life expectancy.

Chai Bin Park, MD, DrPH at the University of Hawai'i Office of Public Health Studies and colleagues have constructed life tables for the state's major ethnic groups since 1950 (Park, Gardner, & Nordyke, 1979; Braun et al., 1996). In 2008, Dr. Park's research team constructed life tables from 2000 for seven groups--Caucasian, Chinese, Filipino, Hawaiian, Japanese, Korean, and Samoan. To smooth annual fluctuations in mortality, the means of 3.5 years of death data by ethnic group centering on April 1, 2000 were used for the numerator. Population estimates were based on the 2000 US Census, adjusted by ethnicity estimates obtained through Hawai'i Health Survey (described below). Population estimates by age, gender, and ethnicity also allowed the construction of population pyramids, which provide a graphic representation of a population's age distribution. The population pyramids presented in this report show percents in each age-gender group (rather than actual numbers) so that comparisons can be made across the state's ethnic groups.

In constructing the 2000 life tables, Park followed a method proposed by Chiang (1984), which also was followed for construction of life tables for 1980 and 1990. In this report, the findings from the construction of the 2000 life tables are summarized and

compared to life expectancy estimates from 1950-1990. More detail on this analysis can be found in Park, Braun, Horiuchi, Tottori, & Onaka (2009).

Another health index that summarizes mortality is Years of Productive Life Lost (YPLL). This index measures the extent of premature mortality by giving a weight to each premature death from the predetermined cut-off age, with proportionally higher weights for younger deaths. Any death before the cut-off age is defined as a premature death. In 2009, Park and colleagues estimated YPLL from the 2000 death data, using age 70 as the cut-off age. Because YPLL is especially sensitive to the age distribution of the population, it is not suitable for comparing different populations. It first must be converted to a rate, which was done following the method proposed by Lee (1998). This method is independent of size and age distribution of the population under consideration and can thus be used to compare YPLL across ethnic groups in Hawai'i. The resulting estimate is the Total Potential Life Lost per person in a lifetime (TPLL).

As in the construction of 2000 life tables, data on resident deaths registered in the state were provided by Vital Records to obtain the average annual number of deaths for each age group by ethnicity, sex, and underlying cause of death of the deceased. Cause of death is coded following the International Classification of Disease 10th Revision (ICD-10). Eight individual causes of death were analyzed—malignant neoplasms (called cancer hereafter), diseases of heart (called heart disease hereafter), cerebrovascular disease, perinatal conditions, congenital malformations, deformations and chromosomal anomalies (called congenital malformations hereafter), unintentional injuries (accidents hereafter), intentional self-harm (suicide hereafter), and diabetes mellitus—in addition to total death. Findings from the estimate of TPLL are summarized in this report.

Hawai'i Health Survey

The Hawai'i Health Survey (HHS) is a random-sample telephone survey conducted as a means of providing Hawai'i DOH programs, other agencies, and the public with statistics for planning and evaluation of health services, programs, and problems. The survey provides demographic information that helps the state estimate size and composition of the population during the intercensal decade. It provides state and sub-area estimates of gender, age, income, race, education, household size, insurance status, health status, morbidity, and food security. It is patterned after the National Health Interview Survey, which is conducted by the Centers for Disease Control and Prevention (CDC) to gather similar data on a national level. Through a contract with SMS Research, data for the HHS are gathered from a random sample of more than 6,000 Hawai'i households with about 20,000 household members. The respondent is an adult age 18 or older who is knowledgeable about his/her household. The sample data are adjusted and weighted to generate estimates of what could be expected for the population, taking into consideration unrepresented groups, e.g., households without telephones and individuals on Ni'ihau, in group quarters, and the homeless (HHS Procedure Manual 2004). Besides a standard set of questions, Hawai'i researchers may pay to add additional questions.

The HHS categorizes ethnicity based on strict definitions of the Hawai'i vital statistics system, and it is different from the one used by the US census. Essentially, the Hawai'i classification system is based on the father's ethnicity for mixed offspring, with exceptions for Caucasians and Hawaiians. When only one parent is Caucasian, the child takes the ethnicity of the non-Caucasian parent, and when one parent is Hawaiian or part-Hawaiian, the child is classified part-Hawaiian regardless of the ethnicity of the other parent. For this report, we requested a special tabulation of 2005 HHS data relevant to Hawai'i residents age 60 and older. The sample size of the age 60+ group in

2005 was 2,144, including 829 Caucasian elders, 213 Filipino elders, 273 Native Hawaiian elders, and 616 Japanese elders.

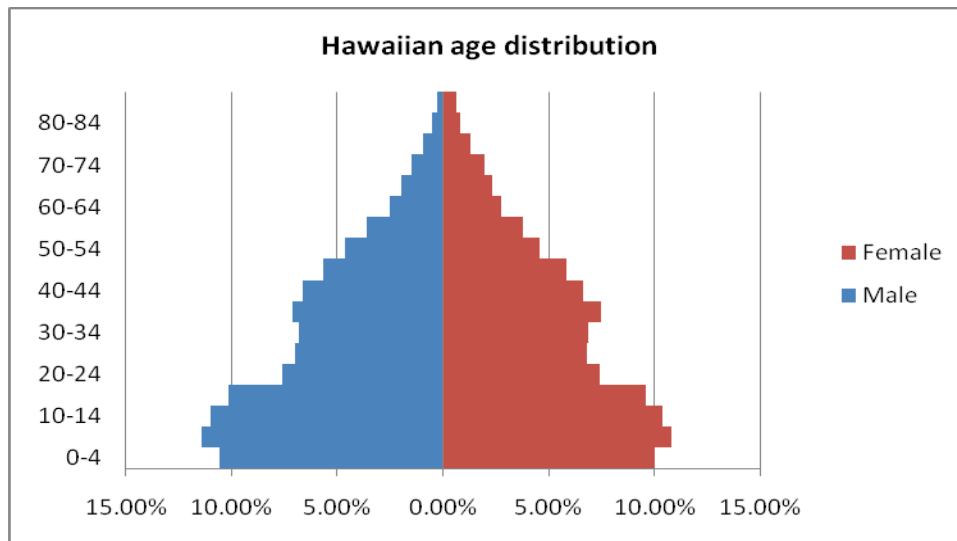
Hawai'i Behavioral Risk Factor Surveillance System

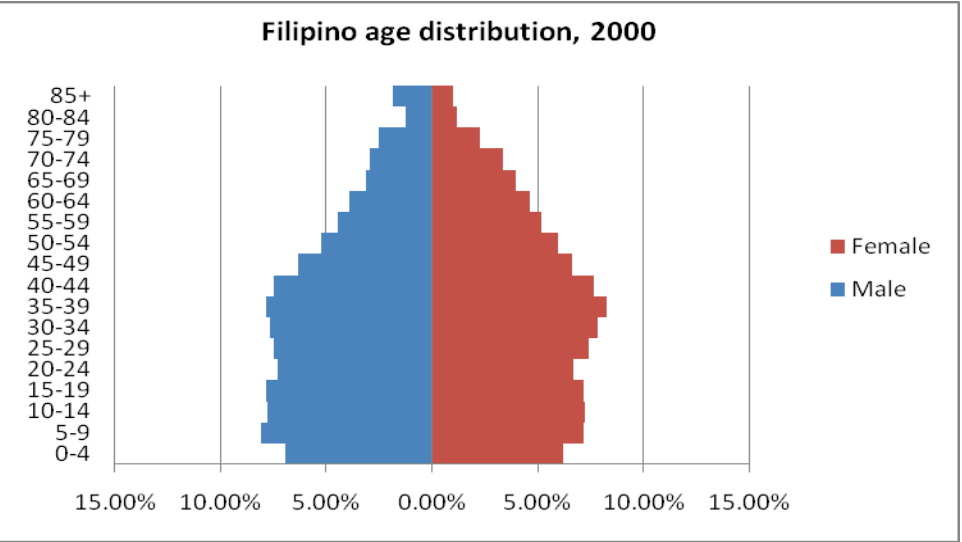
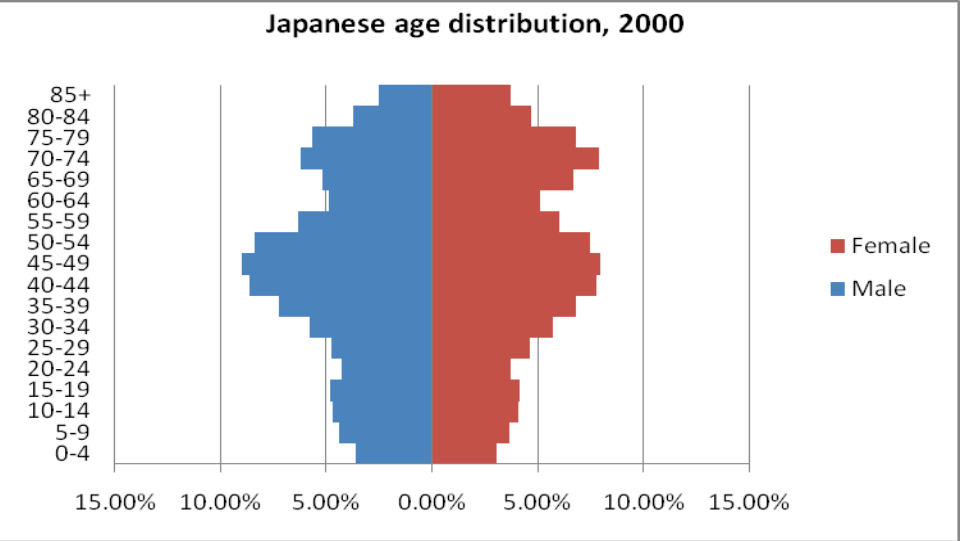
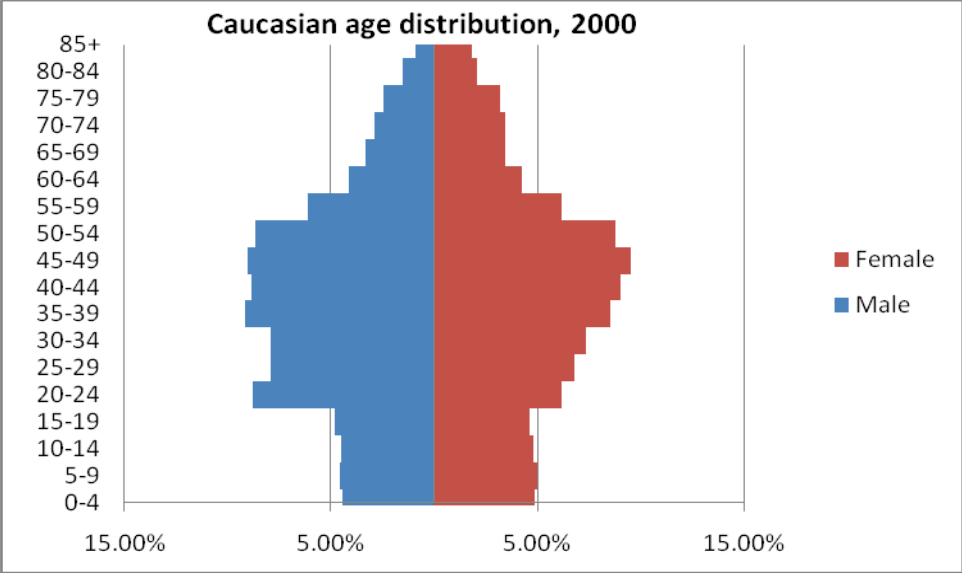
The Hawaii Behavioral Risk Factor Surveillance System (HBRFSS) is part of the national Behavioral Risk Factor Surveillance System (BRFSS) of the CDC. The national BRFSS is the largest random telephone interview survey of randomly selected individuals age 18 years or older about behaviors that directly or indirectly affect health and on other health-related topics. For example, it provides information on body mass index (BMI), health behaviors (e.g., smoking and drinking), health screening (e.g., for breast, cervical, and colorectal cancer), and chronic disease (e.g., diabetes and hypertension). Each participating state conducts its respective random telephone survey following the national BRFSS protocols and guidance. Data are obtained by the Hawai'i DOH through a subcontract with SMS Research, which gathers data from a random sample of about 6,000 individuals every year (for example, 6,409 individuals are included in the 2005 dataset). CDC provides standard questions to states so that data can be compared across states. States may also add questions of interest. The sample data are adjusted and weighted to generate estimates of what could be expected for Hawai'i, taking into consideration unrepresented groups. Data also are adjusted and weighted based on ethnicity estimates from the HHS. Hawai'i BRFSS estimates are produced for the state's four largest ethnic groups—Caucasians, Native Hawaiians, Filipinos, and Japanese. For this report, we requested a special tabulation that averaged responses from three years of BRFSS data (2005, 2006, and 2007) relevant to Hawai'i residents in age 60 and older. The sample size of the age 60+ group over 3 years was 6,346, including 2,652 Caucasian elders, 561 Filipino elders, 658 Native Hawaiian elders, and 1,840 Japanese elders.

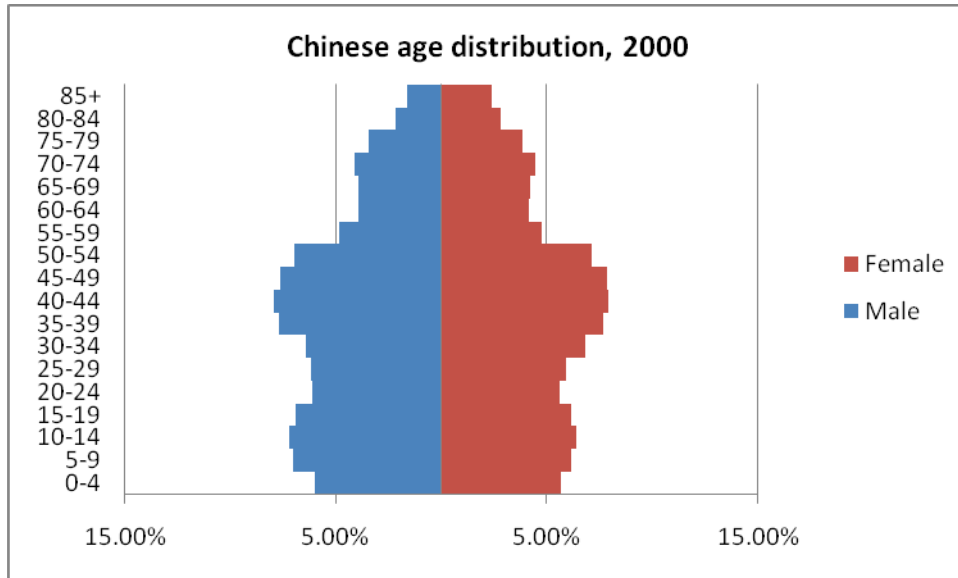
Findings

Data from Vital Statistics

Population Pyramids. A population pyramid shows the distribution of age groups by sex within a population. Shown here are the population pyramids for four major ethnic groups in Hawai'i, with age groups along the y-axis and percents across the x-axis. Note that the distribution of the Hawaiian population is the most like a pyramid, with a broad base (indicating a high proportion of children) and a narrow top (indicating a small proportion of old people). In contrast, the Caucasian population has a high proportion of middle-aged people, while the Japanese population has the lowest proportion of children and the highest proportion of elders.







A summary of the percentages of young people (under age 20), adults (age 20-59), and older adults (age 60+) for the total population and the five largest ethnic groups is provided in Table 1. About 17% of Hawaii’s total population is age 60+, but only 8.8% of the Hawaiian population is age 60+ while 34.7% of the Japanese population is age 60+.

Table 1. Population Totals and Distributions of Young People, Adults, and Older Adults in 2000, by Ethnic Group

	Total population	Caucasian	Chinese	Filipino	Hawaiian	Japanese
	1,211,637	294,102	89,434	200,386	239,655	228,734
Young people (under age 20)	27.0%	18.8%	25.7%	29.2%	42.0%	16.1%
Adults (age 20-59)	55.9%	64.6%	55.4%	57.5%	49.2%	50.5%
Older adults (age 60+)	17.1%	21.4%	23.4%	19.4%	8.8%	34.7%

The same information is provided in chart form in Figure 1, below, which graphically demonstrates the ethnic differences in distribution of young people, adults, and older adults in Hawai'i in 2000.

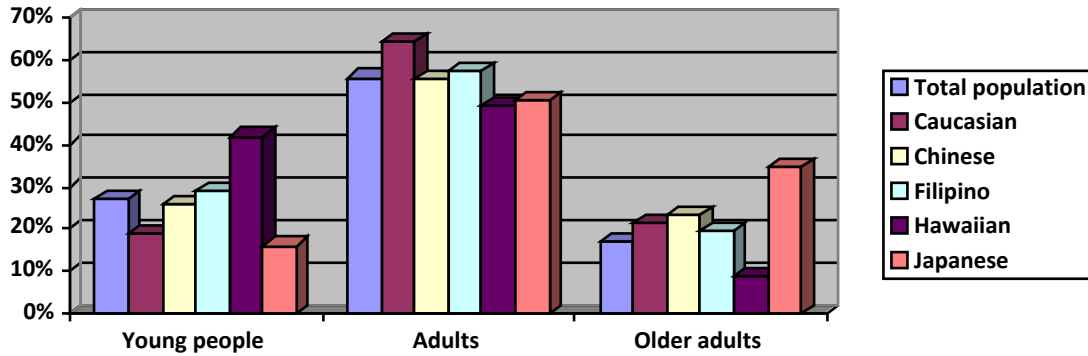


Figure 1. Ethnic Differences in Percentages of Young People, Adults, and Older Adults in the Total Population and the Four Largest Ethnic Groups in Hawai'i in 2000

Life Expectancy. Hawai'i has the longest life expectancy at birth in the nation. As shown in Figure 2, in 2000, overall life expectancy was 80.5 years in Hawai'i, compared to 76.9 years for the US. For women, life expectancy in Hawai'i was 83.6 years (compared to 79.5 years in the US). For men in Hawai'i, life expectancy was 77.5 years (compared to 74.1 years in the US) (Arias, 2002).

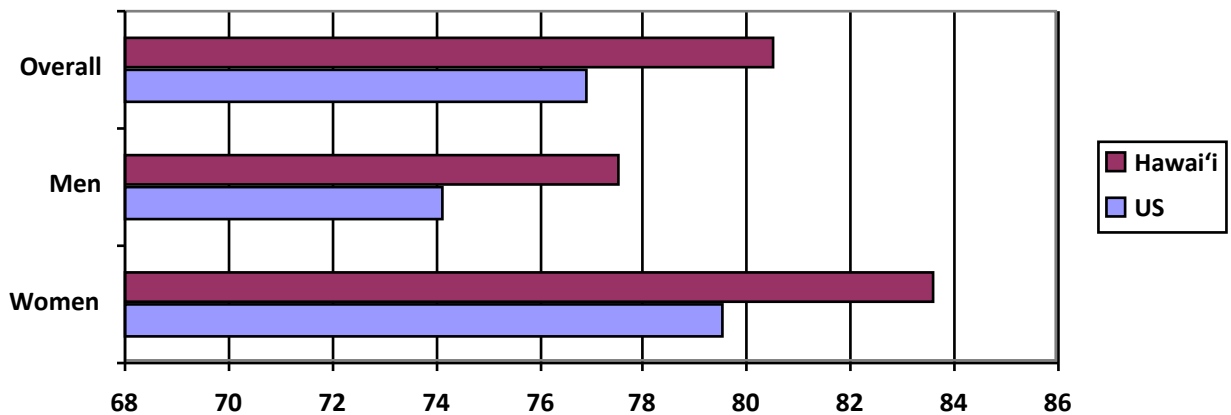


Figure 2. Comparison of Life Expectancy in Hawai'i and the US in 2000

Although Hawai'i residents live longest, not all ethnic groups in Hawai'i are living equally as long. In 2000, life expectancy at birth for Chinese was 86.1 years, compared to only 74.3 years for Hawaiians, a gap of 11.8 years. The magnitude of the gap between the longest and shortest lived ethnic groups has remained fairly constant over the second half of the 20th century—10.1 years in 1950 compared to 11.8 years in 2000.

Table 2. Life Expectancy at Birth by Ethnicity, 1950-2000, in Hawai'i

	Total	Caucasian	Chinese	Filipino	Hawaiian	Japanese	Disparity of longest to shortest lived
1950	69.5	69.2	69.7	69.1	62.5	72.6	10.1 years
1960	72.4	72.8	74.1	71.5	64.6	75.7	11.1 years
1970	74.2	73.2	76.1	72.6	67.6	77.4	9.8 years
1980	77.9	75.8	81.7	79.3	71.8	80.9	9.9 years
1990	78.9	75.5	82.9	78.9	74.3	82.1	8.6 years
2000	80.5	79.0	86.1	80.9	74.3	82.8	11.8 years
Gains in life expectancy between 1950 and 2000	11.0 years	9.8 years	16.4 years	11.8 years	11.8 years	10.2 years	

Also shown in Table 2 are gains in life expectancy for the total population and for five ethnic groups. The good news is that, between 1950 and 2000, life expectancy in Hawai'i increased by 11 years, from 69.5 to 80.5 years. Again, however, ethnic disparities are seen. The Chinese showed the largest gain of 16.4 years, and the Caucasians had the smallest gain. From 1950 to 2000, the gap between the longest and shortest lived ethnic groups has ranged from 8.6 years to 11.8 years.

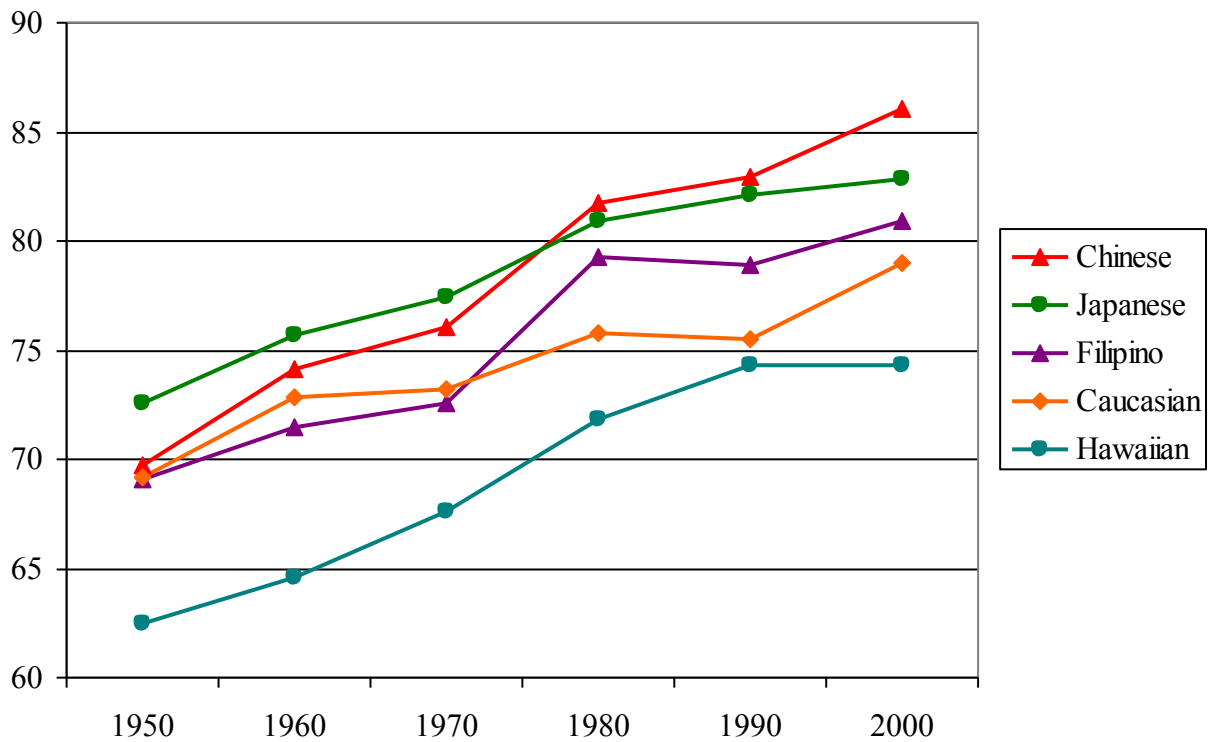


Figure 3. Life Expectancy by Ethnicity in Hawai'i, 1950 through 2000

Figure 3 presents the life expectancy estimates for five largest ethnic groups for the decade years 1950 through 2000. From Figure 3, it is easy to see that the magnitude of difference in life expectancy between the shortest-lived and longest-lived groups has been maintained throughout the decades, about a 10-year difference. Over the 6 decades of estimates, Chinese and Japanese have had the highest life expectancy, followed by the Filipinos and Caucasians. Native Hawaiians have consistently had the lowest life expectancy.

Years of Productive Life Lost (YPLL). Another index of health is called Years of Productive Life Lost (YPLL), which is an indicator of premature mortality. The CDC reports leading causes of YPLL in its *Morbidity and Mortality Weekly Report*, and YPLL is used by some national health agencies and state health departments as a mechanism for establishing public health priorities.

As noted in the methods, YPLL must be converted to a rate before it can be used in cross-ethnic comparisons. Following a method by Lee (1998), the Total Years of Potential Life Lost per person in a lifetime (TPLL) estimates were constructed for five ethnic groups for 8 causes of death.

For Hawai'i, the overall TPLL before age 70 per person from premature mortality was estimated at 3.3 years in 2000. However, there are wide differences in TPLL by ethnic group. The smallest number of years lost was observed for Chinese, at 1.3 years. The largest YPLL was for Hawaiians, at 5.3 years. The difference in YPLL between Chinese and Hawaiians is four fold, meaning that, on average, Hawaiians are losing four times as many years of potential life as Chinese. The rank order of TPLL by ethnicity is very much like that observed for life expectancy at birth reported above (Park et al., 2009).

Among the eight causes of death, cancer caused the largest number of potential years lost before age 70, with 0.74 years per person, accounting for more than 22% of overall TPLL. Heart disease, ranking second (0.59 years), accounting for 18% of overall TPLL. Accidents were third-ranked (0.40 years), accounting for 12% of overall TPLL. Deaths from perinatal conditions (0.25 years) and suicide (0.21 years) contributed 6-7% each. The roles of cerebrovascular disease and congenital malformations were relatively minor, occupying only 3-4% each. The role of diabetes mellitus also was minor, at 0.06 years.

The importance of cause of death varied considerably by ethnic group (Figure 4). Cancer was the most important cause of TPLL in all populations, except Native Hawaiians, accounting for 20% or more of the overall TPLL in these groups. For Native Hawaiians, heart disease was the top-ranked cause of TPLL. While cancer and heart disease were the top-leading causes of TPLL in most ethnic groups, accidents ranked second for Caucasians. In contrast, in Japanese, Filipino and especially in Chinese, the role of accidents was only modest. The ranking of perinatal conditions varied; it was the

third-most important cause of premature death for Filipinos and Japanese. Suicide and cerebrovascular disease generally ranked 4th to 6th in each ethnic group. The role of diabetes mellitus in TPLL was small, however, Native Hawaiians ranked the highest and lost the most years of potential live from diabetes of the state’s five largest ethnic groups.

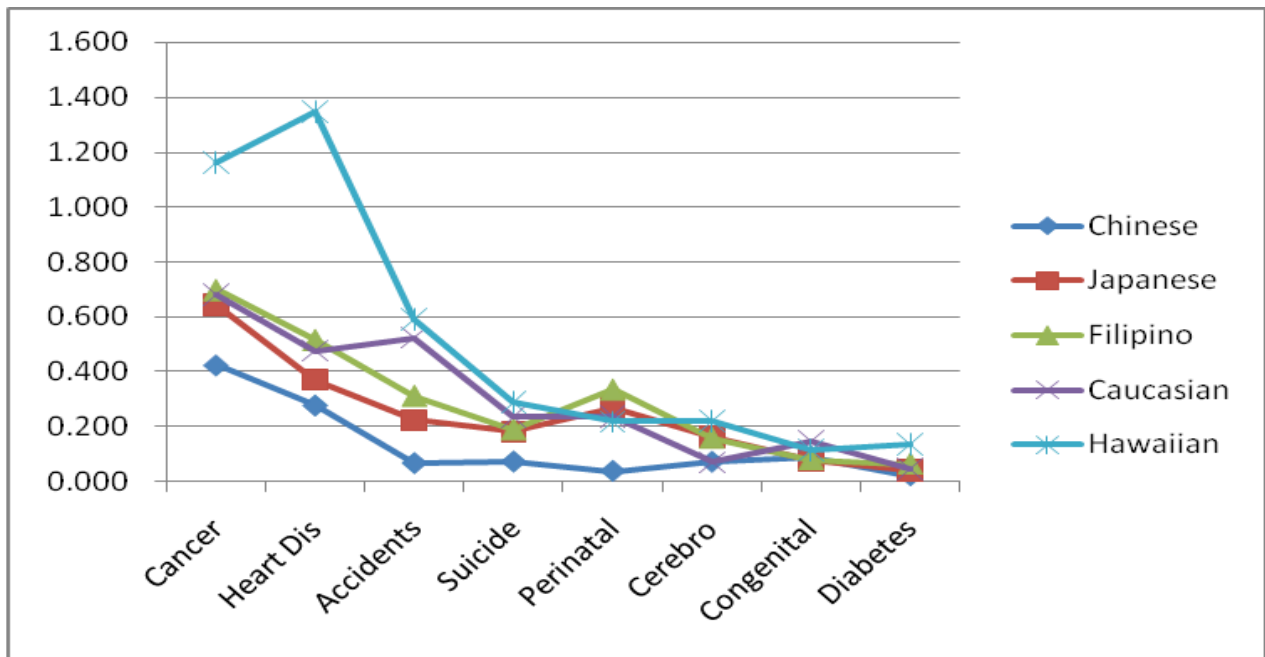


Figure 4. Total Years of Potential Life Loss by Ethnic Group and Disease, 2000

Summary of Data from Vital Statistics. From Vital Statistics data, we learned that Native Hawaiians continue to have the shortest life expectancy of Hawai’i’s five largest ethnic groups. This contributes to finding that, in 2000, only 8.8% of the Native Hawaiian population was age 60 or older, compared to 17.1% of the total population. Heart disease and cancer were found to be the largest contributors to premature mortality (death before age 70) in Native Hawaiians.

In the next sections, we present data from the HHS and the BRFSS that may help us understand more about the ethnic disparities in Hawai’i, including lifestyle

behaviors, prevalence of hypertension, use of cancer screening services, and access to physicians.

Data from BRFSS and HHS

The Behavioral Risk Factor Surveillance Survey (BRFSS) provides information on demographics, self-rated health, health limitations, chronic diseases, and cancer screening practices. DOH was able to provide us with a special run of BRFSS data from 2005, 2006, and 2007. After years of data were combined, DOH provided data tables for Hawai'i residents age 60+ as a whole, and for the four largest ethnic groups—Caucasians, Filipinos, Japanese, and Native Hawaiians.

The Hawai'i Health Survey (HHS) provides information on several other demographic and health indicators. DOH was able to provide us with a special run of HHS data from 2005 and provided data tables for Hawai'i residents age 60+ as a whole, and for the four largest ethnic groups—Caucasians, Filipinos, Japanese, and Native Hawaiians. Findings from these special runs are presented here.

Demographic Data. Presented in Table 3 and Figure 5 are BRFSS estimates of the demographic characteristics of the 60+ population. Native Hawaiians have the largest proportion of females among the 60+ population, 61.5% compared to only 50.9% of the Caucasians age 60+. This suggests that more Native Hawaiian men (than women) are dying before age 60. About 38.2% of Hawaiian elders (age 60+) attended at least 1 year of college. This percent is similar to the percent for Filipino elders, but much lower than for Japanese elders (56.1%) and Caucasian elders (72.7%). About 63% of the age 60+ population is married (this is slightly lower among Hawaiian elders and slightly higher among Filipino elders). BRFSS data suggest that about 24% of Native Hawaiians age 60+ population are employed, compared to only 18% of Japanese age 60+.

	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
Percent female	56.4%	50.9%	60.9%	61.5%	59.2%
Percent w/ 1+ year of college	58.2%	72.7%	39.7%	38.2%	56.1%
Percent married	62.8%	60.8%	70.9%	54.1%	63.8%
Percent employed	23.8%	28.5%	27.2%	23.9%	18.1%

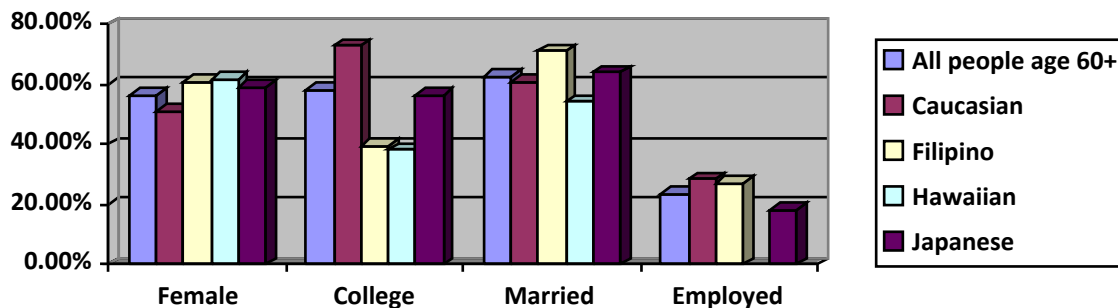


Figure 5. Demographic Characteristics of 60+ Population, BRFSS, 2005-2007

HHS provides additional demographic information, shown in Table 4 and Figure 6. For example, HHS asks respondents where they were born. Findings from 2005 suggest that 99% of Native Hawaiian elders age 60+ were born in Hawai'i, compared to 95% of Japanese elders, 46% of Filipino elders, and 21% of Caucasian elders. Similarly to the BRFSS special run, data from the HHS special run suggest that only 39% of Hawaiian elders (age 60+) attended at least 1 year of college, compared to 72% of Caucasian elders. Per HHS, about 25% of Native Hawaiian elders age 60+ population are employed, compared to about 20% of total elders and only 14% of the Japanese elders. About 29% of Native Hawaiian elders live below poverty or between 100-199% of poverty, compared to 21% of Caucasian elders and 24% of Japanese elders.

Table 4. Birth Place, Education, Employment, and Poverty in the 60+ Population by Ethnic Group, HHS 2005					
	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
% born in Hawai'i	61%	21%	46%	99%	95%
Percent w/ 1+ year of college	57%	72%	39%	39%	50%
Percent employed	20%	23%	25%	25%	14%
Percent income below poverty	10%	8%	21%	10%	8%
Percent income 100-199% poverty	15%	13%	22%	19%	16%

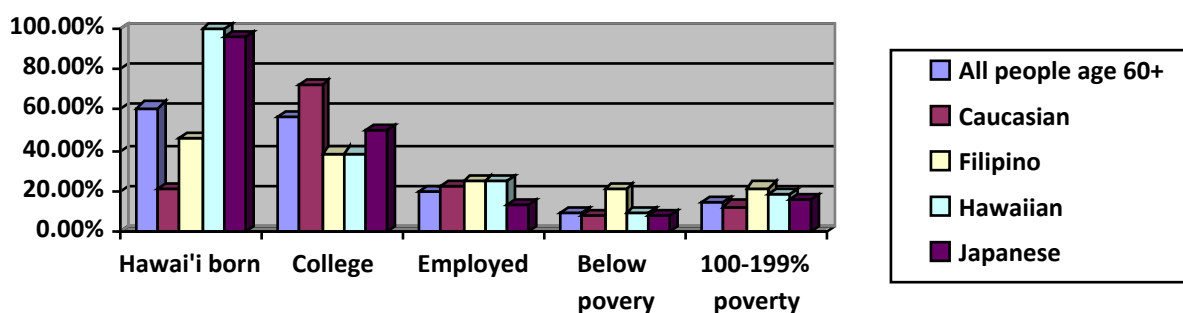


Figure 6. Birth Place, Education, Employment, and Poverty in the 60+ Population, HHS 2005

Self-Rated Health and Limitations. According to 2005-2007 BRFSS data, about 22% of the age 60+ population rated their health as fair or poor (Table 5 and Figure 7). Of the four largest ethnic groups, Filipino and Native Hawaiian elders were most likely to rate their health as fair or poor. Although Caucasian elders were the most likely to say that they were limited by health problems (about 31%), Native Hawaiian elders were most likely to say they required special equipment due to health problems (about 18%). Compared to all people age 60+, smaller percentages of Native Hawaiians reported good physical health in the past 30 days, and reported ability to perform usual activities in the past 30 days. However, none of these differences were statistically significant. The good news is that, similar to Caucasian, Filipino, and Japanese elders, fully 94% of Hawaiian elders report being satisfied or very satisfied with their lives.

	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
Percent rating health as fair or poor	22.7%	19.0%	28.0%	26.3%	22.5%
Limited in any way because of health problems	22.7%	30.5%	18.2%	22.6%	16.9%
Requires special equipment due to health problems	12.8%	12.8%	14.0%	18.0%	11.2%
Percent reporting good physical health in past 30 days	67.2%	67.1%	63.7%	63.9%	66.8%
Percent reporting good mental health in past 30 days	82.0%	80.7%	80.8%	79.0%	84.8%
Percent able to perform usual activities in past 30 days	61.2%	58.0%	62.4%	60.6%	66.2%
Elders who are satisfied or very satisfied with lives	94.2%	94.8%	93.1%	94.4%	94.5%

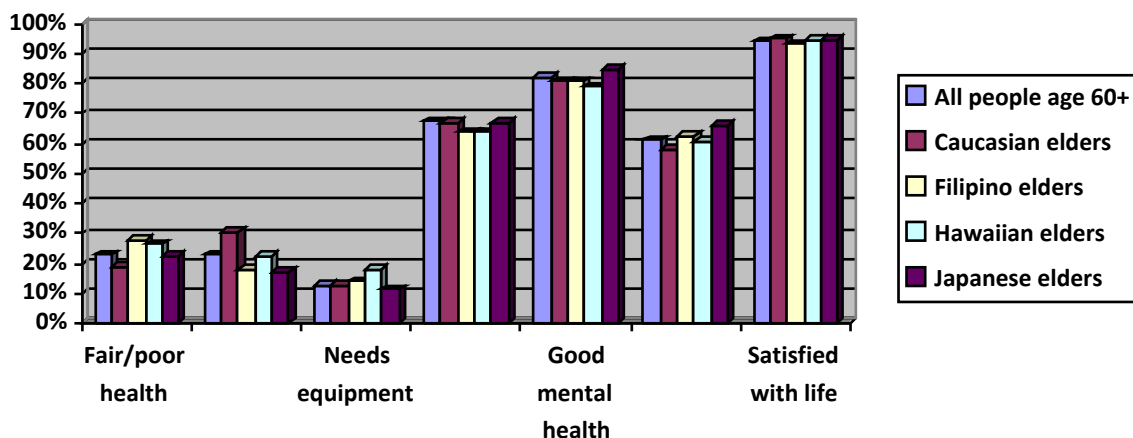


Figure 7. Self-Rated Health and Limitations of 60+ Population, BRFSS, 2005-2007

HHS gathers additional information on mental health, shown in Table 6 and Figure 8. According to the 2005 HHS data, about 86% of residents age 60+ felt “calm and peaceful” all, most, or a good bit of the time, and 74% said they had a lot of energy all, most, or a good bit of the time. Only about 4% of elders felt “down-hearted and blue” all, most, or a good bit of the time.

	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
Percent feeling calm and peaceful all, most, or a good bit of the time	86%	88%	76%	89%	86%
Percent with a lot of energy all, most, or a good bit of the time	74%	73%	72%	77%	76%
Percent feeling down-hearted & blue all, most, or a good bit of the time	4%	5%	3%	5%	4%

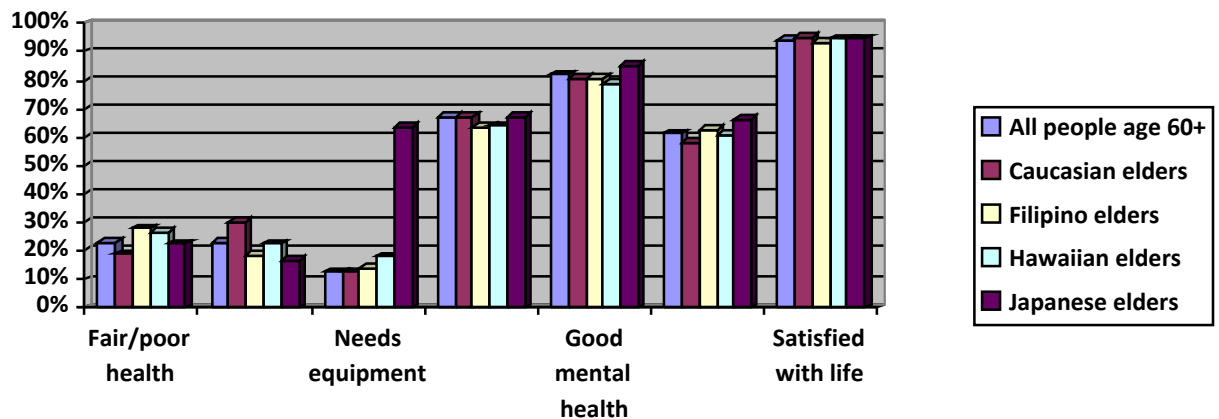


Figure 8. Self-Rated Health and Limitations of 60+ Population, BRFSS, 2005-2007

Insurance, Physicians, Check-ups, and Shots. Native Hawaiians elders age 60+ are least likely to have health insurance, although 95.3% report some health coverage (Table 7 and Figure 9). However, 7.2% report not being able to see an MD in the past year due to cost. Caucasians and Native Hawaiians are most likely to report NOT having a Primary Care Provider (PCP), but this was reported by 7% or less of both groups. Japanese were the most likely to report having had a routine check-up and a flu shot in the past year. About 39% of Native Hawaiian elders have ever had a pneumonia shot, compared to 58% of Japanese elders and 53% of Caucasian elders. However, nearly 65% of Native Hawaiians got their flu shot, compared to 64% of Caucasians, 63% of Filipino, and nearly 74% of Japanese elders.

	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
Percent w/ health insurance	97.2%	96.8%	97.5%	95.3%	98.4%
Percent that could not see MD in past 12 months due to cost.	3.2%	3.8%	3.8%	7.2%	0.6%
Percent w/ no PCP	4.9%	7.0%	3.8%	6.3%	2.8%
Percent w/ routine checkup in past year	82.9%	79.4%	81.3%	81.0%	86.4%
Percent w/ flu shot in past year	68.7%	64.2%	63.3%	64.9%	73.8%
Percent with pneumonia shot	53.0%	53.4%	43.9%	39.2%	58.0%

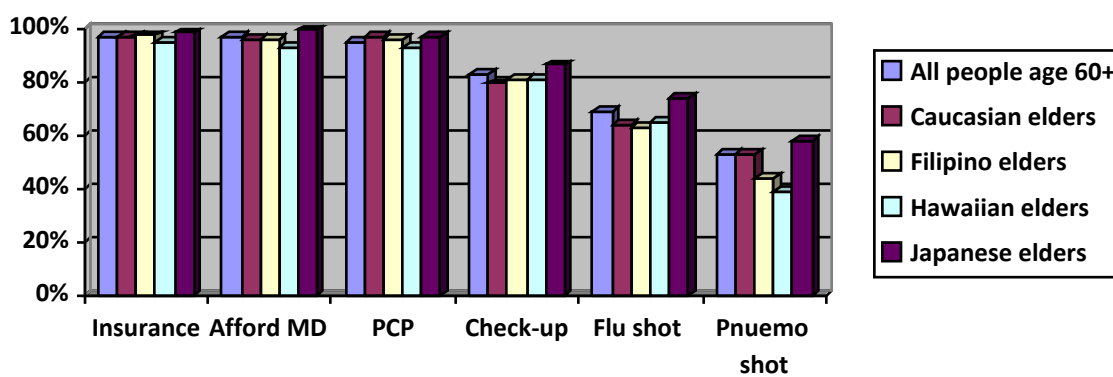


Figure 9. Insurance, MDs, Check-ups, and Shots in 60+ Population, BRFSS, 2005-2007

HHS asks additional questions about health coverage, shown in Table 8 and Figure 10. Data from 2005 suggest that 81% of the 60+ population has prescription drug coverage, and 64% has dental care coverage. Percentages vary with ethnicity, with lowest levels of coverage reported by Caucasian elders.

	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
Percent w/ prescription drug coverage	81%	76%	84%	82%	84%
Percent w/ dental care coverage	64%	54%	76%	69%	70%

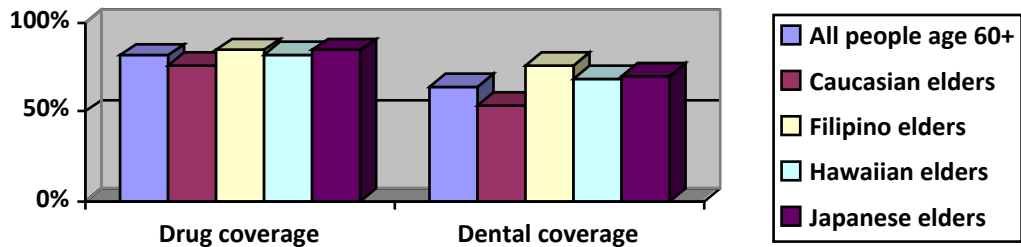


Figure 10. Insurance in 60+ Population, HSS, 2005

Smoking and Drinking. Among Native Hawaiian elders, 56.8% report having smoked 100 or more cigarettes in a lifetime (Table 9 and Figure 11). Native Hawaiian elders also are the most likely of the four ethnic groups to smoke every day or occasionally, about 14.6% compared to only 6.9% of Japanese elders. However, Native Hawaiian smokers are most likely to say that they are trying to quit and have stopped smoking at least for one day in the past year. Native Hawaiians and Caucasians are most likely to report drinking more than four or five drinks on one occasion (about 9% in each group), while Caucasian elders are most likely to report drinking more than 2 drinks a day (about 10%).

	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
Elders smoking 100+ cigarette in lifetime	48.1%	57.0%	37.2%	56.8%	43.1%
Elder who are current, daily smokers	7.2%	7.9%	8.2%	11.1%	5.8%
Elders who are current occasional smokers	1.7%	2.0%	1.5%	3.5%	1.1%
Elder who are current smokers (daily/occasional)	8.9%	9.8%	9.7%	14.6%	6.9%
Elder smokers who stopped smoking for 1+ day in last year	49.4%	53.2%	53.2%	55.5%	38.9%
Percent at risk of binge drinking (4-5+ drinks at once)	7.0%	9.0%	4.0%	8.9%	5.9%
Percent at risk for heavy drinking (2+ drinks/ day)	5.5%	9.9%	3.7%	5.3%	3.0%

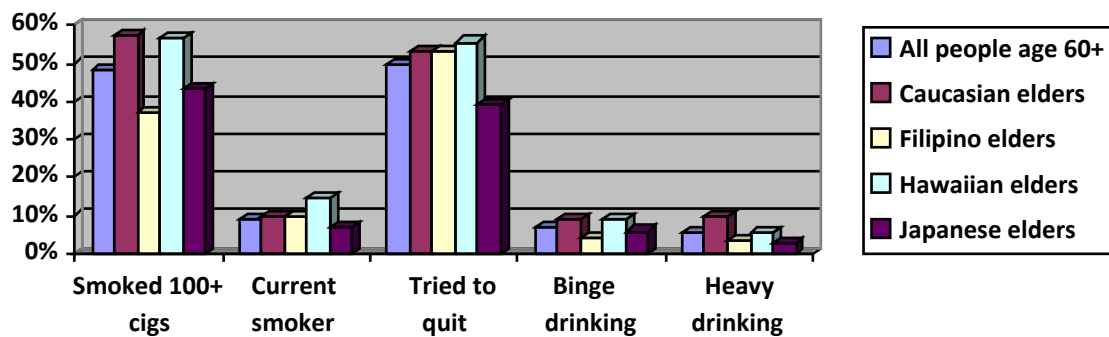


Figure 11. Smoking and Drinking Behaviors in 60+ Population, BRFSS, 2005-2007

Obesity and Exercise. About 35% of all elders age 60 and older are overweight (Table 10 and Figure 12), ranging from a high of nearly 38% among Caucasians to a low of 33% among Japanese. About one-third of all groups report being overweight. However, larger disparities exist among ethnic groups in obesity, ranging from only 7.7% of Japanese elders to 36.2% of Native Hawaiian elders. Filipino and Native Hawaiian elders were least likely to participate in physical activity, such as running, calisthenics, golf, gardening, or walking for exercise in past 30 days. However, 73% of Native Hawaiian elders reported participating in at least some physical activity.

	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
Percent who are overweight	35.3%	37.9%	33.4%	35.4%	33.2%
Percent who are obese	16.5%	19.2%	16.1%	36.2%	7.7%
Percent who participated in physical activity outside of regular job in past 30 days	77.0%	81.4%	72.1%	72.9%	75.6%

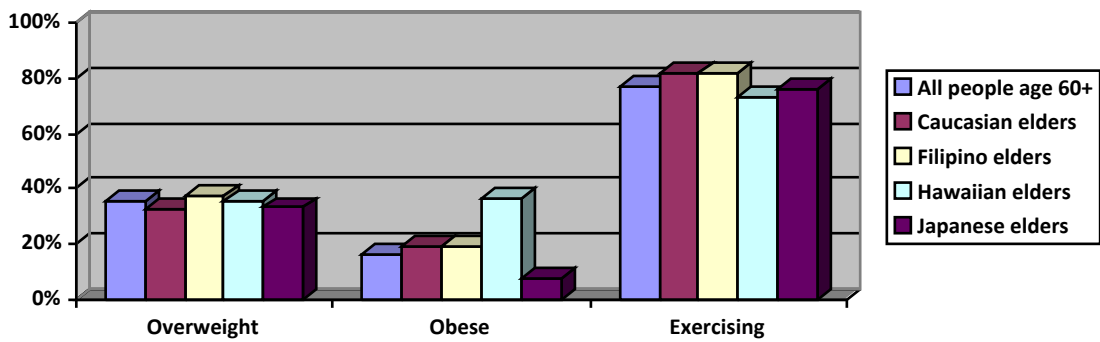


Figure 12. Obesity and Exercise in 60+ Population, BRFSS, 2005-2007

Chronic Conditions. Almost 20% of Native Hawaiian elders were told by an MD that they had asthma, and almost 25% were told they had diabetes (Table 11 and Figure 13). Native Hawaiians were more likely than other elders to say they had asthma and diabetes. About 11% of Native Hawaiian elders had been told by an MD that they had had a heart attack, angina, or congestive heart disease (CHD), and about 7% had had a stroke. Native Hawaiian and Caucasian elders were more likely than other elders to report these conditions.

	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
Percent told by MD have asthma	10.8%	11.8%	10.2%	19.7%	7.6%
Percent told by MD have diabetes	16.5%	11.9%	23.8%	24.9%	14.9%
Percent told by MD had heart attack	9.6%	12.0%	8.7%	11.3%	7.2%
Percent told by MD have angina/CHD	8.6%	10.1%	6.4%	11.4%	6.5%
Percent told by MD had stroke	6.8%	7.5%	4.4%	7.2%	6.7%

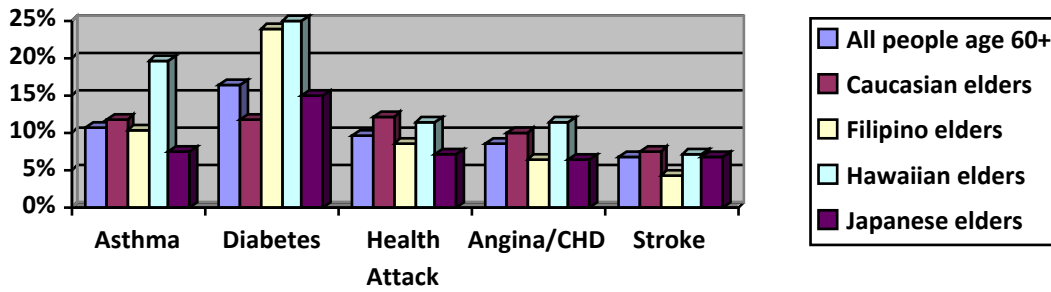


Figure 13. Chronic Conditions in 60+ Population by Ethnic Group, BRFSS, 2005-2007

Additional information on chronic disease comes from the HHS data, shown in Table 12 and Figure 14. According to 2005 HHS data, about 49% of residents age 60+ have hypertension, and Caucasian elders have the lowest prevalence (43%). About 29% of residents age 60+ have arthritis, with similar prevalence across ethnic groups. About 13% of elders are cancer survivors, and about 4% are living with lung disease.

	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
Percent with hypertension	49%	43%	57%	53%	52%
Percent with high cholesterol	22%	16%	24%	19%	29%
Percent with arthritis	29%	31%	28%	29%	28%
Percent cancer survivors	13%	17%	8%	12%	12%
Percent living with lung dx	4%	7%	2%	2%	3%

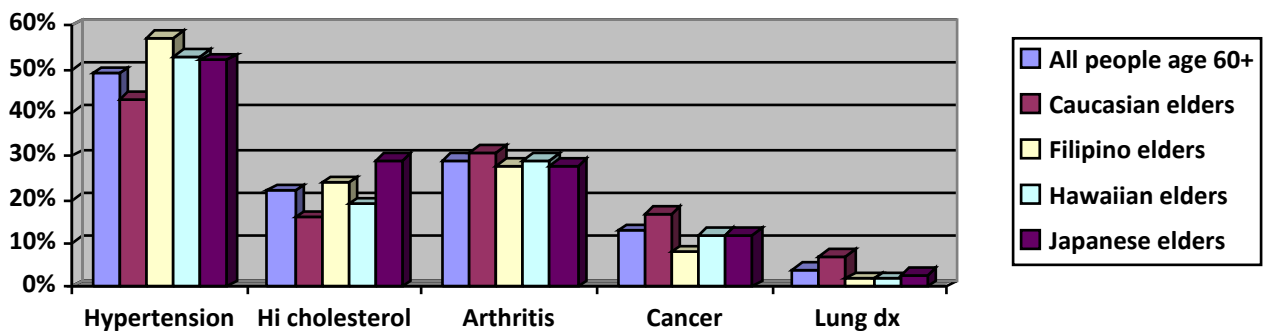


Figure 14. Chronic Conditions in 60+ Population by Ethnic Group, HHS, 2005

Cancer Screening Practices. BRFSS collects data on cancer screening practices (Table 13 and Figure 15). Almost 80% of older Native Hawaiian women have had a mammogram and a clinical breast exam within the past 2 years. However, among women age 60+, Caucasian and Native Hawaiian women are least likely to have had these screening tests for breast cancer in the past 2 years. About 72% of older Native Hawaiian women had a Pap smear within the past 3 years, and this percent is the second lowest of the four ethnic groups.

Among men, older Filipino and Native Hawaiian men are least likely to have had a Prostate-Specific Antigen (PSA) test for prostate cancer or a digital rectal exam (DRE) within the past year. For Native Hawaiian men, about 38% had the PSA and about 34% had the DRE in the past year. About 47% of Filipino elders and about 53% of Native Hawaiian elders have ever had a sigmoidoscopy or colonoscopy to check for colorectal cancer, compared to 71% of Caucasian and 73% of Japanese elders.

	All people age 60+	Caucasian	Filipino	Hawaiian	Japanese
For women, had mammogram within last 2 years	81.3%	76.2%	82.3%	77.7%	85.8%
For women, last clinical breast exam within last 2 years	86.9%	82.6%	87.7%	85.2%	89.8%
For women, had Pap smear in past 3 years	73.7%	69.8%	72.8%	71.9%	76.6%
For men, had PSA test in 12 months	54.0%	58.8%	33.7%	37.7%	60.5%
For men, had DRE in past 12 months	45.0%	48.6%	28.2%	34.2%	49.7%
Ever had sigmoidoscopy or colonoscopy	66.0%	70.6%	47.3%	52.7%	73.0%

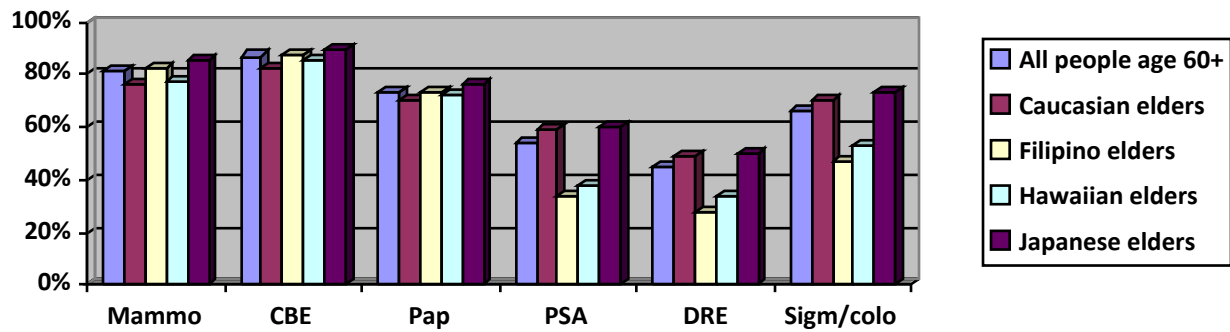


Figure 15. Cancer Screening Practices in 60+ Population by Ethnic Group, BRFSS, 2005-2007

Summary of Data from BRFSS and HHS. These surveillance data highlight ethnic differences in demographics, health behaviors, chronic conditions, and access to insurance that may help explain some of the ethnic differences in life expectancy and TPLL.

Table 14 recaps the BRFSS and HHS demographic and health indicators. Compared to the total population of elders, Native Hawaiian elders are doing “better” in a few areas. For example, they are more likely to report feeling calm and having a lot of energy all, most, or a good bit of the time. Compared to the state average, more Native Hawaiian elders report having dental care coverage. Among elders that smoke, Native Hawaiian smokers are most likely to report that they want to quit.

Table 14. Summary of Health Indicators for Native Hawaiian Elders

Category	Indicator	Native Hawaiian elders compared to the total population average		
		“Worse” than total population	“Similar” to total population	“Better” than total population
Demographics	Education Poverty	X X		
Self-rated health	Self-rated health Health limitations Requires equipment due to health prob Good physical health in past 30 days Good mental health in past 30 days Performed usual activities past 30 days Satisfied with life Usually feeling calm Usually having a lot of energy Usually feeling downhearted and blue	X X X X X	 X X X	 X X
Insurance and MD access	Health insurance Prescription drug coverage Dental care coverage Has PCP Could not see MD due to cost Had flu shot in past year Had pneumonia shot	X X X X X	 X X	 X
Health behaviors	Smoking Wants to quit smoking Binge drinking Heavy drinking Exercise Obesity	X X X X	 X 	 X
Chronic disease	Angina or CHD Arthritis Asthma Cancer Diabetes Heart Attack Hypertension Lung disease Stroke	X X X X X X	 X X 	 X
Cancer screening	Mammogram and clinical breast exam Pap smear PSA and DRE Sigmoidoscopy/colonoscopy	X X X X		

Native Hawaiian elders are similar to the total population of elders on several indicators. For example, they report similar levels of health limitations and being similarly satisfied with life. The percent with prescription drug coverage is similar to that of the total state population of elders.

However, the data suggest Native Hawaiian elders are poorer or worse than average on a large number of health indicators. For example, Native Hawaiians elders are the least likely to have attended college and the most likely to have incomes below 200% of the poverty level. They are less likely to have health coverage, to name a PCP, to have routine check-ups, or to participate in cancer screening. They are most likely to smoke and be obese. They have the highest or second-highest prevalence of a number of chronic diseases.



“The data suggest Native Hawaiian elders are poorer or worse than average on a large number of health indicators.”

Implications

I ulu no ka lālā i ke kumu.

Without our ancestors we would not be here (Pukui, 1983, p. 137).

Recent studies and reports have assessed the health status and morbidity and mortality profile of Native Hawaiians. In this report, we examine the health status of Native Hawaiian elders from data collected by the Hawai'i Department of Health, including data from Vital Records, the Hawai'i Health Survey, and Behavioral Risk Factor Surveillance System. Data on Native Hawaiians elders were compared to data on other ethnic groups in Hawai'i. We also provided a context for this report with a brief historical overview of Native Hawaiians in Hawai'i. In this final section, we summarize these findings and their implications for policy, service provision, and research.

Our findings are consistent with earlier research on Native Hawaiians that document serious health and social disparities (Kaholokula et al., 2009; Park et al., 2009; Mokuau, in press). As noted, life expectancy for Hawaiians, at 74 years, continues to be the shortest of the state's five largest ethnic groups. This means that fewer Native Hawaiians are reaching old age. Heart disease and cancer are the top causes of premature death (death before age 70) among Native Hawaiians. Hawaiian men are underrepresented in the 60+ age group, suggesting that Hawaiian men are especially at risk of premature death. Native Hawaiians also experience high prevalence of chronic conditions and poor lifestyle behaviors, not



“...life expectancy for Hawaiians, at 74 years, continues to be the shortest of the state's five largest ethnic groups.”

only increasing their risk of premature death but decreasing their quality of life in old age. Looking at socio-economic status, the data suggest that more Native Hawaiian elders have low educational attainment and income, which may explain why more Native Hawaiians in the 60+ age group are still working, compared to elders in other ethnic groups.

There is some good news in these data. Similar to Caucasian, Filipino, and Japanese elders, 94% of Hawaiian elders report being satisfied or very satisfied with their lives, and are most likely of the four ethnic groups to report feeling calm and having a lot of energy all, most, or a good bit of time. Still, the overall picture remains one of a population with more social and health disparities, less access to healthcare, and poorer health practices in comparison to the other large ethnic groups in the state. Some social policies have been enacted in the past few decades to redress past wrongs (i.e., the illegal overthrow of the Kingdom of Hawai'i and the suppression of Hawaiian language and culture) and to support programs to reduce health disparities (e.g., the Native Hawaiian Health Care Act), but clearly more must be done to improve the lives of *nā kūpuna*.

Implications to Policies and Services

From this review, we draw three service and policy implications for Native Hawaiian elders. These include the need for: 1) primary care, preventive services, and health promotion; 2) affordable care; and 3) culturally responsive programs and services.

Need for Primary Care, Preventive Services, and Health Promotion

All Hawai'i residents need primary health care that provides health education to promote good health practices and chronic disease prevention and control. This care is especially important for Native Hawaiians because they have shorter life expectancies

than other ethnic groups, and they are entering their senior years with more chronic conditions and poorer health habits than most other ethnic groups. Health promotion and disease management programs are needed to reduce the adverse impact of chronic diseases on Native Hawaiians, especially heart disease and cancer. Contributors to heart disease, such as hypertension and high cholesterol, can be controlled by diet, exercise, and medications. Although many cancers cannot be prevented, they can be cured and/or controlled if diagnosed and treated early. Thus, enrollment in evidenced-based health promotion and disease management programs should be encouraged financially and programmatically (Tomioka et al., 2009).

Need for Affordable Care

Equally important for Hawai'i residents, and especially *nā kūpuna*, is the need for health care to be affordable. Early identification and successful management of heart disease and cancer require access to affordable health services and medications (Braun & Browne, 1998; Lehning & Austin, 2010). Unfortunately, the high costs of deductibles, copayments, and noninsured treatments lead to delays in seeking necessary health care and may discourage elders from completing treatment or taking medications as recommended.

Compounding the problem is the fragmented system of long-term care, both in the provision and funding of services. This issue has critical implications for Native Hawaiians, who may require long-term care services early in life due to earlier onset of disability. Nationally, long-term care services and financing are undergoing major programmatic changes because of the demand for cost-effective and efficient practices for improving quality of life of individuals in need of long-term care. Improvements to the long-term care system include Aging and Disability Resource Centers (ADRCs), which offer one-stop-shopping for individuals in need of long-term care services), cash and counseling programs (through which elders and caregivers are provided vouchers

to pay for long-term care services and providers of their choice), expansion of community residential care models (such as assisted living, small group homes, geriatric foster care), and the culture change movement (i.e., to make nursing homes more “home-like” and less institutional) (Lehning & Austin, 2010). The adaptation of these or other new models that aim to streamline and humanize long-term care, while reducing costs, should be balanced and sensitive to the health profile and needs of each *kūpuna*.

Need for Culturally-Responsive Programs and Services

Quality of care also speaks to older adult preferences (Lehning & Austin, 2010), and for Native Hawaiian elders this may reflect their preferences for culturally based programs and services. As all professionals will find themselves working with increasing numbers and proportions of diverse older adults with chronic disease, this becomes an increasingly important care component. Similar to all older adults, quality care for *nā kūpuna* acknowledges their desire to remain in their own homes with an array of assistance from families, friends, and home and community-based services that honor and reflect their culture (Browne, Mokuau, & Braun, 2009). Not surprisingly, quality of life is influenced by the education and training of professionals and other service workers who provide the care. Successful interventions for Native Hawaiian elders are predicated on practitioners having an understanding of cultural values and practices that have been found to shape people’s health practices (Braun, Yee, Mokuau, & Browne, 2004).

For most Native Hawaiians, all parts of the world are defined by a spiritual source, *ho’omana*, from which flows the energy that interconnects animate and inanimate entities. The value of relationships and the recognition of reciprocity among the individual, family, environment and spiritual realms are part of Native Hawaiian cosmology (Mokuau, Reid, & Napalapai, 2002). Earlier work found that Native

Hawaiian elders who are service and program recipients prefer staff that are Native Hawaiian or are knowledgeable of their culture (Browne, Mokuau, Braun, & Choy, 2008). Important components of culturally appropriate care include: 1) respect for Native Hawaiian culture with attention to values, protocol and traditions; 2) involvement of the elder's ohana (extended family); 3) help with health literacy; and 4) navigation (Braun, Mokuau, Hunt, Ka'ano'i, & Gotay, 2002; Braun, Allison, & Tsark, 2008; Mokuau, Braun, Wong, Higuchi, & Gotay, 2008).

Implications for Research

These data point to a number of remaining critical gaps. Foremost is the need to continue to understand the reasons behind these disparities. Scholars have offered a number of possible explanations: historical trans-generational trauma, poverty, inadequate access to health services, institutional and internalized racism, discrimination, and poor health practices (Tsark et al., 1998; Kaholokula et al., 2009; Mokuau, in press). Continued research should help to disentangle reasons behind the disparities that can then hopefully lead to more targeted interventions for Native Hawaiians across the lifespan (Browne et al., 2009). Dissemination of research findings is critical in ensuring that data inform the development and funding of elder services that help *nā kūpuna* live longer and healthier lives.

Another critical gap is our very limited information on *nā kūpuna* who reside in the continental US. Much of the research on Native Hawaiians has been conducted in Hawai'i. However, nearly



"...very limited information on nā kūpuna who reside in the continental US."

40% of Native Hawaiians live in the contiguous states, primarily California, Washington, and Oregon. We need to determine if Native Hawaiians on the continent experience similar disparities, i.e., do they have shorter life expectancies than other ethnic groups in their new communities? Extending life expectancy and improving quality of life requires that we understand life expectancies, health status, health care needs, preferences for care, and utilization patterns of all *nā kūpuna*.

In addition, our understanding of the lives of Native Hawaiian elders will be strengthened with the inclusion of gender in the analyses of social and health disparities. Research across the life course consistently exposes disparities by gender, and this is especially so in later life (Gonyea & Hooyman, 2005; Moen & Chermack, 2005; Herd, 2006). For example, poverty rates for older women are nearly twice as high as for men. When we focus only on race/ethnicity and ignore gender, we may not be able to identify subgroups within ethnicities that are especially vulnerable.

A final implication for research speaks to the need to acknowledge Native Hawaiian heterogeneity (Browne et al., 2009). In other words, not all Native Hawaiians are alike. In fact, research suggests that individuals become more different (rather than more similar) with age. Each person's "historical world" provides different opportunities and constraints. As a result, aging is experienced differently by age, ethnic, racial, economic and geographical cohorts, as well as by individuals within those cohorts (Elder, 1994). Over the life course, cumulative adversity for some and cumulative advantage for others result in diverging trajectories and increasing inequality over time (Hatch, 2005). When developing interventions, it is important not to stereotype individuals by ethnicity and to always remember that "one size does not fit all."

The need will continue for study on social, health, and economic disparities and the effectiveness of culturally responsive solutions to the problems faced by Native Hawaiian elders. The way in which Native Hawaiians define themselves and their

families, communities, and environment should and will determine the shape of this discussion. In fact, *Hā Kūpuna* conducts key informant interviews and focus groups to hear directly from Native Hawaiian elders, their families, and service providers working with Native Hawaiians (Browne et al., 2008). Findings from these endeavors complement the findings in this report. For more information on these reports, visit our website <http://manoa.hawaii.edu/hakupuna>.

Conclusion

Smaller numbers of Native Hawaiians live to old age compared to other ethnic groups in the state, and this suggests the need to redesign and evaluate supports and services that can extend the gift of longevity and good health to *nā kūpuna*. Designers of services should be aware of some of the new programmatic changes and approaches to be able to determine if these new directions will ultimately extend life expectancy, decrease Years of Potential Life Lost, and improve the lives of Native Hawaiian elders. Increased attention to health promotion and chronic disease management across the life cycle that integrate Native Hawaiian health practices may ultimately have the best potential for meeting the health and long-term care needs of elders. Taken together, data suggest the need to continue work in developing an affordable health care system that supports not only acute care but health education and promotion, early prevention, early disease management and treatment, and community-based long term care. These services must honor the culture, traditions, and values of *nā kūpuna*.

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