13

Pacific Islander Health and Disease

An Overview

PAULA HEALANI PALMER

Chapter Objectives

On completion of this chapter, the health promotion student and practitioner will be able to

- Identify and describe the three subregions of Oceania and origins of Pacific Islanders in the United States
- Discuss the ethnic diversity of Pacific Islander subgroups in the United States
- Explain how changes to federal reporting of racial and ethnic categories have benefitted Pacific Islanders
- Identify and discuss social and economic disparities that affect the health outcomes of Pacific Islanders
- Describe aspects of culture shared across Pacific Islander ethnic groups
- Discuss the major health risks and disease patterns among Pacific Islanders
- Explain the integration of Pacific Islander culture with traditional medicine
- Describe health promotion approaches that complement Pacific Islander culture

PACIFIC ISLANDER ORIGINS

Pacific Islanders living in the United States have their origins in Oceania, the vast Pacific Ocean region and its more than 25,000 islands dispersed across 88 million square kilometers of sea; one-third of the Earth's surface (Bunge & Cooke, 1985; Samson, 2007). Pacific Islanders comprise the indigenous peoples from three ethnoculturally defined regions within Oceania: Polynesia, Micronesia, and Melanesia (refer to Figure 13.1).

Polynesia's 1,000 islands form a triangular shape and extend from the Hawaiian Islands in the north to Easter Island (Rapa Nui) in the east, New Zealand in the south, Tonga and Samoa (American Samoa and Samoa) in the west, and the Cook and Society Islands (e.g., Tahiti, Bora Bora, Morea) near the center. The islands of Micronesia include the Marshall Islands in the east, Kiribati in the southeast, the Caroline Islands (Palau in the west and Federate States of Micronesia, [e.g., Yap, Chuuk], near the center), and the Mariana Islands (Guam and the Northern Mariana Islands) in the northwest. Melanesia, located to the south of Micronesia and west of Polynesia, includes the nations of Vanuatu and Fiji to the east, New Caledonia to the south, New Guinea in the west, and the Solomon Islands in the north. Together, the peoples of Oceania represent numerous cultural groups and speak over 1,000 languages and dialects (Scarr, 2001). Over the past decade, genetic research and language studies have provided increasing evidence that the ancestors of Polynesians originated from aboriginal tribes in Taiwan and East Asia that migrated south around 2000 BC to *Near Oceania* (the

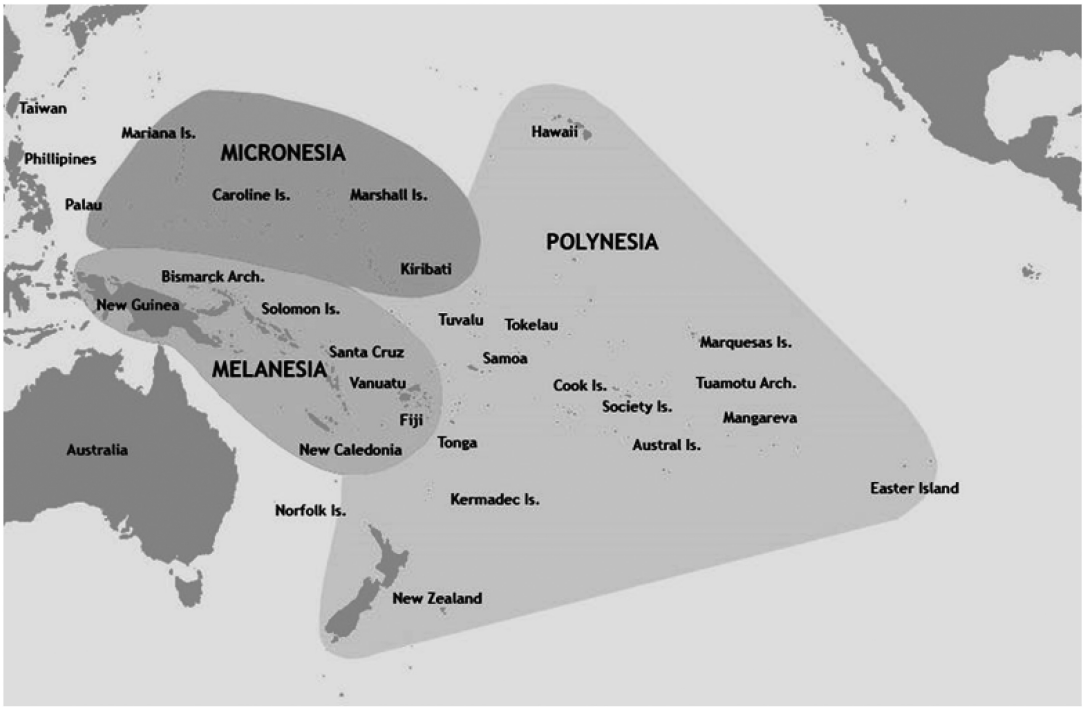

Figure 13.1 Regions Within Oceania: Polynesia, Micronesia, and Melanesia

SOURCE: Permission for reprint granted by Kahuroa. Map information based on *Vaka Moana: Voyages of the Ancestors—The Discovery and Settlement of the Pacific*, ed. K. R. Howe, 2008, p. 57.

Melanesian islands, including New Guinea, the Solomons, and the Bismarck Archipelago) before eventually voyaging east to establish colonies in *Remote Oceania* (the Polynesian and Micronesian islands) (Gray, Drummond, & Greenhill, 2009; Kayser et al., 2008). While Polynesians and Micronesians share a common genetic relationship, Melanesians appear more closely related to the Papuan peoples indigenous to New Guinea and its neighboring islands (Wollstein et al., 2010).

Even though the islands of the Pacific offered relatively little in the way of natural resources, many were colonized by the Europeans and developed as plantation economies or utilized for military and other tactical purposes. The majority of the colonized islands regained their political independence by the 1970s (Samson, 2007). U.S. expansionist activities in Oceania extended both to Polynesia and Micronesia. The Kingdom of Hawaii was autonomous until 1893 when a coup incited by a group of U.S. businessmen and carried out by the U.S. military led to the overthrow of Queen Lili'uokalani and the Hawaiian monarchy. Hawaii became a republic in 1894, was formally annexed as a U.S. territory in 1898, and became the 50th state in 1959 (Daws, 1968). In opposition to what many consider the illegal takeover of Hawaii by the U.S. government in the 1890s, a political movement for Hawaiian sovereignty began in the late 1960s and continues to this day (H.-K. Trask, 2000). Supporters of the movement continue to advocate for federal recognition of individuals with Native Hawaiian ancestry comparable to that of Native Americans and Alaskan Natives, as well as elements of self-government, such as control over land, natural resources, and cultural preservation (M. B. Trask, 2000).

In addition to indigenous Native Hawaiians, the major Pacific Islander groups living in the United States today come from American Samoa and Guam, both of which are U.S. Territories; the Commonwealth of the Northern Marianas (CNMI), a U.S. Commonwealth; the sovereign nations of the Federated States of Micronesia, Republic of the Marshall Islands, and Palau, all of which have Compacts of Free Association (COFA) with the United States; and the Kingdom of Tonga (Okihiro & Harrigan, 2005). While people born in Guam (known as Guamanians or Chamorros) and the CNMI have U.S. citizenship, individuals from American Samoa are U.S. Nationals. Under a 1986 agreement with the U.S. government, individuals from nations with COFA were permitted to migrate to the United States without regard to visa and labor certification requirements, and receive certain benefits, including access to social services, grants, and defense in return for use of the islands for strategic military purposes (Banks, Muller, & Overstreet, 2006). In 1996, COFA migrants became ineligible for federal benefit programs, including Medicaid healthcare coverage under the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA). Nonetheless, the State of Hawaii has continued to provide healthcare benefits for COFA migrants, and efforts persist among some legislators and community advocates to reverse the PRWORA restricts on healthcare benefits (Riklon, Hixon, & Palafox, 2010). High rates of out migration are expected to continue given the limited opportunities for education, employment, and healthcare services.

PACIFIC ISLANDER DEMOGRAPHICS

Defining Pacific Islanders

Pacific Islanders in the United States bring a wealth of diversity in terms of culture, language, and customs. However, until the 2000 Census, they constituted a largely invisible group (Ghosh, 2003). In 1997, the U.S. Office of Management and Budget (OMB) mandated changes to Directive 15, Race and Ethnic Standards for Federal Statistics and Administrative Reporting, which resulted in the revision of the single racial category of "Asian and Pacific Islander" to two distinct categories

"Asian" and "Native Hawaiian or Other Pacific Islander" (Office of Management & Budget, 1997). This significantly altered the manner in which census and other federal data were collected and reported. Prior to this change, the paucity and lack of disaggregated data generally masked the identity and needs of both Asian and Pacific Islander groups and severely hindered progress on vital issues regarding immigration, health access, public health outcomes, funding for social services, and related policies (Srinivasan & Guillermo, 2000; Stafford, 2010). Beginning with the 2000 Census, the "Native Hawaiian or Other Pacific Islander" category included people with "origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands." The census form question regarding race now provides separate checkboxes for people, who self-identify as either "Native Hawaiian," "Guamanian or Chamorro," "Samoan," or "Other Pacific Islander"; the latter also includes the instruction "Print race, for example, Fijian, Tongan, and so on" along with a write-in space (U.S. Census Bureau, 2012). Another significant change beginning with the 2000 Census is the option for individuals to self-identify with more than one racial and ethnic group, which given the multiracial and ethnic nature of the United States supplies invaluable information on nationwide demographic trends. It is important to note that the racial categories used in U.S. Census data collection and reporting are not based on biological, genetic, or anthropological distinctions; rather they relate to individual self-identification and social definitions of race (U.S. Census Bureau, 2012). In this chapter, we use the terms Native Hawaiian or Other Pacific Islander and Pacific Islander interchangeably to denote peoples with origins in Oceania.

Population

While still relatively small when compared with other racial and ethnic groups in the United States, the number of Pacific Islanders grew robustly between 2000 and 2010 and increased by 9.7% to 1,225,195 or 0.4% of the U.S. population (U.S. Census Bureau, 2012). The census's reporting format comprises the full range of self-identification responses and includes Native Hawaiian and Other Pacific Islanders alone or in combination with other groups (refer to Table 13.1). Mixed-race individuals make up 55.9% of Pacific Islanders in the United States, an increase of 44% between 2000 and 2010 (U.S. Census Bureau, 2012). Native Hawaiians, Samoans, Guamanians or Chamorros, Tongans, Fijians, and Marshallese, either alone or in combination with other groups, now account for the largest Pacific Islander groups in the United States, each having increased substantially (refer to Table 13.2) from 2000 to 2010. As reflected by the changes made in census reporting, there is tremendous diversity among Polynesians, Micronesians, and Melanesians living in the United States (refer to Table 13.3). The majority of U.S. Pacific Islanders live in the Western states with Hawaii (356,816) and California (286,145) accounting for about 52%. Rounding out the ten states with the most Native Hawaiian and Other Pacific Islanders alone or in combination are Washington, Texas, Florida, Utah, New York, Nevada, Oregon, and Arizona (refer to Table 13.4) (U.S. Census Bureau, 2012). According to the 2010 Census, American Samoa had a population of 55,519, Guam 159,358, and the Northern Mariana Islands 53,883. United Nations population estimates for 2010 include 111,000 for the Federated States of Micronesia (54,000 for Marshall Islands; and 20,000 for Republic of Palau). In 2010, 17.8% of Pacific Islanders living in the United States were foreign-born and came primarily from Oceania; 30.3% spoke a language other than English at home, and 8.9% had limited English proficiency (U.S. Census Bureau, 2010).

Table 13.1 U.S. Native Hawaiian and Other Pacific Islander Population in 2010

U.S. Census Race/Ethnicity Categories	*Number*	*Percentage of Total U.S. Population*
Native Hawaiian and Other Pacific Islander alone or in combination	1,225, 195	0.4
Native Hawaiian and Other Pacific Islander alone	540,013	0.2
Native Hawaiian and Other Pacific Islander in combination	685,182	0.2
Native Hawaiian and Other Pacific Islander; White	169,991	0.1
Native Hawaiian and Other Pacific Islander; Asian	165,690	0.1
Native Hawaiian and Other Pacific Islander; White; Asian	143,126	–
Native Hawaiian and Other Pacific Islander; Some Other Race	58,981	–
Native Hawaiian and Other Pacific Islander; Black or African American	50,308	–
All other combinations including Native Hawaiian and Other Pacific Islander	97,086	

SOURCE: 2012 Census Redistricting Data (Public Law 94-171) Summary File, Table P1.

NOTE: – Percentage rounds to 0.0

Table 13.2 Largest Pacific Islander Groups in the 2000 and 2010 U. S. Census

Detailed Group	*2000*	*2010*
Native Hawaiian	401,162	527,077
Samoan	133,281	184,440
Guamanian or Chamorro	92,611	147,798
Tongan	36,840	57,183
Fijian	13,581	32,304
Marshallese	6,650	22,434

SOURCE: U.S. Census Bureau, 2000 and 2010 special tabulation.

NOTE: Detailed group data represent each group either alone or in any combination.

Table 13.3 Native Hawaiian and Other Pacific Islander (NHPI) Populations by Number of Detailed Groups: 2010

Detailed Group	*Detailed NHPI Group Alone or in Any Combination**
Total	1,225,195
Polynesian	
Native Hawaiian	527,077
Samoan	184,440
Tahitian	5,062
Tongan	57,183
Tokelauan	925
Other Polynesian	9,153
Micronesian	
Guamanian or Chamorro	147,798
Mariana Islander	391
Saipanese	1,031
Palauan	7,450
Carolinian	521
Kosraean	906
Pohnpeian	2,060
Chuukese	4,211
Yapese	1,018
Marshallese	22,434
I-Kiribati	401
Other Micronesian	29,112
Melanesian	
Fijian	32,304
Papua New Guinean	416
Solomon Islander	122
Ni-Vanuatu	91
Other Melanesian	222
†Other Pacific Islander	240,179

SOURCE: U.S. Census Bureau (2010), Census special tabulation.

*The numbers tallied for NHPI represent responses rather than respondents (some respondents may report multiple groups), so they do not add up to the total NHPI population).

†Includes respondents who checked the "Other Pacific Islander" category.

Table 13.4 Native Hawaiian and Other Pacific Islander Alone or in Combination, Most Populated States: 2010

State	*Population*
Hawaii	356,000
California	286,000
Washington	70,000
Texas	48,000
Florida	40,000
Utah	37,000
New York	36,000
Nevada	33,000
Oregon	26,000
Arizona	25,000

SOURCE: U.S. Census Bureau (2010).

Income

The median income for Native Hawaiian and Other Pacific Islanders in 2010 was $52,364 compared with $67,892 for non-Hispanic white families (U.S. Census Bureau, 2010). According to American Community Survey data, between 2007 and 2011, 14.3% of the U.S. population lived below the poverty level. For Pacific Islanders, the rate was 17.6% compared with non-Hispanic whites (9.9%), Asians (11.7%), Hispanic/Latinos (23.2%), Black/African-American (25.8%), and American Indian/Alaskan Native (27.0%). Among Pacific Islander groups, the poverty level was highest for Tongans and Samoans at roughly 18% and lowest for Fijians at slightly over 6% (U.S. Census Bureau, 2013).

Education

As a group, Native Hawaiian and Other Pacific Islanders have lower educational attainment than the national average. From 2006 to 2010, 27.9% of the total population of single-race individuals aged 25 years and older had attained a bachelor's degree or higher, compared with single-race Asians (50.2%), whites (29.3%), black or African-Americans (17.7%), Native Hawaiian and Other Pacific Islanders (14.4%), American Indian and Alaska Natives (13.0%), and Hispanic/Latinos (13%). Among single-race Native Hawaiians and Other Pacific Islanders, Guamanians or Chamorro had the highest number of college graduates at 16.8% followed by Native Hawaiians (15.9%) and Samoans (10.0%). Mixed-race Native Hawaiians and Other Pacific Islanders (22.7%) were far more likely to graduate from college than their single-race counterparts (U.S. Census Bureau, 2012).

Insurance Coverage

Insurance coverage improves health outcomes by facilitating access to care. Other benefits can include prevention education and services and continuity of care for children and those with chronic conditions (Cummings, Lavarreda, Rice, & Brown, 2009; Hadley, 2003;

Hadley & Cunningham, 2005). According to national data from 2008, 24.3% of Pacific Islanders were uninsured compared with 16.9% of whites and 13.4% of Asians (Pleis, Lucas, & Ward, 2009). In addition, while 67.8% of Whites had private insurance, this was true for only 49.4% of Pacific Islanders. In terms of public insurance, 24.5% of Pacific Islanders versus 12.2% of whites and 9.6% of Asians relied on Medicaid for their health care.

PACIFIC ISLANDER CULTURE AND HEALTH BELIEFS

There is no single Pacific Islander culture as each ethnic subgroup has its own rich history, language, and traditions. Nonetheless, there are commonalities that all Pacific Islanders share, including strong emphasis on the family and extended family; group harmony; interdependence among group members; holism; reverence for nature; and spirituality. The latter may or may not be attached to formal religious practices (Leong, 2008). Pacific Islander cultural values and traditions often expand to include their health beliefs and native medicine practices. For example, among Native Hawaiians, the concepts of *Lokahi* (harmony), *'aina* (earth or nature), *mana* (life's energy), and *ohana* (family) are central to their worldview, and any disruption can upset balance resulting in maladaptive behaviors and negative health effects (McCubbin & Marsella, 2009). The Native Hawaiian concept of health extends beyond the Western definition that focuses on physical health to also include both spiritual and cultural health (McMullin, 2005). Despite heavy emphasis on Western medicine in the United States, many Native Hawaiians also seek out traditional medicine treatments, such as *ho'olomilomi* (holistic healing massage), *lau'au lapa'au* (herbal remedies), and *ho'oponopono* (practices to promote harmonious relationships) from Native Hawaiian practitioners (Chang, 2001; Kent & Oh, 2010).

Reciprocity and the nurturance of social ties are two cultural values of special importance to Tongans (Ka'ili, 2005). For Tongans, health is not merely the absence of disease; rather optimal health encompasses good quality of life and being of service to God and family (Ember & Ember, 2004). Two systems of medicine are utilized by Tongans: Western medicine (*haki faka-Palangi*) and traditional medicine *(mahaki faka-Tonga*), the latter delivered by traditional healers usually women, who specialize in particular types of healing (Toafa, Moata'ane, & Guthrie, 2001). Tongan traditional medicine is strongly linked to the supernatural, and some illnesses are thought to be brought on out of disrespect to God or someone in the community of high rank (Ember & Ember, 2004). As with other Polynesian groups, *mana* is an important and powerful component in the healing process and is connected with the spiritual world (Toafa et al., 2001). Massage and herbal medicines are common native treatments that may be used alone or in combination with Western medicine. Samoan culture and traditions are defined by *Fa'a Samoa* or Samoan way of life, a well-organized comprehensive system of responsibilities and behaviors within a societal context. Illness results when spiritual beliefs, social relationships, and moral principles are disrupted (Mishra, Hess, & Luce, 2003). While Western medicine is the dominant treatment mode among Samoans, *Fofo,* Samoan indigenous healers are utilized by those with more traditional values. Micronesians are collectivist in nature, value cooperation, and avoid confrontation and divergence from cultural norms (Okamoto et al., 2008). Chamorros, the major ethnic group on Guam, Micronesia's largest island, traditionally believe that respect for and connection with *taotaomona* (island spirits) is related to good health (Balajadia, Wenzel, Huh, Sweningson, & Hubbell, 2008). Traditional remedies made from plant sources, special diets, and massage, all with curative powers

may be used alongside Western medicine treatments (Tseng, Omphroy, Cruz, Naval, & Haddock, 2004). An example of a widely used traditional remedy is Kava, a bushy plant that grows throughout much of Oceania and is used in various forms (e.g., power, beverage) in many Pacific Island nations both to treat stress and anxiety and complement cultural and ritualistic practices (Singh, 2009).

Any discussion of Pacific Islander culture and traditional values must address the lingering effects that colonization has had on the health and well-being of the indigenous peoples of Oceania. Beginning in the 18th century, European explorers, missionaries, and traders brought with them diseases that decimated Pacific Islander populations, and they also held little regard for fragile island environments or the highly developed social systems and cultural and spiritual beliefs of the island inhabitants (Gracey & King, 2009). The resulting health, mental health, and social disparities experienced by Pacific Islanders are staggering and reflect the damage incurred when entire populations lose control of their land, identity, and futures (King, Smith, & Gracey, 2009).

Though different in subtle ways across ethnic subgroups, strong ties to the land, family, God, and the spirit world color the traditional health beliefs of Pacific Islanders. Native cultural values and medical practices developed over the generations across the many island nations of the Pacific arrive on U.S. shores with migration. Understanding their importance within Pacific Islander communities is essential to the development and delivery of effective health services.

HEALTH CHALLENGES AND DISPARITIES AMONG PACIFIC ISLANDERS

Compared to most ethnic groups, Pacific Islanders suffer from higher rates of leading health disparity indicators, such as poor maternal and child health outcomes, hypertension, obesity, diabetes, substance use, tuberculosis, liver disease, hepatitis B, asthma (CDC, 2002). Pacific Islanders are particularly vulnerable to the development of chronic diseases, which account for the majority of their morbidity and mortality. Here we highlight some of the main health challenges facing Pacific Islanders in the United States.

Perinatal Health and Birth Outcomes

Health status during the perinatal period, defined as 5 months prior to and 1 month after birth, is an important indicator of future health for both women and their children. Despite considerable progress toward the reduction of infant and maternal morbidity in the United States, Pacific Islanders continue to experience poorer outcomes than most other racial and ethnic groups. For example, in a 2008 national sample, Pacific Islander females were at higher risk than white, Hispanic, black, and American Indian/Alaska Native women for gestational diabetes, a condition that occurs during pregnancy, which when untreated can lead to complications during delivery as well as the development of chronic diabetes for both mother and child later in life (U.S. Department of Health and Human Services [USDHHS], 2011).

Preterm birth and low birth weight, both key measures of perinatal outcome, are impacted by a range of maternal factors, such as demographic risks (e.g., low socioeconomic status, age younger than 17, race and ethnicity), existing medical conditions (e.g., chronic disease, poor obstetric history), medical risks during pregnancy (e.g., low weight gain, hypertension/toxemia), behavioral and environmental risks (e.g., tobacco, alcohol and drug use, poor nutrition), and health care risks (e.g., absent or inadequate prenatal care) (Bennett & Kotelchuck, 2005). Perinatal outcome data collected in California and Hawaii from 2003 to 2005 revealed that, whereas

90.4% of non-Hispanic white women had received early prenatal care, this was true for only 75.1% of Native Hawaiian, 76.9% of Guamanian, 69.7% of Samoan, 62.7% of Tongan, and 48.4% of Marshallese women (Schempf, Mendola, Hamilton, Hayes, & Makuc, 2010). Moreover, compared with non-Hispanic whites, Native Hawaiian, Chamorro, Marshallese, Samoan, and Tongan women were more likely to deliver preterm and low birth weight babies (Schempf et al., 2010). The effects of cumulative stress beginning in early life and perpetuated by environmental factors, violence, discrimination, racism, and social class disparities also appear to contribute to preterm birth in some women through hypothalamic-pituitary-adrenal dysfunction that stimulates premature uterine contractions (Diego et al., 2006; Kramer & Hogue, 2009). Preterm and low birth weight infants face a range of possible long-term health problems, cognitive and developmental disabilities, and potentially neonatal death. Even though the infant mortality rate in the United States has decreased considerably, Native Hawaiian babies are still 1.7 times more likely to die during the first year of life compared with non-Hispanic white babies (National Center for Health Statistics, 2007). Unfortunately, for many Pacific Islanders health disparities begin early in life.

Noncommunicable Diseases

Noncommunicable diseases, such as heart attack, stroke, hypertension, diabetes, and certain cancers account for over 70% of mortality in the United States and derive primarily from four modifiable risk factors: tobacco use, sedentary lifestyle, poor dietary habits, and excessive alcohol consumption (Kung, Hoyert, Xu, & Murphy (2008). Pacific Islanders are disproportionately affected by most of the major chronic diseases and their risk factors as detailed in the following section.

Substance Use

In 2011, over 22.5 million or 8.7% of Americans 12 years and older had used an illicit drug in the past 30 days, 22% had smoked a cigarette, and 21.9% had engaged in heavy drinking (USDHHS, 2012). Moreover, the cost of substance use—tobacco, alcohol, and illicit drugs—to the nation for medical care, crime, and lost productivity was estimated at over 6 billion dollars. Compared with other racial and ethnic groups, little is known about the biological, psychosocial, and environmental factors impacting substance use among Pacific Islanders, who have among the highest rates in the United States.

Tobacco. Tobacco use is the number one preventable cause of morbidity and mortality in the United States and is responsible for more deaths each year than HIV/AIDS, illegal drug use, alcohol use, motor vehicle injuries, suicides, and homicides combined (USDHHS, 2010). Among the health risks facing cigarette smokers are cardiovascular diseases (e.g., heart attack and stroke) and respiratory diseases (e.g., asthma, emphysema, bronchitis, chronic airway obstruction), various types of cancers (e.g., lung throat, esophageal, pancreatic, stomach), bone fractures, and cataracts(USDHHS, 2004). Cigarette smoking remains disproportionately high among Pacific Islanders, despite a dramatic decline nationally over the past few decades. Between 2002 and 2005, 30-day smoking prevalence among adult Pacific Islander males and females was 35.9% and 26.6%, respectively, compared with the national average of 30.0% for males and 23.9% for females (Caraballo, Yee, Gfroerer, & Mirza, 2008). Data from a national adolescent sample collected between 2001 and 2007 revealed that male and female Pacific Islander high school students were second only to white students in terms of current tobacco use prevalence

at 24.8% and 26.5%, respectively. Pacific Islander females at 25.8% had higher rates of past month smoking than Pacific Islander males at 23.7% (Lowry, Eaton, Brener, & Kann, 2011). The elevated rates of tobacco use among Pacific Islander girls and women are particularly disconcerting. The dangers of smoking while pregnant to the developing fetus and deleterious consequences of second-hand smoke for children are well-documented and give rise to complications during pregnancy and delivery, as well as contribute to sudden infant death syndrome, asthma, and a wide range of other physical, behavioral, and cognitive impairments (Murin, Rafii, & Bilello, 2011). Pacific Islander adolescents also have the highest rate of current smokeless tobacco use at 9.8% compared with whites (9.6%), Hispanics (4.7%), Asians (3.9%), and blacks (2.9%) (Lowry et al., 2011). These data indicate that Pacific Islander tobacco use begins briskly in adolescence and progresses into adulthood. Moreover, it signals the need for aggressive prevention efforts during adolescence and cessation strategies from adolescence and throughout adulthood to halt or at least slow progression to nicotine dependence.

Alcohol. Alcohol abuse and dependence can lead to a variety of negative health consequences, such as liver disease, neurological conditions, certain cancers, and cardiovascular disease (Midanik et al., 2004). Excessive alcohol use is also associated with increased violence and risk-taking behaviors, accidents, and injuries (Chaloupka, Grossman, & Saffer, 2002). National data from 2005 to 2007 indicated that 23.6% of Pacific Islander males engaged in heavy use of alcohol or binge drinking (five or more drinks in succession) compared to white (15.6%), Hispanic/Latino (14.3%), black (10.7%), and Asian (6.2%) males (CDC, 2010). Especially troubling is the high use of alcohol among Pacific Islander youth and women. In a nationally representative sample of high school students from 2001 to 2007, 32.3% of Pacific Islanders reported binge drinking compared with 31.5% for whites, 27.7% for Hispanics, 12.6% for blacks, and 12.1% for Asians (Lowry et al, 2011). Between 2007 and 2009, Pacific Islander women aged 18 and older had the highest rate of binge drinking at 27.7% compared with all other racial and ethnic groups in a national survey (USDHHS, 2011). Alcohol use during pregnancy can result in birth defects, such as fetal alcohol syndrome as well as a host of deficits in attention, memory, and cognitive processes. Binge drinking appears to be particularly damaging to the developing fetus due to the high concentration of alcohol exposure over an extended time period (Maier & West, 2001). These findings underscore the need for culturally attuned education and treatment programs designed specifically for Pacific Islanders.

Illicit drugs. The use of drugs, such as cannabis (e.g., marijuana, hashish), stimulants (e.g., cocaine, methamphetamine), opioids (e.g., heroin, morphine), hallucinogens (e.g., LSD, psilocybin mushrooms), and inhalants (e.g., glue, paint), carries the potential risk of serious health, social, and legal consequences. These include a broad range of poor health and mental health outcomes, including cardiovascular, pulmonary, and liver disease, neurocognitive deficits, psychoses, accidents and injury, and suicide. This is in addition to social and personal difficulties related to family discord and employment problems associated with addiction, and possibly incarceration for drug-related crimes (Degenhardt & Hall, 2012). Findings from a 2008 national survey of high school students revealed that Pacific Islanders had the highest rate of 30-day cocaine use (7.0%) compared with Hispanic/Latinos (4.3%), whites (2.4%), Asians (2.1%), and blacks (1.9%) (CDC, 2009b). In addition, Pacific Islander students had the highest lifetime use for both heroin

and methamphetamine. Prevalence data for 30-day marijuana use among U.S. high school students from 2001 to 2007 revealed that both Pacific Islander males (26.8%) and females (19.5%) had the highest rates of use compared with whites, blacks, Hispanic/Latinos, and Asians of both genders (Lowry et al., 2011). In a nationally representative sample from 2007 to 2009, Pacific Islander females 18 years and older had the highest prevalence of past 12-month illicit drug use at 17.6% compared with American Indian/Alaska Natives (17.5%), blacks (12.2%), whites (11.9%), Hispanics (9.4%), and Asians (5.4%) (USDHHS, 2011). As is the case with tobacco and alcohol use, illicit drug use can be particularly harmful for pregnant women and the developing fetus resulting in a variety of long-term poor health and social outcomes (Minnes, Lang, & Singer, 2011; Sithisarn, Granger, & Bada, 2012).

Substance Use Single- and Multiple-Race Differences. Complicating our understanding of substance use among Pacific Islanders is their racial and ethnic diversity. Past research has indicated that multiracial youth are at higher risk for cigarette smoking (Unger, Palmer, Dent, Rohrbach, & Johnson, 2000) and alcohol and drug use (Choi, Harachi, Gillmore, & Catalano, 2006). With over 56% of Native Hawaiian and Other Pacific Islanders in the 2010 census reporting that they belong to more than a single race or ethnic group, recent research has looked at how multiracial status affects substance use among Pacific Islanders. Findings from a study comparing the prevalence of both past year alcohol and illicit drug dependence revealed that multiple-race Native Hawaiians and multiple-race Other Pacific Islanders (e.g., Samoans, Tongans, Chamorros) were more likely to be alcohol dependent when compared with their single-race counterparts, 6.2% versus 3.8% and 5.6% versus 4.0%, respectively. This was also true for multiple-race and single-race Other Pacific Islanders with regard to illicit drug dependence at 4.8% compared with 1.2%. However, it did not hold for multiple- and single-race Native Hawaiians, who were almost equal in drug dependence prevalence (Sakai, Wang, & Price, 2010). The degree to which environmental, genetic, socioeconomic, cultural, and other factors are responsible for single- and multiple-race differences is unclear but deserves further investigation. Given the increasing multiracial nature of Pacific Islanders and potential for poor health outcomes, gaining an understanding of multiracial differences will be helpful for disease prevention and treatment.

Overweight/Obesity

Overweight and obesity place individuals at risk for a number of chronic conditions, such as metabolic syndrome, type 2 diabetes, hypertension, coronary artery disease, certain cancers, osteoarthritis, poor reproductive functioning, liver and gallbladder disease, and certain respiratory conditions (Kopelman, 2007). Pacific Islander peoples have among the highest rates of obesity in the world (Gill, 2006). Utilizing a national sample in 2010, the combined prevalence for overweight and obesity using body mass index (BMI) was 75.2% for Pacific Islanders compared with 71.2% for Hispanics, 70.1% for blacks, 59.8% for whites, and 41% for Asians (Schiller, Lucas & Peregoy, 2012). The factors that contribute to the high rates of overweight and obesity among Pacific Islanders are multifaceted and attributable to genetics, socioeconomic status, and adaptation to a Western lifestyle that includes low levels of physical activity and a diet high in fat, sugar, and refined carbohydrates (Furusawa et al., 2010; Wells, 2009).

Traditionally, Pacific Islanders viewed body weight in terms of the function it served. For example, full-bodied women were associated with good health and fertility, whereas

muscular men were viewed as competent warriors and dependable providers (Teevale, 2011). Early accounts of Pacific Islanders by European explorers and later missionaries found them to be strong and well-built but not overweight (Okihiro & Harrigan, 2005). Some body image studies have revealed that "average-sized" not obese bodies are considered generally the most desirable by both Pacific Islander adults and adolescents (Teevale, 2011), while others have demonstrated satisfaction with above average BMI, the latter in part a result of less emphasis on body size than on other aspects of life that are considered more important (Kirk, 2008). The traditional agricultural and fishing livelihoods of Pacific Islanders demanded moderate to high caloric intake, which was supplied by a diet of nutrient-dense root foods, such as taro and yams complemented by fish, pork, chicken, ocean vegetables, and a variety of island fruits (Hughes & Marks, 2009).

With colonization came drastic changes, including cultural trauma, loss of land, disruption of traditional work practices, and dramatic modifications in diet away from native foods to fat-laden, salty meats (e.g., canned corned beef), polished rice, and other food imports with little nutritional value (Hughes & Lawrence, 2005). In addition to American fast foods, Pacific Islanders in Hawaii and the continental United States have integrated various types of culturally derived fast foods into their diet, many of which are high in fat, sodium, and low-fiber carbohydrates, such as Spam musubi (white rice and canned meat) and manapua (pork-filled buns) (Davis et al, 2004). Unhealthy food imports contribute significantly to high rates of obesity in Micronesia. In the small island country of Nauru, over 70% of women are obese, and 50% of men and 60% of women in the Marshall Islands are either overweight or obese (Okihiro & Harrigan, 2005). As a response to the obesity and chronic disease crisis, some Pacific Islanders have begun to revisit their traditional diets and activities both as a means of improving health and reinvigorating the connection to their culture. For example, community garden projects have provided Pacific Islanders with the opportunity to take part in the cultivation and sharing of their native foods, and participation in traditional dance and sports activities provide important cultural linkages while improving health (Fujita, Braun, & Hughes, 2004; Furubayashi & Look, 2005).

Cardiovascular Disease

In the United States, more people die from cardiovascular diseases, including heart attack and stroke than any other single cause (Kochanek, Xu, Murphy, Miniño, & Kung, 2011). Pacific Islanders are more likely than whites or Asians to have one or more risk factors for cardiovascular disease, such as a history of cigarette smoking, being overweight or obese and sedentary, and having diabetes, an unhealthy diet, or hypertension (Henderson et al., 2007). Compared with non-Hispanic whites in 2010, Pacific Islanders were three times more likely to be diagnosed with coronary artery disease (Schiller et al., 2012). Of all risk factors, hypertension is most commonly linked to increased risk for heart attack and stroke. In 2010, the age-adjusted percentage for people 18 years and older with hypertension was 40.8% for Pacific Islanders compared with 23.9% for non-Hispanic whites (Schiller et al., 2012). Pacific Islanders were 4.2 times more likely to suffer a stroke than non-Hispanic whites. While overweight/obesity and excessive salt intake contribute considerably to hypertension, some research suggests that there may also be genetic susceptibility for Native Hawaiians and other Pacific Islanders. Other factors associated with increased risk for cardiovascular disease include psychosocial stressors, such as employment problems, poor interpersonal relationships, and emotional distress, which over time

may cause cortisol dysregulation leading to atherosclerosis, heart attack, or stroke (Dupre, George, Liu, & Peterson, 2012; Matthews, Schwartz, Cohen, & Seeman, 2006). Research with Native Hawaiians revealed that both perceived racism and acculturation to mainstream U.S. culture predicted a greater likelihood of being hypertensive (Kaholokula, Iwane, & Nacapoy, 2010). Culturally attuned intervention strategies aimed at reducing risk factors associated with cardiovascular disease are essential for decreasing the high rates seen in Pacific Islander populations.

Diabetes

Diabetes, a group of diseases stemming from the body's inability to regulate blood glucose, affects roughly 26 million people or 8.3% of the U.S. population, with an additional 79 million or 35% classified as prediabetic (CDC, 2011). Risk factors for diabetes include, but are not limited to, impaired glucose tolerance, insulin resistance, hypertension, overweight/obesity, sedentary lifestyle, and family history (CDC, 2011). Type 2 diabetes accounts for approximately 90 to 95% of all diagnosed cases and has been increasing rapidly over the past several decades (CDC, 2011). Complications from diabetes contribute to an array of serious health outcomes, such as heart attack, stroke, renal disease, blindness, and amputation of extremities (Schiller et al., 2012). Racial and ethnic groups in the United States are disproportionately affected by diabetes, and this is especially true for Pacific Islanders. In 2010, Pacific Islanders 18 years and older were 3.1 times more likely to have diabetes than whites (Schiller et al., 2012). A large study of race/ethnic-specific diabetes prevalence in California, the state with the second largest Pacific Islander population, revealed that Pacific Islanders had the highest diabetes prevalence among all groups at 18.2% compared with 13.4% for Native Americans, 14.0% for Latinos, 13.7% for African-Americans, and 7.3% for whites (Karter et al., 2012). In Hawaii, Native Hawaiians are 5.7 times more likely to die as a result of complications from diabetes (Schiller et al., 2012). These disparities also extend to American Samoa where 52.3% of males and 42.4% of females between 25 and 64 years of age have type 2 diabetes (American Samoa Department of Health, 2007). The high prevalence of diabetes among Pacific Islanders calls for comprehensive approaches to prevention and control that incorporate aspects of culture and support a healthy lifestyle. A community-based participatory research approach to diabetes prevention in Hawaii that incorporated issues important to community members, such as cultural eating expectations, cost of healthy food choices, and strategies for effective communication with physicians, resulted in modest weight and blood pressure reduction and improved physical functioning after 12 weeks (Mau et al., 2010).

Cancer

After cardiovascular disease, cancer is the second leading cause of death in the United States (Heron, 2011). Relatively small sample sizes from surveillance and research studies, racial and ethnic misclassifications, and the lack of disaggregated data have hindered past efforts to understand the factors that impact cancer among Pacific Islanders (Liu, Tanjasiri, & Cockburn, 2011). National Surveillance, Epidemiology, and End Results (SEER) data collected between 1998 and 2002 from state and regional cancer registries provided important incidence and mortality rate data for Native Hawaiians, Samoans, and Tongans to shed light on the most common cancers affecting these groups (Miller, Chu, Hankey, & Ries, 2008). For Pacific Islander females, the incidence of all cancers combined was highest for Tongan women (504.7 per 100,000; 95% CI: 414.1, 616.6), followed by Native Hawaiians

(488.5 per 100,000; 95% CI: 466.5, 511.3) and Samoans (472.0 per 100,000; CI: 421.5, 528.6); all three groups surpassed the rate for non-Hispanic white females (referent group) (448.5 per 100,000; 95% CI: 447.3, 449.6) (refer to Table 13.5a). Breast cancer incidence was highest among Native Hawaiians (175.8 per 100,000; CI: 163.0, 189.4). Lung, endometrial, and colorectal cancers rounded out the top three cancers for the Pacific Islander groups represented. In terms of cancer mortality, Samoan females had the highest rate for all cancers combined (209.3 per 100,000; CI: 176.5, 248.2) when compared with Native Hawaiians (198.9 per 100,000; CI: 184.4, 214.4) and whites (171.7 per 100,000; CI: 171.1, 172.2); information was not available for Tongan women (refer to Table 13.5b). Lung and breast cancer were the first and second causes of mortality among Native Hawaiian, Samoan, and white women. Lung cancer mortality was highest for Native Hawaiian females (47.6 per 100,000; CI: 40.6, 55.6), while breast cancer was highest for Samoan females (36.2 per 100,000; CI: 24.0, 54.9). Although these data are limited and do not fully represent all of the major Pacific Islander groups in the United States, the data clearly demonstrate that by and large female Pacific Islander rates were higher than or comparable to those of non-Hispanic white females.

Cigarette smoking among Pacific Islander females contributes to elevated mortality from lung and breast cancer (Cornfield et al., 2009; Xue, Willett, Rosner, Hankinson, & Michels, 2011). Low utilization of screening with either mammogram or clinical- or self-breast examination thwarts early breast cancer detection, yet is common among Native Hawaiian, Samoan, and Tongan females (Gotay et al., 2000; Mounga & Maughan, 2012; Tanjasiri, LeHa'uli, Finau, Fehoko, & Skeen, 2002). Factors that may avert timely screening are lack of health information, cultural beliefs, and fatalism. In a study of Samoan women and early breast cancer detection, participants' reasons for not being screened included beliefs that cancer was incurable, unpreventable, and the will of God (Ishida, Toomata-Mayer, & Braginsky, 2001). In addition, modesty and perceived rough handling of the breast during mammography were deterrents to screening. The belief that cancer inevitably leads to death is common among Tongan females and an indication that culturally adapted cancer education may not be widespread in their communities (McMullin, Taumoepeau, Talakai, Kivalu, & Hubbell, 2008).

According to SEER data for males, incidence for all cancers combined was highest for Samoans (566.7 per 100,000; CI: 498.8, 645.5), followed by Native Hawaiians (531.6 per 100,000; CI: 503.7, 61.1), and Tongans (428.8 per 100,000; CI: 329.9, 555.9); all were lower than non-Hispanic whites (587.0%; referent group) (refer to Table 13.6a). Lung and prostate cancer were most common among Native Hawaiian, Samoan, and Tongan males; Samoans had the highest incidence of lung cancer (111.9 per 100,000; CI: 84.4, 151.1) (Miller et al., 2008). Samoan males had the highest overall cancer mortality (293.9 per 100,000; CI: 247.6, 348.6) compared with Native Hawaiians (263.7 per 100,000; CI: 243.7, 285.4) and non-Hispanic whites (241.3 per 100,000; CI: 240.5, 242.1) (refer to Table 13.6b). Lung was the leading cause of cancer mortality; Native Hawaiians had the highest rate followed by Samoans; Tongan data were not available. Similar to females, the elevated rates of lung cancer mortality for Pacific Islander men reflect their high cigarette smoking prevalence.

In general, Pacific Islanders have poor cancer survival rates compared with most other racial and ethnic groups. For instance, the 5-year relative survival rate for all cancers for Native Hawaiians was 47% compared with 57% for whites and 55% for all races (CDC, 2002). This is largely the result of either not seeking

Table 13.5a Female Top Three Age-Adjusted Cancer Incidence Rates per 100,000 (1998–2002)

Native Hawaiian			*Samoan*			*Tongan*			*Non-Hispanic White*		
Type	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*
All Cancers	488.5	(466.5, 511.3)	All Cancers	472.0	(421.5, 528.6)	All Cancers	504.7	(414.1, 616.6)	All Cancers	448.5	(447.3, 449.6)
Breast	175.8	(163.0, 189.4)	Breast	102.5	(81.7, 129.5)	Breast	118.0	(78.1, 181.2)	Breast	145.2	(144.5, 145.8)
Lung	69.7	(61.2, 79.1)	Endo-metrium	66.1	(50.3, 88.2)	Endo-metrium	91.2	(56.4, 150.1)	Lung	59.0	(58.6, 59.4)
Colorectum	44.0	(37.3, 51.6)	Lung	56.9	(39.6, 81.3)	n/a	n/a	n/a	Colorectum	47.6	(47.2, 47.9)

SOURCE: Miller, Chu, Hankey, and Ries (2008). Cancer incidence and mortality patterns among specific Asian and Pacific Islander populations in the U.S. *Cancer Causes & Control, 19* (3), 227–256.

Table 13.5b Female Top Three Age-Adjusted Cancer Mortality Rates per 100,000 (1998–2002)

Native Hawaiian			*Samoan*			*Tongan*			*Non-Hispanic White*		
Type	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*
All Cancers	198.9	(184.4, 214.4)	All Cancers	209.3	(176.5, 248.2)	n/a	n/a	n/a	All Cancers	171.7	(171.1, 172.2)
Lung	47.6	(40.6, 55.6)	Lung	42.0	(27.1, 63.7)	n/a	n/a	n/a	Lung	44.5	(44.2, 44.8)
Breast	33.5	(27.9, 40.1)	Breast	36.2	(24.0, 54.9)	n/a	n/a	n/a	Breast	27.8	(27.5, 28.0)
Pancreas	16.8	(12.7, 21.8)	n/a	n/a	n/a	n/a	n/a	n/a	Colorectum	17.3	(17.1, 17.5)

SOURCE: Miller, Chu, Hankey, and Ries (2008). Cancer incidence and mortality patterns among specific Asian and Pacific Islander populations in the U.S. *Cancer Causes & Control, 19* (3), 227–256.

Table 13.6a Male Top Three Age-Adjusted Cancer Incidence Rates per 100,000 (1998–2002)

Native Hawaiian			*Samoan*			*Tongan*			*Non-Hispanic White*		
Type	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*
All Cancers	531.6	(503.7, 61.1)	All Cancers	566.7	(498.8, 645.5)	All Cancers	428.8	(329.9, 555.9)	All Cancers	587.0	(585.6, 588.5)
Prostate	119.7	(106.1, 135.1)	Prostate	144.1	(110.0, 190.4)	Lung	107.0	(55.2, 193.0)	Prostate	170.0	(169.3, 170.8)
Lung	109.8	(97.4, 123.9)	Lung	111.9	(84.4, 151.1)	Prostate	85.0	(44.5, 157.4)	Lung	89.2	(88.7, 89.8)
Colorectum	65.7	(56.1, 77.1)	Liver	54./5	(35.2, 86.9)	n/a	n/a	n/a	Colorectum	65.6	(65.2, 66.1)

SOURCE: Miller, Chu, Hankey, and Ries (2008). Cancer incidence and mortality patterns among specific Asian and Pacific Islander populations in the U.S. *Cancer Causes & Control, 19* (3), 227–256.

Table 13.6b Male Top Three Age-Adjusted Cancer Mortality Rates per 100,000 (1998–2002)

Native Hawaiian			*Samoan*			*Tongan*			*Non-Hispanic White*		
Type	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*	*Type*	*Rate*	*95% CI*
All Cancers	263.7	(243.7, 285.4)	All Cancers	293.9	(247.6, 348.6)	n/a	n/a	n/a	All Cancers	241.3	(240.5, 242.1)
Lung	87.7	(76.4, 100.7)	Lung	74.0	(53.6, 102.9)	n/a	n/a	n/a	Lung	72.2	(71.8, 72.7)
Colorectum	26.9	(20.8, 34.9)	Stomach	40.9	(24.1, 67.6)	n/a	n/a	n/a	Prostate	27.7	(27.4, 28.0)
Prostate	21.9	(15.7, 30.1)	Prostate	36.2	(18.9, 64.4)	n/a	n/a	n/a	Colorectum	24.6	(24.3, 24.8)

SOURCE: Miller, Chu, Hankey, and Ries (2008). Cancer incidence and mortality patterns among specific Asian and Pacific Islander populations in the U.S. *Cancer Causes & Control, 19* (3), 227–256.

treatment until the cancer is advanced and/or not adhering to treatment (Goggins & Wong, 2007). Cancer is also a major health concern for Pacific Islanders who live outside the United States. For example, high rates of cancer occur among people living in the Marshall Islands, who were exposed to high levels of radiation from U.S. nuclear testing in the Pacific region from 1946 to 1958 (Palafox, 2010). An added challenge for many Pacific Islanders outside of the United States is limited access to cancer screening and treatment. For instance, mammography is unavailable in Tonga, and individuals seeking cancer treatment in the Cook Islands and Tokelau must travel to New Zealand for services (Dachs et al., 2008). Understanding the limitations to detection and treatment is essential to reducing cancer health disparities among Pacific Islanders.

Mental Health

The general lack of mental health research with Pacific Islanders coupled with the aggregation of mental health data for Asian Pacific Islander subgroups in large-scale national studies has limited our knowledge regarding the scope of the mental disorders affecting them (Kanazawa, White, & Hampson, 2007). Symptoms of mental distress or illness among Pacific Islanders may be associated with disharmony within the family or extended social group and loss of cultural traditions resulting in depression, anxiety, isolation, and substance use (Leong, 2008). Studies of Native Hawaiians living in Hawaii have revealed high rates of depression among both youth and adults compared with other racial and ethnic groups (Mokuau, 1990; Yuen, Nahulu, Hishinuma, & Miyamoto, 2000). In addition, perceived discrimination and racism are associated with increased levels of stress among Native Hawaiians (Kaholokula et al, 2012).

Suicide rates among Native Hawaiians are highest among youth and drop off after young adulthood (Else, Andrade, & Nahulu, 2007). A study conducted in 2009 revealed that Native Hawaiian and Other Pacific Islander high school students were more likely to report having made a suicide attempt compared with other racial and ethnic groups combined, 11.9% and 6.3%, respectively (CDC, 2009). In addition to common risk factors for suicide, such as previous attempts, family history, drug abuse, and mental illness, alcohol consumption and family conflict are significantly associated with suicide planning and attempts among youth in Hawaii (Yuen et al., 2000). Strong, supportive family relationships and parental bonding may serve as protective factors that discourage suicide attempts among Pacific Islander youth (Else et al., 2007). Research on suicide across selected Pacific Islander groups, revealed extremely high rates among Micronesians, Guamanians, and Samoans (Booth, 1999). Common themes underlying suicides across these Pacific Islander subgroups were related both to intergenerational conflict within families and stressors associated with the sociocultural shift to a Western lifestyle, in which indigenous peoples have been largely separated from their traditions.

Treatment for Pacific Islanders with mental illness may benefit from practitioners and therapies that take history and culture into account. An alternative for Pacific Islanders to traditional Western psychology approaches, which are grounded largely in European and North American science and culture, is indigenous psychology. Drawing from the knowledge, skills, and beliefs of indigenous peoples, this methodology incorporates a holistic worldview and cultural values to promote psychological healing and interpersonal and family problem solving (McCubbin & Marsella, 2009).

HIV/AIDS

In 2011, a national HIV surveillance report revealed that ethnic minorities accounted for

roughly 70% of all new diagnosed cases (CDC, 2013). Pacific Islanders were 2.2 times more likely to be diagnosed with HIV when compared with whites. In addition, the most common mode of HIV transmission for both Pacific Islander and white males was male-to-male sexual contact, 83% and 81%, respectively. Pacific Islander females were more likely to become infected through heterosexual contact (78%) than white females, who most often contracted the virus either through heterosexual contact (65%) or injected drug use (33%). In terms of HIV testing, Pacific Islanders were about as likely never to have been tested (66.2%) compared with whites (66.9%) (Schiller, Lucas, & Peregoy, 2012). Given the success of antiretroviral therapy (ART) in decreasing poor health outcomes and death associated with AIDS-related conditions, identifying the factors that may hinder early HIV testing and treatment is crucial (Thompson et al., 2010). An ART adherence study carried out in Hawaii revealed that medication compliance among Pacific Islanders was associated with family support, close personal connection with the health team, and spiritual harmony, whereas white participants reported that self-reliance and personal reminders (e.g., medication calendars) were most helpful (Ka'opua & Mueller, 2004). Noting these between-group differences is critical to culturally competent HIV/AIDS prevention and treatment protocols.

Until recently, the staggering extent to which Pacific Islanders suffered from poor health outcomes had been largely obscured by the lack of disaggregated data (i.e., inclusion of Pacific Islanders with Asians and their relatively small population size). The reduction of health disparities will require improved surveillance of Pacific Islander health trends utilizing larger samples that reflect differences across subgroups, greater advocacy and health policy development at the local and national levels, and importantly, an examination of the root causes of these disparities (e.g., economic, social, cultural) that affect this population (Koh et al., 2010).

HEALTH PROMOTION STRATEGIES FOR PACIFIC ISLANDER POPULATIONS

Cultural competence, the capability to understand and work effectively with people of diverse cultural backgrounds and beliefs systems, is vital for health practitioners, researchers, and students, as well as for healthcare organizations and institutions in this multicultural society (Betancourt, Green, Carrillo, & Ananeh-Firempong, 2003). Importantly, it establishes the foundation for effective health promotion efforts with Pacific Islander populations.

Health practitioner approaches that encourage patients' active involvement in their treatment and demonstrate respect for cultural beliefs and preferences have been successful with Pacific Islanders. As an example, Pacific Islanders with type 2 diabetes may not recognize the difference between being "big boned" and overweight given cultural norms that accept larger body size. Effective strategies to improve adherence to treatment have included providing individuals with training on how to calculate their own BMI, offering culturally attuned dietary and exercise programs, and taking Pacific Islanders' collective nature into consideration by involving family members in health interventions (Hsu et al., 2012; Tung, 2012). It is also vital to be aware of the centrality of food to Pacific Islander culture as it elicits positive emotions, cultural connectedness, and may also serve as a social lubricant (Lassetter, 2011).

Models of community engagement and participation for health promotion have resonated with Pacific Islander and other indigenous communities (Capstick, Norris, Sopoaga, & Tobata, 2009; Gracey & King, 2009). Lingering mistrust from the effects of

colonization and escalating health disparities have called into question the effectiveness of Western models of healthcare that fail to take into account the lifestyle and cultural differences of Pacific Islanders (Fong, Braun, & Tsark, 2003; Tanjasiri & Tran, 2008). Setting guidelines for equitable, collaborative relationships in which community members contribute to the identification of needs and development and implementation of programs builds community capacity and enhances sustainability. Such models have been applied to the reduction of cancer health disparities in both California and Hawaii through funding from the National Institutes of Health (Braun, Tsark, Santos, Aitaoto, & Chong, 2006; Tanjasiri et al., 2007).

Attention to health literacy, the ability of individuals to understand and utilize information to make informed health decisions, is critical to the reduction of barriers to good health. Low education level, lack of English proficiency, and immigrant or ethnic minority status are linked to decreased levels of health literacy (Parker et al., 1999). Healthcare providers should strive to communicate with patients clearly in lay language, and health education materials should be concise and simple (Rudd, 2010; also see Chapter 8). A study with Native Hawaiians that focused on culturally sensitive healthcare provider characteristics revealed that an honest, empathic, respectful, and direct communication style was preferred by those sampled (Vogler, Altmann, & Zoucha, 2010). Participants in the study also stressed the importance of accessibility to healthcare professionals, and of having ample time to establish rapport and ask questions. Findings from health-related studies with Pacific Islanders also support the need for cultural adaptation and language translation of health education interventions and materials to facilitate wide dissemination across ethnic subgroups (DePue et al., 2010; Mau, et al., 2010). In addition, use of visual and oral versus written materials may resonate more with Pacific Islanders (Capstick et al., 2009).

The relevance of spirituality and/or formal religious affiliation for many Pacific Islanders cannot be overstated. Many health-related activities are conducted at church or as part of church-related activities. This provides an ideal venue for the delivery of health education materials, interventions, and health screenings. A pilot breast cancer screening program that was carried out in Hawaiian rural churches, included minister involvement, participation from breast cancer survivors, prayer, and culturally tailored health education materials achieved high participation and follow-up rates by female congregates (Ka'opua, Park, Ward, & Braun, 2011). Given the less than optimal cancer screening rates for Pacific Islanders that are typically observed, church-based strategies hold particular promise as a means for improving health outcomes.

Assessing acculturation, that is, the extent to which one has adopted behaviors and beliefs of the dominant culture is helpful to health practitioners. The fact that over half of all Pacific Islanders in the last U.S. census self-identified with two or more racial or ethnic groups renders any formulaic notion of health beliefs and practices difficult. When in doubt, making inquiries from key informants in the community or simply asking patients, clients, or participants about their preferences and experiences is appropriate and helps to avoid assumptions and stereotypes (Leong, 2008).

CHAPTER SUMMARY

Pacific Islanders comprise dozens of indigenous ethnic subgroups that have their origins in three ethnoculturally defined regions within Oceania, namely Polynesia, Micronesia, and Melanesia. Collectively, they are one of the fastest growing populations in the United States and bring rich diversity in terms of culture, language, and customs. While Pacific Islander cultures and traditions vary across ethnic subgroups, there are common characteristics they share, such as strong bonds to family, interdependence, spirituality, holism, and respect

for the environment. Colonization coupled with the rampant spread of westernization has contributed heavily to the loss of culture, land, group identity, and self-determination for Pacific Islanders. These losses have contributed significantly to the broad range of health disparities that they face. Compared with other ethnic groups, Pacific Islanders experience among the highest rates of the leading health disparity indicators, including, hypertension, overweight and obesity, diabetes, substance use, cardiovascular diseases, tuberculosis, liver disease, hepatitis B, asthma, and certain types of cancers. They are particularly vulnerable to the development of all of the major chronic diseases, which account for the majority of their morbidity and mortality. Pacific Islander females are less likely to receive early prenatal care and more likely to use tobacco and alcohol during pregnancy, all of which contribute to high rates of preterm birth and low birth weight babies. Mental health problems, such as depression and anxiety are disproportionately high in Pacific Islander populations and may result partially from perceived discrimination and racism. Moreover, suicide attempts by Pacific Islander youth are among the nation's highest. Pacific Islanders are more likely to contract HIV than whites and are less likely to be diagnosed and receive treatment during the early stages of the disease.

While Western medicine is generally the primary mode of treatment for the majority of Pacific Islanders, many groups still utilize various types of traditional medicine ranging from herbal remedies, to body work, and spiritual healing. Health planners, practitioners, and researchers, who work with Pacific Islanders, should avoid stereotypes and not assume that all subgroups are alike in their health beliefs and practices. Ethnic group differences, length of time in the United States, degree of acculturation, English language proficiency, education level, health literacy, and past experiences with health care providers are important considerations. Successful approaches to working with Pacific Islanders include those that encourage full participation in their own care and involve the family or extended family unit. In Chapter 17, we explore approaches for successful community engagement with Pacific Islanders to promote positive health outcomes.

Despite the many challenges they face, Pacific Islanders are strong and resilient with deep connections to their history, cultural traditions, and belief systems. Reducing health disparities among Pacific Islanders will require a concerted effort from the local to federal levels. Some progress has already been made. With the OMB revised Directive 15, which divided the 1976 racial category of Asian and Pacific Islander into two separate categories Asian and Other Pacific Islanders (Srinivasan & Guillermo, 2000), a greater awareness of Pacific Islanders has evolved. Detailed census data with reports on ethnic subgroups (e.g., Native Hawaiians, Samoans, Guamanians, Tongans), oversampling of Pacific Islanders in state and national health surveillance surveys, and increased opportunities for programmatic and research funding have occurred. In 2009, President Obama signed an executive order that reestablished the White House Initiative on Asian Americans and Pacific Islanders with the goal of increasing access to and participation in federal programs where they remain underserved. Moreover, state and national advocacy organizations and Pacific Islander-led community-based organizations across the nation have been instrumental in moving the agenda for eliminating Pacific Islander health disparities forward (Stafford, 2010).

DISCUSSION QUESTIONS AND ACTIVITIES

1. Group Activity A. You are a team developing a health education program for Pacific Islanders at risk for developing type 2 diabetes. What do you know about Pacific Islanders that might be helpful to the development of your program?

2. What have the effects of colonization been on Pacific Islander health outcomes both past and present?
3. What are some of the traditional medicine practices used by Pacific Islanders?
4. What factors contribute to poor cancer survival rates among Pacific Islanders?
5. What environmental and behavioral risk factors contribute to poor maternal and child health outcomes among Pacific Islanders?
6. Group Activity B. You have been asked by the local department of health to provide expertise on a program they are developing to encourage cancer health screening among various ethnic minorities. They are particularly interested in your ideas about how to work effectively with Native Hawaiians, Tongans, and Chamorros. What advise will you provide?

REFERENCES

American Samoa Department of Health, W. H. O., Monash University. (2007). *American Samoa NCD risk factors STEPS report*. Suva, Fiji: World Health Organization.

Balajadia, R. G., Wenzel, L., Huh, J., Sweningson, J., & Hubbell, F. A. (2008). Cancer-related knowledge, attitudes, and behaviors among Chamorros on Guam. *Cancer Detection and Prevention, 32*(1), 4–15. doi: 10.1016/j.cdp.2007.12.002

Banks, A. S., Muller, T. C., & Overstreet, W. R. (2006). *Political handbook of the world 2007*. Washington, DC: CQ Press.

Bennett, T., & Kotelchuck, M. (2005). Mothers and infants. In Kotch, J. B (Ed.), *Maternal and child health: Programs, problems, and policy in public health* (3rd ed.). Burlington, MA: Jones & Bartlett.

Betancourt, J. R., Green, A. R., Carrillo, J. E., & Ananeh-Firempong, O. (2003). Defining cultural competence: a practical framework for addressing racial/ethnic disparities in health and health care. *Public Health Reports, 118*(4), 293.

Booth, H. (1999). Pacific Island suicide in comparative perspective. *Journal of Biosocial Science, 31*(4), 433–448.

Braun, K. L., Tsark, J. U., Santos, L., Aitaoto, N., & Chong, C. (2006). Building Native Hawaiian capacity in cancer research and programming. *Cancer, 107*(S8), 2082–2090.

Bunge, F. M., & Cooke, M. W. (1985). *Oceania: A regional study* (2nd ed.). Washington, DC: American University

Capstick, S., Norris, P., Sopoaga, F., & Tobata, W. (2009). Relationships between health and culture in Polynesia—A review. *Social Science & Medicine, 68*(7), 1341–1348.

Caraballo, R. S., Yee, S. L., Gfroerer, J., & Mirza, S. A. (2008). Adult tobacco use among racial and ethnic groups living in the United States, 2002–2005. *Preventing Chronic Disease, 5*(3), A78.

Centers for Disease Control and Prevention. (2002). *Health disparities among Native Hawaiians and other Pacific Islanders garner little attention, chronic disease notes and reports* (pp. 14–27). Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention & Health Promotion (NCCDPHP).

Centers for Disease Control and Prevention. (2009). Alcohol and suicide among racial/ethnic populations—17 states, 2005–2006. *MMWR, 58*(23), 637–641.

Centers for Disease Control and Prevention. (2010). Health behaviors of adults: United States, 2005–2007. *Vital and Health Statistics, 10* (245).

Centers for Disease Control and Prevention. (2011). *National diabetes fact sheet: National estimates and general information on diabetes and prediabetes in the United States, 2011*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

Centers for Disease Control and Prevention. (2013). *HIV Surveillance Report, 23*. Retrieved August 25, 2013 http://www.cdc.gov/hiv/topics/surveillance/resources/reports/

Chaloupka, F. J., Grossman, M., & Saffer, H. (2002). The effects of price on alcohol consumption and alcohol-related problems. *Alcohol Research and Health, 26*(1), 22–34.

Chang, H. K. (2001). Hawaiian health practitioners in contemporary society. *Pac Health Dialog, 8*(2), 260–273.

Choi, Y., Harachi, T. W., Gillmore, M. R., & Catalano, R. F. (2006). Are multiracial adolescents at greater risk? Comparisons of rates, patterns, and correlates of substance use and violence between monoracial and multiracial adolescents. *American Journal of Orthopsychiatry, 76*(1), 86–97. doi: 10.1037/0002-9432.76.1.86

Cornfield, J., Haenszel, W., Hammond, E. C., Lilienfeld, A. M., Shimkin, M. B., & Wynder, E. L. (2009). Smoking and lung cancer: Recent evidence and a discussion of some questions. *International Journal of Epidemiology, 38*(5), 1175–1191. doi: 10.1093/ije/dyp289

Cummings, J. R., Lavarreda, S. A., Rice, T., & Brown, E. R. (2009). The effects of varying periods of uninsurance on children's access to health care. *Pediatrics, 123*(3), e411–418. doi: 10.1542/peds.2008-1874

Dachs, G. U., Currie, M. J., McKenzie, F., Jeffreys, M., Cox, B., Foliaki, S., . . . Robinson, B. A. (2008). Cancer disparities in indigenous Polynesian populations: Māori, Native Hawaiians, and Pacific people. *The Lancet Oncology, 9*(5), 473–484. doi: 10.1016/S1470-2045(08)70127-X

Davis, J., Busch, J., Hammatt, Z., Novotny, R., Harrigan, R., Grandinetti, A., & Easa, D. (2004). The relationship between ethnicity and obesity in Asian and Pacific Islander populations: A literature review. *Ethnicity & Disease, 14*(1), 111–118.

Daws, G. (1968). *Shoal of time: A history of the Hawaiian Islands*. Honolulu: University of Hawaii Press.

Degenhardt, L., & Hall, W. (2012). Extent of illicit drug use and dependence, and their contribution to the global burden of disease. *Lancet, 379*(9810), 55–70. doi: 10.1016/s0140-6736(11)61138-0

DePue, J. D., Rosen, R. K., Batts-Turner, M., Bereolos, N., House, M., Held, R. F., . . . McGarvey, S. T. (2010). Cultural translation of interventions: Diabetes care in American Samoa. *American Journal of Public Health, 100*(11), 2085. doi: 10.2105/AJPH.2009.170134.

Diego, M. A., Jones, N. A., Field, T., Hernandez-Reif, M., Schanberg, S., Kuhn, C., & Gonzalez-Garcia, A. (2006). Maternal psychological distress, prenatal cortisol, and fetal weight. *Psychosom Med, 68*(5), 747–753. doi: 10.1097/01.psy.0000238212.21598.7b

Dupre, M. E., George, L. K., Liu, G., & Peterson, E. D. (2012). The cumulative effect of unemployment on risks for acute myocardial infarction. *Arch Intern Med, 172*(22), 1731–1737. doi: 10.1001/2013.jamainternmed.447

Else, I. R., Andrade, N. N., & Nahulu, L. B. (2007). Suicide and suicidal-related behaviors among indigenous Pacific Islanders in the United States. *Death Studies, 31*(5), 479–501.

Ember, C. R., & Ember, M. (2004). *Encylopedia of medical anthropology: Health and illness in the world's cultures*. New York, NY: Plenum.

Fong, M., Braun, K. L., & Tsark, J. (2003). Improving Native Hawaiian health through community-based participatory research. *Californian Journal of Health Promotion, 1*(1), 136–148.

Fujita, R., Braun, K. L., & Hughes, C. K. (2004). The traditional Hawaiian diet: A review of the literature. *Pac Health Dialog, 11*(2), 250–259.

Furubayashi, J. K., & Look, M. A. (2005). Type 2 diabetes in native Hawaiians and Pacific Islanders in Hawaii. *Pacific Health Dialog, 12*(2), 103–110.

Furusawa, T., Naka, I., Yamauchi, T., Natsuhara, K., Kimura, R., Nakazawa, M., . . . Ohashi, J. (2010). The Q223R polymorphism in LEPR is associated with obesity in Pacific Islanders. *Human Genetics, 127*(3), 287–294. doi: 10.1007/s00439-009-0768-9

Ghosh, C. (2003). Healthy People 2010 and Asian Americans/Pacific Islanders: Defining a baseline of information. *American Journal of Public Health, 93*(12), 2093–2098.

Gill, T. (2006). Epidemiology and health impact of obesity: An Asia Pacific perspective. *Asia Pac J Clin Nutr, 15*(Suppl.), 3–14.

Goggins, W. B., & Wong, G. K. (2007). Poor survival for US Pacific Islander cancer patients: Evidence from the Surveillance, Epidemiology, and End Results database: 1991 to 2004. *J Clin Oncol, 25*(36), 5738–5741. doi: 10.1200/jco.2007.13.8271

Gotay, C. C., Banner, R. O., Matsunaga, D. S., Hedlund, N., Enos, R., Issell, B. F., & DeCambra, H. O. (2000). Impact of a culturally appropriate intervention on breast and cervical screening among Native Hawaiian women. *Preventive Medicine, 31*(5), 529–537.

Gracey, M., & King, M. (2009). Indigenous health part 1: Determinants and disease patterns. *The Lancet, 374*(9683), 65–75. doi: 10.1016/S0140-6736(09)60914-4

Gray, R. D., Drummond, A. J., & Greenhill, S. J. (2009). Language phylogenies reveal expansion pulses and pauses in Pacific settlement. *Science, 323*(5913), 479–483. doi: 10.1126/science.1166858

Hadley, J. (2003). Sicker and poorer—The consequences of being uninsured: A review of the research on the relationship between health insurance, medical care use, health, work, and income. *Med Care Res Rev, 60*(2 Suppl), 3S-75S; Discussion 76S–112S.

Hadley, J., & Cunningham, P. J. (2005). Perception, reality and health insurance: Uninsured as likely as insured to perceive need for care but half as likely to get care. Center for Studying Health System Change. *Issue Brief,* (100), 1–5.

Henderson, S. O., Haiman, C. A., Wilkens, L. R., Kolonel, L. N., Wan, P., & Pike, M. C. (2007). Established risk factors account for most of the racial differences in cardiovascular disease mortality. *PLoS One, 2*(4), e377. doi: 10.1371/journal.pone.0000377

Heron, M. (2011). Deaths: Leading causes for 2007. *Natl Vital Stat Rep, 59*(8), 1–95.

Hsu, W. C., Misra, R., Tavake-Pasi, F., Arakaki, R., Boyko, E. J., Fujimoto, W. Y., . . . Maskarinec, G. (2012). Pathophysiologic differences among Asians, native Hawaiians, and other Pacific Islanders and treatment implications. *Diabetes Care, 35*(5), 1189.

Hughes, R., & Lawrence, M. (2005). Globalisation, food and health in Pacific Island countries. *Asia Pacific Journal of Clinical Nutrition, 14*(4), 298.

Hughes, R., & Marks, G. (2009). Against the tide of change: Diet and health in the Pacific Islands. *Journal of the American Dietetic Association, 109*(10), 1700–1703. doi: 10.1016/j.jada.2009.07.015

Ishida, D. N., Toomata-Mayer, T. F., & Braginsky, N. S. (2001). Beliefs and attitudes of Samoan women toward early detection of breast cancer and mammography utilization. *Cancer, 91*(1 Suppl), 262–266. doi: 10.1002/1097-0142(20010101)91:1+<262::aid-cncr16>3.0.co;2-r

Kaholokula, J. K., Grandinetti, A., Keller, S., Nacapoy, A. H., Kingi, T. K., & Mau, M. K. (2012). Association between perceived racism and physiological stress indices in Native Hawaiians. *Journal of Behavioral Medicine, 35*(1), 27–37. doi: 10.1007/s10865-011-9330-z

Kaholokula, J. K., Iwane, M. K., & Nacapoy, A. H. (2010). Effects of perceived racism and acculturation on hypertension in Native Hawaiians. *Hawaii Med J, 69*(5 Suppl. 2), 11–15.

Ka'ili, T. O. (2005). Tauhi va: Nurturing Tongan sociospatial ties in Maui and beyond. *The Contemporary Pacific, 17*(1), 83–114.

Kanazawa, A., White, P. M., & Hampson, S. E. (2007). Ethnic variation in depressive symptoms in a community sample in Hawaii. *Cultural Diversity & Ethnic Minority Psychology, 13*(1), 35–44. doi: 10.1037/1099-9809.13.1.35

Ka'opua, L. S. I., & Mueller, C. W. (2004). Treatment adherence among Native Hawaiians living with HIV. *Social Work, 49*(1), 55–63. doi: 10.1093/sw/49.1.55

Ka'opua, L. S. I., Park, S. H., Ward, M. E., & Braun, K. L. (2011). Testing the feasibility of a culturally tailored breast cancer screening intervention with Native Hawaiian women in rural churches. *Health & Social Work, 36*(1), 55–65.

Karter, A. J., Schillinger, D., Adams, A. S., Moffet, H. H., Liu, J., Adler, N. E., & Kanaya, A. M. (2012). Elevated rates of diabetes in Pacific Islanders and Asian subgroups: The Diabetes Study of Northern California (DISTANCE). *Diabetes Care*. doi: 10.2337/dc12-0722

Kayser, M., Lao, O., Saar, K., Brauer, S., Wang, X., Nürnberg, P., . . . Stoneking, M. (2008). Genome-wide analysis indicates more Asian than Melanesian ancestry of Polynesians. *The American Journal of Human Genetics, 82*(1), 194–198. doi: 10.1016/j.ajhg.2007.09.010

Kent, J. B., & Oh, R. C. (2010). Complementary and alternative medicine use among military family medicine patients in Hawaii. *Military Medicine, 175*(7), 534.

King, M., Smith, A., & Gracey, M. (2009). Indigenous health part 2: The underlying causes

of the health gap. *The Lancet, 374*(9683), 76–85. doi: 10.1016/S0140-6736(09)60827-8

Kirk, S. F. (2008). Obesity in Tonga: A cross-sectional comparative study of perceptions of body size and beliefs about obesity in lay people and nurses. *Obesity Research & Clinical Practice, 2*(1), 35–41. doi: 10.1016/j.orcp.2007.11.004

Kochanek, K. D., Xu. J. Q., Murphy, S. L., Miniño, A. M., & Kung, H. C. (2011). Deaths: Final data for 2009. *National Vital Statistics Reports, 60*(3).

Koh, H. K., Oppenheimer, S. C., Massin-Short, S. B., Emmons, K. M., Geller, A. C., & Viswanath, K. (2010). Translating research evidence into practice to reduce health disparities: A social determinants approach. *American Journal of Public Health, 100*(S1), S72–S80. doi: 10.2105/ajph.2009.167353

Kopelman, P. (2007). Health risks associated with overweight and obesity. *Obesity Reviews, 8*, 13–17. doi: 10.1111/j.1467-789X.2007.00311.x

Kramer, M. R., & Hogue, C. R. (2009). What causes racial disparities in very preterm birth? A biosocial perspective. *Epidemiologic Reviews, 31*(1), 84–98. doi: 10.1093/ajerev/mxp003

Kung, H. C., Hoyert. D. L., Xu, J. Q., & Murphy, S. L. (2008). Deaths: Final data for 2005. *National Vital Statistics Reports, 56*(10).

Lassetter, J. H. (2011). The integral role of food in Native Hawaiian migrants' perceptions of health and well-being. *Journal of Transcultural Nursing, 22*(1), 63–70.

Leong, F. T. (2008). *Encyclopedia of counseling* (Vol. 2). Thousand Oaks, CA: Sage.

Liu, L., Tanjasiri, S. P., & Cockburn, M. (2011). Challenges in identifying Native Hawaiians and Pacific Islanders in population-based cancer registries in the U.S. *J Immigr Minor Health, 13*(5), 860–866. doi: 10.1007/s10903-010-9381-1

Lowry, R., Eaton, D. K., Brener, N. D., & Kann, L. (2011). Prevalence of health-risk behaviors among Asian American and Pacific Islander high school students in the U.S., 2001–2007. *Public Health Rep, 126*(1), 39–49.

Maier, S. E., & West, J. R. (2001). Patterns and alcohol-related birth defects. *Alcohol Research and Health, 5*(3).

Matthews, K., Schwartz, J., Cohen, S., & Seeman, T. (2006). Diurnal cortisol decline is related to coronary calcification: CARDIA study. *Psychosom Med, 68*(5), 657–661. doi: 10.1097/01.psy.0000244071.42939.0e

Mau, M. K., Keawe'aimoku Kaholokula, J., West, M. R., Leake, A., Efird, J. T., Rose, C., . . . Gomes, H. (2010). Translating diabetes prevention into native Hawaiian and Pacific Islander communities: The PILI 'Ohana Pilot project. *Prog Community Health Partnersh, 4*(1), 7–16. doi: 10.1353/cpr.0.0111

McCubbin, L. D., & Marsella, A. (2009). Native Hawaiians and psychology: The cultural and historical context of indigenous ways of knowing. *Cultur Divers Ethnic Minor Psychol, 15*(4), 374–387. doi: 10.1037/a0016774

McMullin, J. M. (2005). The call to life: Revitalizing a healthy Hawaiian identity. *Soc Sci Med, 61*(4), 809–820. doi: 10.1016/j.socscimed.2004.08.051

McMullin, J. M., Taumoepeau, L., Talakai, M., Kivalu, F., & Hubbell, F. A. (2008). Tongan perceptions of cancer. *Cancer Detection and Prevention, 32*(1, Suppl.), 29–36. doi: 10.1016/j.cdp.2007.12.004

Midanik, L. T., Chaloupka, F. J., Saitz, R., Toomey, T., Fellows, J., Dufour, M., . . . Brewer, R. (2004). Alcohol-attributable deaths and years of potential life lost—United States, 2001. *MMWR Morb Mortal Wkly Rep, 53*(37), 866–870.

Miller, B. A., Chu, K. C., Hankey, B. F., & Ries, L. A. G. (2008). Cancer incidence and mortality patterns among specific Asian and Pacific Islander populations in the U.S. *Cancer Causes & Control, 19*(3), 227–256. doi: 10.1007/s10552-007-9088-3

Minnes, S., Lang, A., & Singer, L. (2011). Prenatal tobacco, marijuana, stimulant, and opiate exposure: Outcomes and practice implications. *Addict Sci Clin Pract, 6*(1), 57–70.

Mishra, S. I., Hess, J., & Luce, P. H. (2003). Predictors of indigenous healer use among Samoans. *Alternative Therapies in Health and Medicine, 9*(6), 64.

Mokuau, N. (1990). The impoverishment of Native Hawaiians and the social work challenge. *Health & Social Work, 15*(3), 235–242. doi: 10.1093/hsw/15.3.235

Mounga, V., & Maughan, E. (2012). Breast cancer in Pacific Islander women: Overcoming

barriers to screening and treatment. *Nursing for Women's Health, 16*(1), 26.

Murin, S., Rafii, R., & Bilello, K. (2011). Smoking and smoking cessation in pregnancy. *Clin Chest Med, 32*(1), 75–91, viii. doi: 10.1016/j.ccm.2010.11.004

National Center for Health Statistics. (2007). Health, United States, 2007, with chart book on trends in the health of Americans. Hyattsville, MD: Author.

Office of Management & Budget. (1997). *Recommendations from the Interagency Committee for the review of the racial and ethnic standards*. Washington, DC: The White House.

Okamoto, S. K., Mayeda, D. T., Ushiroda, M., Rehuher, D., Laulefue, T., & Ongalibang, O. (2008). Risk and protective factors of Micronesian youth in Hawai'i: An exploratory study. *J Sociol Soc Welf, 35*(2), 127–147.

Okihiro, M., & Harrigan, R. (2005). An overview of obesity and diabetes in the diverse populations of the Pacific. *Ethn Dis, 15*(4 Suppl. 5), 5–80.

Palafox, N. A. (2010). Health consequences of the Pacific U.S. Nuclear Weapons Testing Program in the Marshall Islands: Inequity in protection, health care access, policy, regulation. *Rev Environ Health, 25*(1), 81–85.

Parker, R. M., Williams, M. V., Weiss, B. D., Baker, D. W., Davis, T. C., Doak, C. C., . . . Nurss, J. (1999). Health literacy—Report of the Council on Scientific Affairs. *JAMA, 281*(6), 552–557.

Pleis, J. R., Lucas, J. W., & Ward, B. W. (2009). Summary health statistics for US adults: National Health Interview Survey, 2008. *Vital and Health Statistics, 10*(242), 1.

Riklon, S., Hixon, W. A., & Palafox, N. A. (2010). The "compact impact" in Hawai'i: Focus on health care. *Hawaii Medical Journal*, *69*(6 Suppl. 3), 7.

Rudd, R. E. (2010). Improving Americans' health literacy. *N Engl J Med, 363*(24), 2283–2285. doi: 10.1056/NEJMp1008755

Sakai, J. T., Wang, C., & Price, R. K. (2010). Substance use and dependence among Native Hawaiians, Other Pacific Islanders, and Asian ethnic groups in the United States: Contrasting multiple-race and single-race prevalence rates from a national survey. *J Ethn Subst Abuse, 9*(3), 173–185. doi: 10.1080/15332640.2010.500582

Samson, J. (2007). Oceania. In T. Benjamin (Ed.), *Encyclopedia of Western Colonialism since 1450* (Vol. 2, pp. 870–871). Detroit, MI: Macmillan Reference USA.

Scarr, D. (2001). *A history of the Pacific Islands: Passages through tropical time*. Richmond, Surrey, UK: Curzon.

Schempf, A. H., Mendola, P., Hamilton, B. E., Hayes, D. K., & Makuc, D. M. (2010). Perinatal outcomes for Asian, Native Hawaiian, and other Pacific Islander mothers of single and multiple race/ethnicity: California and Hawaii, 2003–2005. *American Journal of Public Health, 100*(5), 877–887. doi: 10.2105/ajph.2009.177345

Schiller, J. S., Lucas, J. W., & Peregoy, J. A. (2012). Summary health statistics for U.S. adults: National Health Interview Survey, 2011. *Vital Health Statistics, 10*(256). Retrieved August 25, 2013, from http://www.cdc.gov/nchs/data/series/sr_10/sr10_256.pdf

Singh, Y. N. (2009). Kava: An old drug in a new world. *Cultural Critique*, *71,* 107–128.

Sithisarn, T., Granger, D. T., & Bada, H. S. (2012). Consequences of prenatal substance use. *Int J Adolesc Med Health, 24*(2), 105–112. doi: 10.1515/ijamh.2012.016

Srinivasan, S., & Guillermo, T. (2000). Toward improved health: disaggregating Asian American and Native Hawaiian/Pacific Islander data. *American Journal of Public Health, 90*(11), 1731–1734.

Stafford, S. (2010). Caught between "the rock" and a hard place. *American Journal of Public Health,* 100(5), 784–789.

Tanjasiri, S. P., LeHa'uli, P., Finau, S., Fehoko, I., & Skeen, N. A. (2002). Tongan-American women's breast cancer knowledge, attitudes, and screening behaviors. *Ethn Dis, 12*(2), 284–290.

Tanjasiri, S. P., & Tran, J. H. (2008). Community capacity for cancer control collaboration: Weaving an Islander Network for Cancer Awareness, Research and Training for Pacific Islanders in Southern California. *Cancer Detect Prev, 32 Suppl 1*, S37–40. doi: 10.1016/j.cdp.2007.12.005

Tanjasiri, S. P., Tran, J. H., Palmer, P. H., Foo, M. A., Hanneman, M., Lee, C., . . . Sripipatana, A. (2007). Developing a community-based collaboration to reduce cancer health disparities among Pacific Islanders in California. *Pac Health Dialog, 14*(1), 119–127.

Teevale, T. (2011). Body image and its relation to obesity for Pacific minority ethnic groups in New Zealand: A critical analysis. *Pacific Health Dialog, 17*(1).

Thompson, M. A., Aberg, J. A., Cahn, P., Montaner, J. S., Rizzardini, G., Telenti, A., . . . Schooley, R. T. (2010). Antiretroviral treatment of adult HIV infection. *JAMA, 304*(3), 321–333. doi: 10.1001/jama.2010.1004

Toafa, V., Moata'ane, L., & Guthrie, B. E. (2001). Traditional Tongan medicine and the role of traditional Tongan healers in New Zealand. *Pac Health Dialog, 8*(1), 78–82.

Trask, H.-K. (2000). Native social capital: The case of Hawaiian sovereignty and Ka Lahui Hawaii. *Policy Sciences, 33*(3/4), 375–385. doi: 10.2307/4532510

Trask, M. B. (2000). Hawaiian Sovereignty. *Amerasia Journal, 26*(2), 31–36.

Tseng, C.-W., Omphroy, G., Cruz, L., Naval, C. L., & Haddock, R. L. (2004). Cancer in the Territory of Guam. *Pac Health Dialog, 11*(2), 57–63.

Tung, W.-C. (2012). Diabetes among Native Hawaiians and Pacific Islanders. *Home Health Care Management & Practice, 24*(6), 309–311. doi: 10.1177/1084822312454002

Unger, J. B., Palmer, P. H., Dent, C. W., Rohrbach, L. A., & Johnson, C. A. (2000). Ethnic differences in adolescent smoking prevalence in California: Are multi-ethnic youth at higher risk? *Tob Control, 9 Suppl 2*, II9–14.

U.S. Census Bureau. (2010). Selected population profile in the United States: 1-year estimates, 2010. *American Community Survey*.

U.S. Census Bureau. (2012). Redistricting Data (Public Law 94-171).

U.S. Census Bureau. (2013). Poverty rates for selected detailed race and Hispanic Groups by state and place, 2007–2010. Generated by Macartney, S., Bishaw, A, & Fontenot, K. *American Community Survey.*

U.S. Department of Health and Human Services. (2004). *The health consequences of smoking: A report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

U.S. Department of Health and Human Services. (2010). *A report of the Surgeon General: How tobacco smoke causes disease: The biology and behavioral basis for smoking-attributable disease, 2010*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

U.S. Department of Health and Human Services. (2011). *Women's health USA 2011*. Rockville, MD: U.S. Department of Health and Human Services, Maternal and Child Health Bureau.

U.S. Department of Health and Human Services. (2012). *Drug facts—Nationwide trends, 2011*. U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.

Vogler, J., Altmann, T. K., & Zoucha, R. (2010). Native Hawaiian attitudes of culturally sensitive healthcare provider traits and behaviors. *Journal of Cultural Diversity, 17*(3), 90.

Wells, J. C. K. (2009). Ethnic variability in adiposity and cardiovascular risk: The variable disease selection hypothesis. *International Journal of Epidemiology, 38*(1), 63–71. doi: 10.1093/ije/dyn183

Wollstein, A., Lao, O., Becker, C., Brauer, S., Trent, R. J., Nürnberg, P., . . . Kayser, M. (2010). Demographic history of Oceania inferred from genome-wide data. *Current Biology, 20*(22), 1983–1992. doi: 10.1016/j.cub.2010.10.040

Xue, F., Willett, W. C., Rosner, B. A., Hankinson, S. E., & Michels, K. B. (2011). Cigarette smoking and the incidence of breast cancer. *Archives of Internal Medicine, 171*(2), 125.

Yuen, N. Y., Nahulu, L. B., Hishinuma, E. S., & Miyamoto, R. H. (2000). Cultural identification and attempted suicide in Native Hawaiian adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 39*(3), 360–367.