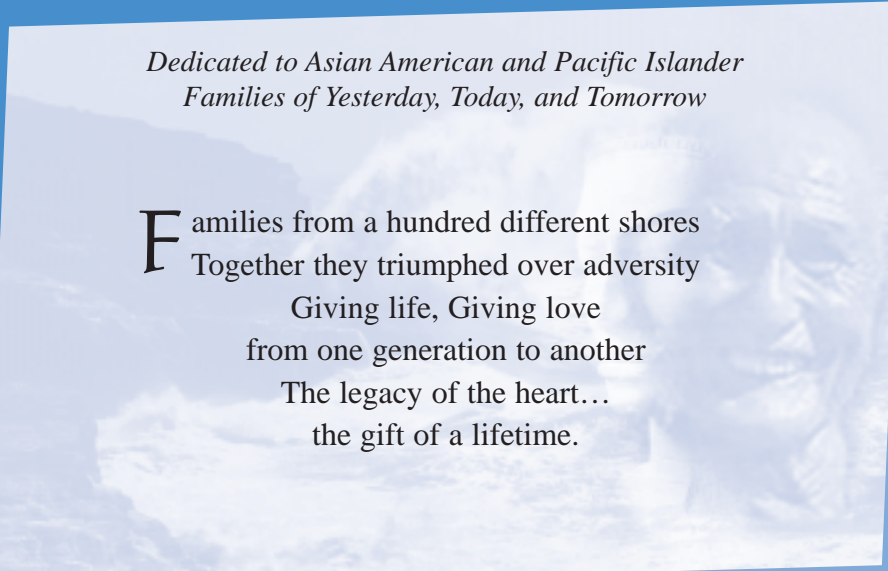


ADDRESSING CARDIOVASCULAR HEALTH IN ASIAN AMERICANS AND PACIFIC ISLANDERS

A BACKGROUND REPORT



*Dedicated to Asian American and Pacific Islander
Families of Yesterday, Today, and Tomorrow*

Families from a hundred different shores
Together they triumphed over adversity
Giving life, Giving love
from one generation to another
The legacy of the heart...
the gift of a lifetime.

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A BACKGROUND REPORT

*National Institutes of Health
National Heart, Lung,
and Blood Institute*

*NIH Publication No. 00-3647
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PREFACE

Since 1948, the National Heart, Lung, and Blood Institute (NHLBI) has been at the forefront of the fight to prevent and treat heart disease. Through its national education programs, the NHLBI has formulated innovative and effective ways of bringing the latest scientific discoveries to all Americans. These programs include the National High Blood Pressure Education Program (NHBPEP), the National Cholesterol Education Program (NCEP), the National Heart Attack Alert Program (NHAAP), the National Asthma Education and Prevention Program (NAEPP), and the NHLBI Obesity Education Initiative (NHLBI OEI). Together, these national education programs promote healthy behaviors in the United States.

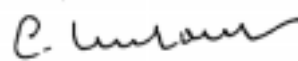
Through research conducted and supported by NHLBI, tremendous progress has been made in reducing mortality due to heart disease. However, heart disease remains the leading cause of death for all Americans and continues to disproportionately affect communities of color across the Nation. Under the aegis of the Healthy People initiative, a national effort is being mobilized to reduce health disparities by the year 2000 and to eliminate them by the year 2010. As one of the lead agencies for accomplishing the objectives associated with heart disease and stroke, the NHLBI is positioned to pioneer a momentous change in the health status of minority populations.

The health of Asian Americans and Pacific Islanders (AAPIs) is integral to the well-being of the Nation. The AAPI population is one of the fastest growing minority groups in the United States and is expected to number 12.1 million by the year 2000. Heart disease is the leading cause of death for this group. For example, Asian American males have higher mortality rates due to stroke than white males. Among Asian Indians in the United States, the prevalence of coronary artery disease is 4-fold higher than whites. In the State of Hawai`i, Native

Hawaiians have the highest death rates due to heart disease and the second highest rate of obesity in America. Without prevention and intervention strategies, the burden of heart disease will persist for AAPIs.

To promote cardiovascular health among AAPIs, the NHLBI has launched the ASPIRE for Healthy Hearts Project. This project seeks to develop model cardiovascular outreach efforts or activities which utilize strategies that are targeted to AAPI cultures, language, and traditional beliefs. As part of the assessment phase, this background report was developed to examine the needs and opportunities for cardiovascular health promotion for AAPIs. It provides an overview of the status of cardiovascular disease (CVD) among AAPIs and shares knowledge gained from successful community-based projects across the country. Experience from these projects suggests that a family-based approach to health promotion is an important component of effective outreach strategies for AAPIs. In addition, it provides important program planning information (Appendices A-C) for those who are interested in promoting heart health in their communities.

The NHLBI is committed to building and nurturing healthy hearts for AAPIs, and we hope to inspire others to initiate heart-health programs within their own communities. The successful programs highlighted in this document assert the importance of building partnerships. By working with the community, we can enhance our efforts to promote healthy hearts for AAPI families. Together, we embark on a national effort to mobilize AAPI families and communities for heart health.



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INTRODUCTION

The release of the 1985 *Report of the Secretary's Task Force on Black and Minority Health* paved the way for the cultivation of national attention on the health status of minorities in the United States (U.S. Department of Health and Human Services, 1985). This landmark report introduced a new level of awareness and concern for policymakers at the national level and marked the beginning of programs and initiatives to alleviate the disparities in health and well-being of minority populations. The report, however, insufficiently addressed the needs of Asian Americans and Pacific Islanders (AAPIs). It was noted in the document that the lack of comprehensive data on AAPIs limited the task force's ability to render concrete and significant assessment of the critical health needs of this group. The result is the perpetuation of the model minority myth and the masking of urgent health needs of the AAPI population (Lin-Fu, 1993).

AAPIs represent a diverse and multifaceted group of individuals with unique histories, cultures, languages, traditional beliefs, and values. As one of the fastest growing ethnic populations in the United States, their heterogeneity serves as a distinctive and important characteristic. AAPIs numbered 9.7 million in 1996 and are projected to increase to 12.1 million by the year 2000. AAPIs consist of individuals with ancestral and cultural ties to Asia and the Pacific Islands. These countries include all nations east of Pakistan, the nations of South Asia, Southeast Asia, East Asia, Melanesia, Polynesia, and Micronesia (Barringer, 1993). Examples of Asian ethnic subgroups include: Afghani, Asian Indian, Bangladeshi, Burmese, Cambodian, Chinese, Filipino, Hmong, Indonesian, Japanese, Korean, Laotian, Malaysian, Nepali, Pakistani, Sri Lankan, Thai, and Vietnamese. The U.S.-Associated Pacific Island jurisdiction and other outlying areas include Guam, American Samoa, Midway Islands, Wake Island, Johnston Island and Sand Island, the

Commonwealth of Northern Marianas, the Republic of Palau, the Federated States of Micronesia, and the Republic of Marshall Islands. Examples of Pacific Islander ethnic subgroups include: Chamorro (Guam), Chuukese, Fijian, Hawaiian, Kosraean, (Federated States of Micronesia), Mariana Islanders (Commonwealth of Mariana Islands), Melanesian, Palauan (Republic of Palau), Papese, Pohnpeian, Samoan, and Tongan.

The diversity of this population has not been sufficiently captured in national surveys. Historically, AAPIs have been viewed as a homogenous group, creating misleading information about their characteristics. For instance, the statement below is reflective of the misperceptions associated with the health status of AAPIs:

“The Asian/Pacific Island minority, in aggregate, is healthier than all racial/ethnic groups in the United States, including whites. There are virtually no excess deaths, ..., when all Asian ethnic groups are combined, and Asians have a greater life expectancy than whites. The Task Force analysis of national mortality data for Asian/Pacific Islanders under age 45 indicates that the relative risk of death for almost every cause is low.” (Report of the Secretary's Task Force on Black and Minority Health, U.S. Department of Health and Human Services, 1985)

While the number of AAPIs living in United States has increased at a rate of 4.5 percent per year since 1990, AAPIs are one of the most poorly understood, invisible, and neglected minority groups (Lin-Fu, 1993). Where data exist for this population, the information renders a misleading picture of a “model minority” (self-sufficient, well-educated, hardworking, upwardly mobile). Consequently, research and policy decisions have neglected to address the critical health issues of the most vulnerable groups within the AAPI

population.

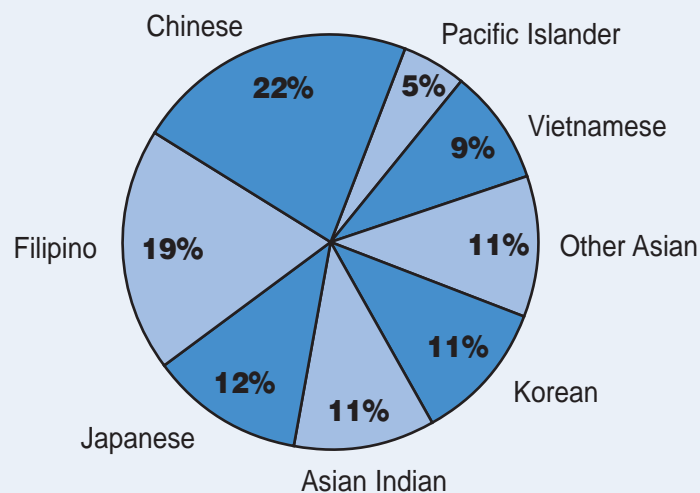
A thorough assessment of the health status of the AAPI population is a prerequisite to dismantling the “healthy minority” myth. The purpose of this paper is to provide background information on the extent of the CVD problem in AAPI populations. Further, this document presents information on scientific, medical, social, cultural, and environmental factors affecting the health of AAPIs. Information is presented in several sections:

- ❑ *Data Limitations:* This section provides information on available data pertaining to AAPIs. Specifically, it highlights key problems and limitations associated with national surveys.
- ❑ *Demographic Information:* This section provides data on the sociodemographic characteristics of AAPI groups recognized by the U.S. census. Data include information on age, geographic distribution and population density, educational attainment, income, poverty level and employment, language diversity and English proficiency, access to health care, and underutilization of services.
- ❑ *Cardiovascular Disease and Associated Risk Factors Among Asian Americans and Pacific Islanders:* This section presents information on

each of the major cardiovascular risk factors—high blood cholesterol, high blood pressure (or hypertension), cigarette smoking, obesity, physical inactivity, and diabetes.

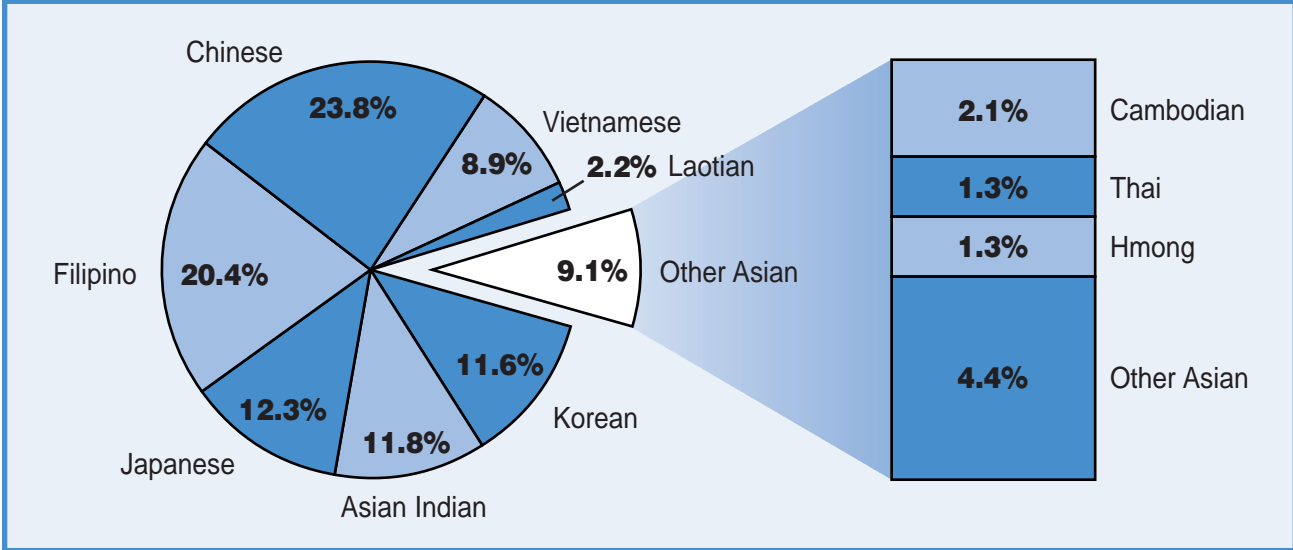
- ❑ *Dietary Practices of Asian Americans and Pacific Islanders:* This section provides a brief description of a few traditional and mainstream dietary practices of AAPIs. Cultural factors and changes in eating habits due to acculturation are also discussed.
- ❑ *Alcohol Consumption:* This section presents brief information on the relationship between alcohol consumption and CVD for selected AAPI subgroups.
- ❑ *Asian American and Pacific Islander Cultures, Communication, and Health Beliefs:* This section provides information on AAPI cultural values and structures and how these principles shape their health beliefs and behaviors.
- ❑ *Action in the Community: Successful Programs for AAPIs:* This section presents examples of successful health promotion programs specifically targeted to AAPIs. Some of the information was gathered through discussions with individuals who are highly involved in developing health programs for AAPIs.

FIGURE 1. ETHNIC DISTRIBUTION OF THE ASIAN AMERICAN AND PACIFIC ISLANDER POPULATION, UNITED STATES, 1990



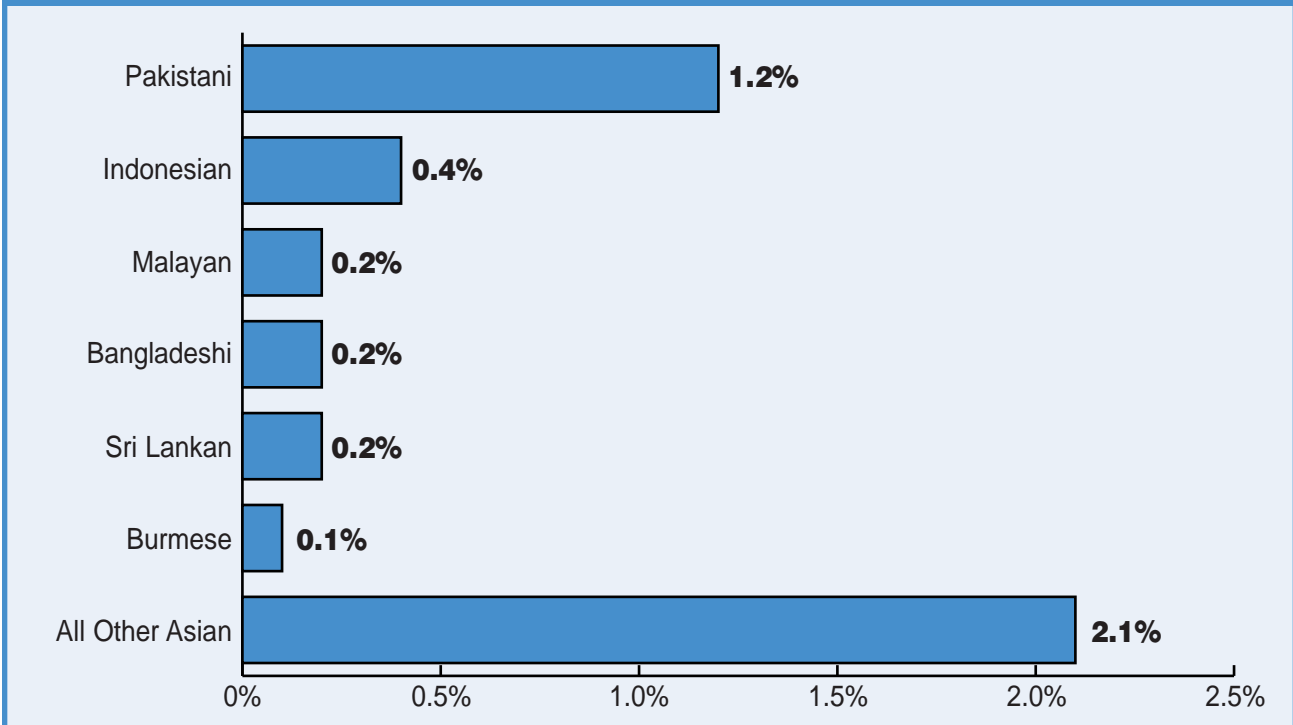
Source: U.S. Bureau of Census, 1992.

FIGURE 2. ASIAN AMERICAN POPULATION FOR SELECTED GROUPS, 1990 (EXCLUDES PACIFIC ISLANDERS)



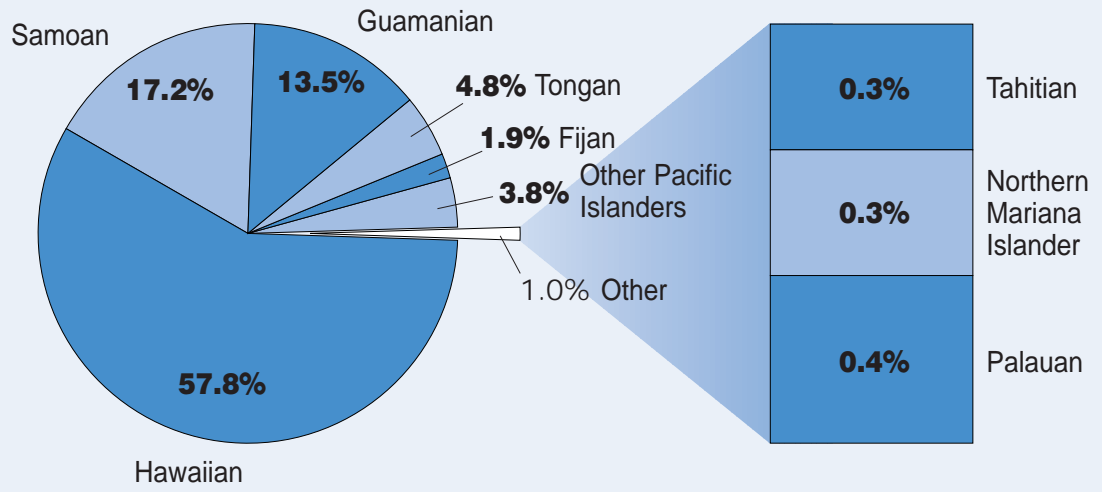
Source: U.S. Bureau of Census, *We the Americans: Asians*, 1993a.

FIGURE 3. OTHER ASIAN AMERICANS, 1990




Source: U.S. Bureau of Census, *We the Americans: Asians*, 1993a.

FIGURE 4. PACIFIC ISLANDER POPULATION, 1990 (EXCLUDES ASIAN AMERICANS)



Source: U.S. Bureau of Census, 1993b.

DATA LIMITATIONS

 Comprehensive data on the AAPI population are scarce. Historically, AAPIs have been treated as one homogenous group, ignoring the health disparities and differences that exist within the population. Although the AAPI population continues to grow at a fast rate, very few data exist on ethnic-specific demographics and their overall health status. The paucity of data is most severe for people representing the U.S.-Associated Pacific Basin (Commonwealth of Northern Mariana Islands, Guam, American Samoa, Republic of Palau, Marshall Islands, and Federated States of Micronesia). The limitations of available and commonly used data sources are described below.

U.S. CENSUS

The U.S. census represents a primary source of statistical information on AAPIs. While the census has recently expanded the categories associated with the AAPI racial designation, certain ethnic subgroups remain unrecognized. Furthermore, data collection from the Census Bureau undercounts AAPIs because the enumeration is only conducted in English and, therefore, bypasses many of the limited English-proficient AAPI immigrants in the United States. The underestimation of the U.S. population has been cited repeatedly under the current U.S. census data collection procedures. The 1990 census reported to have missed 4.7 million people (“Cities Press Campaign,” 1991).

Another study shows a larger population undercount of 8.3 million, including up to 1.5 million Californians experiencing the most significant underestimation (Waugh, 1991). A *Congressional Quarterly Weekly Report* (Elving, 1991) asserts that States with large immigrant populations (e.g., California, Arizona, New Mexico, and Texas) have the worst undercount problem. These erroneous data affect the national policy agenda on the social

and health status of underserved populations. The serious undercounting of the total population in California, where half of AAPIs reside, illustrates potential political underrepresentation for AAPIs. Given that AAPIs are largely immigrants, it is highly probable that they are even more seriously undercounted or completely unaccounted for by the U.S. census.

Because problems with including Hawaiians under the “Asian and Pacific Islander” category have been cited, measures to establish a separate racial designation for Native Hawaiians will be followed in the year 2000 census. Native Hawaiians suggest that they should be considered as a distinct category and included as one of the major groups for “Race and Ethnic Standards for Federal Statistics and Administrative Reporting” (OMB Directive No. 15). The justification for such a categorical extraction is compelling: Hawaiians are the indigenous inhabitants of the State of Hawai‘i and, unlike most Asian Americans, they are not immigrants. In addition, Hawaiians represent about 211,000 persons of the overall AAPI population, and Hawaiian inclusion in this group masks and conceals their unique health and socioeconomic characteristics (U.S. Bureau of the Census, 1996). The Office of Management and Budget (OMB) amended its categories and announced in November 1997 that the Census 2000 questionnaire will include the following race categories: white; black or African American; American Indian or Alaska Native; Asian; and Native Hawaiian and Other Pacific Islander. (U.S. Bureau of the Census, 1997a). The Federal Government’s definition of “Native Hawaiian” applies to all living individuals who had ancestry in the Hawaiian Islands prior to 1778. There is no blood quantum requirement for this definition. The State of Hawai‘i has two definitions for Hawaiians: Native Hawaiians and Hawaiians.

The first is applied to beneficiaries of the Hawaiian homeland trust and the public lands trust and denotes Hawaiians of at least 50 percent Hawaiian ancestry while the second is similar to that used by the Federal Government in that it has no associated blood quantum.

NATIONAL HEALTH SURVEYS: DATA MISCLASSIFICATION AND THE LACK OF ETHNIC-SPECIFIC DATA

In spite of the unprecedented growth of the AAPI populations, their numerical representation in national surveys is inadequate and, as a result, renders misleading conclusions about their overall health status. Due to the small sample of AAPIs in national surveys, investigators within the health and medical communities are often unable to formulate comprehensive analyses of AAPI health profiles. For instance, when the landmark U.S. Department of Health and Human Services (DHHS) document, *Healthy People 2000*, was released, only eight health objectives were established for AAPIs. By contrast, the number for other racial/ethnic minorities included 27 for Hispanic Americans, 31 for Native Americans, and 48 for African Americans, and 300 for the total population.

In addition to insufficient data, inconsistencies have been cited by several investigators in the National Center for Health Statistics' (NCHS) coding for race and ethnicity (Hahn et al., 1992; Farley et al., 1995; Yoon & Chien, 1996). Infant death certificates between 1983 and 1985 had numerous discrepancies regarding people's ethnicity at birth and at death, especially for individuals who were neither black nor white. At birth, infants of mixed parental ethnicity were classified according to a hierarchy of categories: African American, Native American, Asian, white Hispanic, and white non-Hispanic. For example, a child with Asian- and African-American parents

would be classified as African American. Correct coding of ethnicity might increase infant mortality rates by 33.3 percent for Chinese, 48.8 percent for Japanese, and 78.7 percent for Filipinos. The presumed low birth weights of AAPIs may be based on incorrect coding practices (Hahn et al., 1992).

Disaggregation of data provides a more accurate picture of AAPI health status. For example, the 1991–1992 data from the Behavioral Risk Factor Surveillance System (BRFSS) indicate that the prevalence of smoking among AAPI men and women is 19.4 percent and 9.7 percent, respectively. However, cigarette smoking rates among Vietnamese men have been found to be as high as 55 percent (National Center for Health Statistics, 1997). A study of 117 Indochinese men and women in San Diego, California, found that 28.6 percent of Hmong men, 27.3 percent of Laotian men, 56 percent of Vietnamese men, and 100 percent of Cambodian men were smokers (Bates et al., 1989).

Identification of AAPIs remains a pervasive challenge for investigators. Many use sampling lists from telephone directories and directories generated by past surveys or marketing firms. These lists, however, have not been tested for accuracy and reliability (Yu & Liu, 1994). Surname-based surveys are unreliable because no measures exist to ensure names perceived to be “Asian” or “Pacific Islander” are indeed AAPI individuals. For Filipinos, surname-based surveys are inappropriate since many have Spanish last names or for Hawaiians whose last names represent Asian, Polynesian, or other name variations that are not easily recognized by mainstream Americans (Yu & Liu, 1994).

The need for accurate and comprehensive data on AAPIs cannot be overstated. Availability of accurate ethnic subgroup information is a critical component of formulating effective responses to health issues that affect AAPIs.

DEMOGRAPHIC INFORMATION

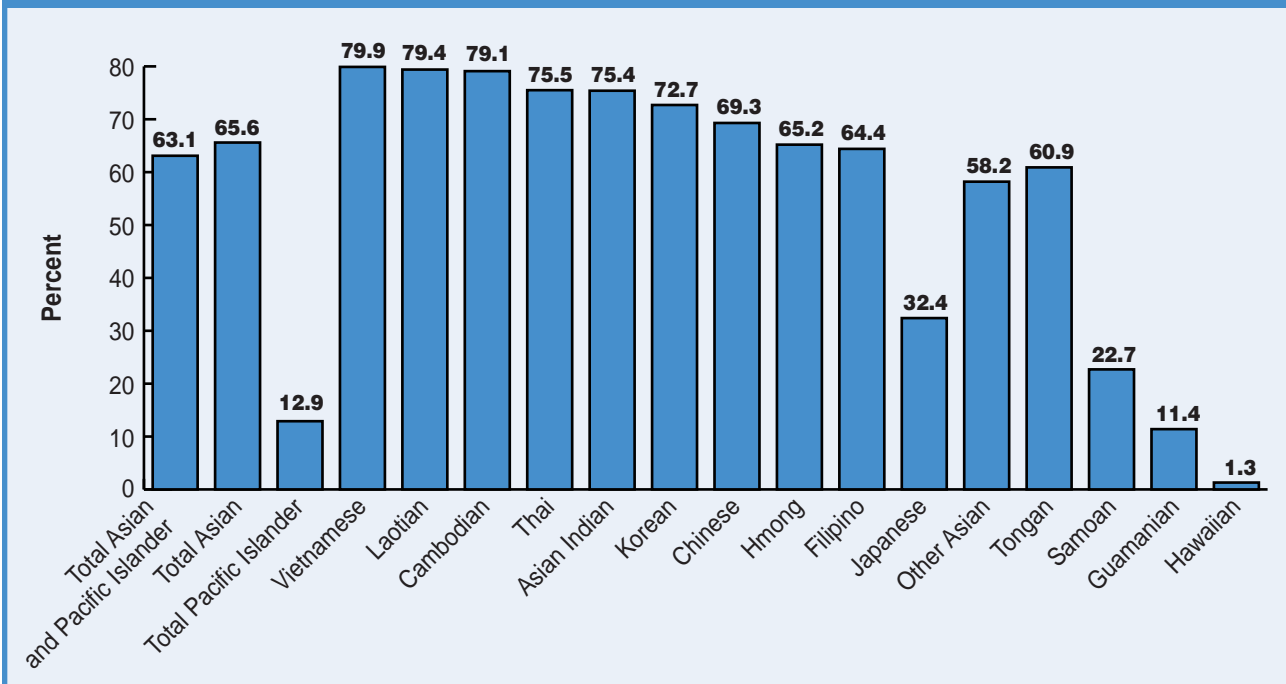
AGE

The AAPI population is a predominantly young group (Table 1). Immigration is a major factor that affects the age composition of this group. According to 1996 census data, 30 percent of Asian Americans are under the age of 18, compared with 25 percent for whites. Nearly 45 percent of Asian Americans are between the ages of 18 and 44. The majority of foreign-born Asian Americans are between the ages of 18 and 44 (U.S. Bureau of the Census, 1997b). Seven percent of Asian Americans are ages 65 and older. The number of AAPIs 65 years and older increased from 212,000 in 1980 to 454,458 in 1990 (U.S. Bureau of the Census, 1992).

The median age for Asian Americans in 1990 was 30 years, lower than the national median age of 33 years. Due to the large proportion of recent immigrants among the Cambodian and Hmong populations, they constitute the youngest Asian Americans, with a median age of 13 years for Hmongs and 19 years for Cambodians. The Japanese were the eldest of the Asian population, with a median age of 36 years, in part because fewer Japanese-Americans are foreign born. (U.S. Bureau of the Census, 1993a).

Similarly, the Pacific Islanders are a relatively young population. The median age for Pacific Islanders in 1990 was 25 years. Samoans represented the youngest group, with a median age of 22 years. Hawaiians had the oldest median age, 26 years, followed by Guamanians with a median age of 25 (U.S. Bureau of Census, 1993b).

FIGURE 5. PERCENTAGE OF ASIAN AMERICAN AND PACIFIC ISLANDER ETHNIC-SPECIFIC FOREIGN-BORN POPULATIONS, 1990



Source: U.S. Census, 1993.

TABLE 1: AGE DISTRIBUTION FOR ASIAN AMERICANS AND PACIFIC ISLANDERS AND WHITE NON-HISPANIC POPULATIONS, UNITED STATES, 1990

Age Group (years)	AAPIs (%)	Whites (%)
<15	24.0	19.7
15–44	53.7	46.1
45–64	16.2	19.9
65–84	5.8	12.9
85+	0.4	1.4

Source: U.S. Bureau of the Census, 1990.

In each of the U.S.-Pacific jurisdictions, nearly half of the population is under the age of 19. In Micronesia, the majority of the population is under the age of 15. In the Marshall Islands, 57 percent of the population is under 19 years old, as are 44 percent in American Samoa and 36 percent in the Northern Marianas (Diaz, 1997).

While their rate of growth is smaller compared to the rest of Asian Americans and Pacific Islanders, AAPI elders continue to represent a significant portion of this group. They comprise 1.5 percent of all U.S. elders and are expected to grow to 8 percent by the year 2050. Four percent of Pacific Islanders were 65 years and older, compared with 6 percent of all AAPIs and 13 percent of the total U.S. population. (U.S. Bureau of the Census, 1993b). Over 69 percent of AAPI elders are foreign born, largely due to massive immigration reform in the 1960s (Young & Gu, 1995).

Because the AAPI group is relatively young, tremendous opportunity exists for health promotion, education, and behavioral modification. In addition, special attention must be directed to the health needs of AAPI elders. Their health problems are perhaps more pronounced since they face language and psychological barriers, financial difficulties, and logistical problems such as inadequate transportation to health centers (True, 1985).

GEOGRAPHIC DISTRIBUTION AND POPULATION DENSITY

While the AAPI population continues to grow at a fast pace, they reside in selected areas of the Nation. Over half of the Nation's AAPIs live on the west coast of the United States, and the remaining are scattered throughout the United States. For instance, large concentrations of Asian Americans in one region are exemplified by Filipino-Americans, nearly 51 percent of whom reside in California (U.S. Bureau of the Census, 1990). While large concentrations of AAPIs reside in California, New York, and Hawai'i, other states have also experienced tremendous growth. In the last decade, the AAPI population grew 139 percent in the South and the Northeast, 97 percent in the Midwest, and 95 percent in the West (Takeuchi & Young, 1994). Most AAPIs (56 percent) live in three States—California, New York, and Hawai'i. Other States with the largest Asian and Pacific Islander populations are Texas, New Jersey, Illinois, Washington, Florida, Virginia, and Massachusetts (Table 2). AAPIs account for a mere 3 percent of the total population in the remaining States combined (U.S. Bureau of the Census, 1997). In 1990, 86 percent of the Pacific Islander population lived in the West compared to 21 percent of the total population. Approximately 75 percent of Pacific Islanders live in California and Hawai'i; these States have more than 100,000 Pacific Islanders (U.S. Bureau of the Census, 1993b).

EDUCATION

Education is highly valued in AAPI communities, but their educational attainment varies widely. In 1994, nearly 85 percent of AAPIs 25 years and older had 4 years of high school education, compared to 81 percent of the total U.S. population. Approximately 41 percent had 4 or more years of college, compared to 22 percent of the total population (U.S. Bureau of the Census, 1995).

Educational differences among Asian Americans are significant. The proportion of Hmong completing high school or higher was 31 percent, compared to 88 percent for Japanese. For college-level education, Asian Indians (65.7 percent for males and 48.7 percent for females) have the highest

TABLE 2: STATES WITH LARGEST ASIAN AMERICAN AND PACIFIC ISLANDER (API) POPULATIONS, 1996

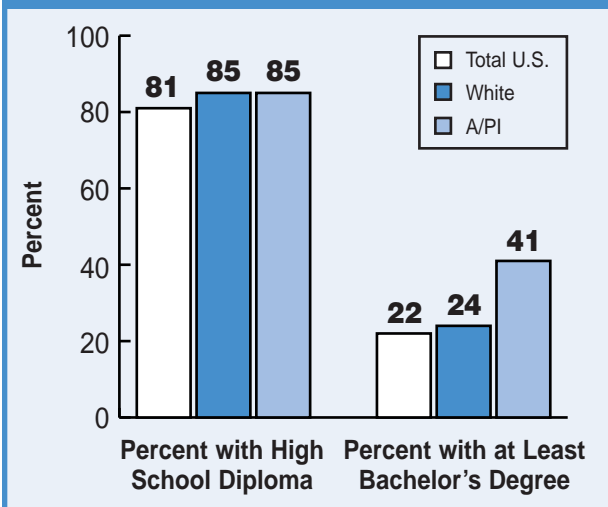
Rank	State	Populations (000s)	Percent of AAPI
1	California	3,760	38.7
2	New York	900	9.3
3	Hawai'i	761	7.8
4	Texas	475	4.9
5	New Jersey	393	4.0
6	Illinois	371	3.8
7	Washington	301	3.1
8	Florida	228	2.3
9	Virginia	224	2.3
10	Massachusetts	200	2.1

Source: U.S. Bureau of the Census, 1997b.

attainment rates, and Cambodians (8.6 percent for males and 3.2 percent for females), Laotians (7.0 percent for men and 3.5 percent for women), and Hmong (7.0 percent for men and 3.0 percent for women) had the lowest (U.S. Bureau of the Census, 1993a). This variability in education among the AAPIs shows that they are overrepresented on both ends of the education spectrum (Table 3).

Educational attainment for Pacific Islanders also varies within the subgroups. In 1990, 76 percent of all Pacific Islanders 25 years and older were at least high school graduates, compared with the national rate of 75 percent. Within the group, the proportion who received a high school diploma or higher ranged from 80 percent for Hawaiians to 64 percent for Tongans. In general, Pacific Islander men had higher rates of high school completion than did women, 77 percent versus 75 percent. Tongan women, however, had higher rates of high school completion than did Tongan men. At the college level, 11 percent of Pacific Islanders were graduates, compared with 37 percent of all AAPIs and 20 percent of the total population (U.S. Bureau of the Census, 1993b).

FIGURE 6. ASIAN AMERICAN AND PACIFIC ISLANDER EDUCATIONAL ATTAINMENT, 1990



Source: U.S. Bureau of the Census, Statistical Brief SB 95-24.

INCOME, POVERTY LEVEL, AND EMPLOYMENT

Income

In 1997, the median household income for AAPIs was \$45,249, the highest among all U.S. ethnic groups. White households had the second highest (\$38,972), followed by black households (\$25,050), and Hispanic-origin households (\$26,628) (U.S. Bureau of the Census, 1998).

TABLE 3: AAPI EDUCATIONAL ATTAINMENT BY SEX; 1990: PERCENT 25 YEARS OLD AND OVER

	High School Graduate or Higher		Bachelor's Degree or Higher	
	Male	Female	Male	Female
Total Population	75.7	74.8	23.3	17.6
Total Asian	81.7	73.9	43.2	32.7
Chinese	77.2	70.2	46.7	35.0
Filipino	84.2	81.4	36.2	41.6
Japanese	89.9	85.6	42.6	28.2
Asian Indian	89.4	79.0	65.7	48.7
Korean	89.1	74.1	46.9	25.9
Vietnamese	68.5	53.3	22.3	12.2
Cambodian	46.2	25.3	8.6	3.2
Hmong	44.1	19.0	7.0	3.0
Laotian	49.4	29.8	7.0	3.5
Thai	88.6	66.2	47.7	24.9
Other Asian	85.9	78.7	47.5	34.2
Total Pacific Islander	77.2	75.0	12.0	9.6
Hawaiian	79.9	79.0	13.0	10.7
Samoaan	74.7	66.5	9.8	6.1
Tongan	61.4	66.8	5.6	5.9
Guamanian	73.9	70.6	11.8	8.2

Source: U.S. Bureau of the Census, 1993a, b.

Although AAPIs as a group had the highest median household income in 1997, their income-per-household-member estimate (\$18,569) was lower than the income-per-household-member estimates for white households (\$20,093). The income-per-household-member measure represents the average amount of income available to each household member (U.S. Bureau of the Census, 1998).

AAPI families display higher median income levels in comparison to white households because AAPI families tend to have more workers per household. The proportion of Asian American families with three or more workers was 20 percent, compared with the national proportion of 13 percent (U.S. Bureau of the Census, 1993a). About 19.7 percent of Pacific Islander families and 20 percent of Asian American families had three or more workers, compared with 13.4 percent of total U.S. families (U.S. Bureau of the Census, 1993a, b). Further, a higher proportion of AAPI family householders worked year-round, full-time (62 percent) than of the comparable non-Hispanic white family householders (58 percent) (U.S. Bureau of the Census, 1995b). For example,

adults in Filipino-American households are known to hold two or more jobs (Garde et al., 1994). These attributes are not captured in census data and, therefore, provide a distorted picture of the economic status of AAPIs.

The earning power of AAPIs does not correlate with their level of education. The gap between their educational attainment and income is explained by cultural and language barriers that prevent equal access to employment and promotion opportunities, particularly for highly educated immigrants (Lin-Fu, 1993). For instance, Filipino-Americans, particularly those with immigrant backgrounds, encounter major difficulty in attaining employment that is equitable with their educational level. Some Filipino-American professionals accept entry-level jobs or low-paying jobs for economic reasons, which potentially induce stress and physiological disorders (Garde et al., 1994).

In 1990, the median income for AAPIs 25 years or older was \$25,193, compared with \$25,511 for the total population. AAPIs with 4 or more years of high school education earned \$19,288, compared with \$21,615 for the total population. A little over

20 percent of AAPIs earned less than \$15,000 (U.S. Bureau of the Census, 1990).

Per capita income within AAPI groups varies greatly, illustrating the role of education, acculturation, and recency of immigration (Figure 7). For instance, in 1990, the Japanese had the highest per capita income at \$19,373 and Hmong, one of the most recent Asian immigrant groups, had the lowest at \$2,692 (U.S. Bureau of the Census, 1993a).

Per capita income differentials are also evident within the Pacific Islander communities. The per capita income for Pacific Islanders (\$10,342) is lower than that of Asians (\$13,806). In 1990, of all Pacific Island groups, Hawaiians had the highest per capita income at \$11,446, while Tongans had the lowest at \$6,144 (U.S. Bureau of the Census, 1993b).

Poverty Level

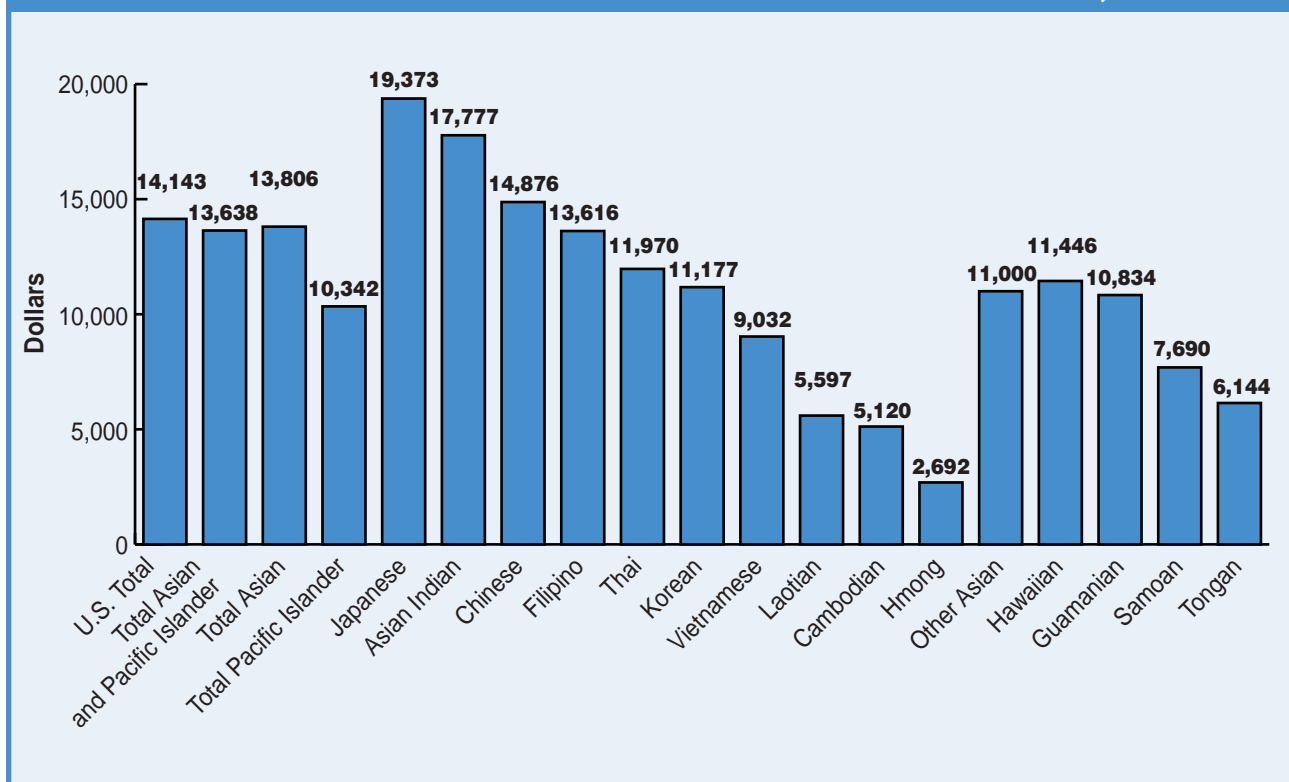
Despite the higher median family incomes for AAPIs, they are twice as likely to live in poverty than whites (U.S. Bureau of Census, 1995b). Nearly 14.0 percent of AAPIs lived below the

poverty level, compared with about 8.6 percent of whites. The difference in poverty level was greatest for married-couple families (10.7 percent for AAPIs versus 3.8 percent for whites). Nearly one in five AAPI children was poor in 1995—almost twice the rate for whites (U.S. Bureau of the Census, 1995b). The disproportionate number of AAPIs living in poverty is also evident in specific parts of the country. For instance, in Boston, 29.5 percent of the Asian (Asians only) population lived below the poverty level in 1990, compared with 18.7 percent of the total city population (City of Boston Department of Public Health, 1995).

Recent immigrant AAPI groups appear to be disproportionately affected by poverty (Figure 8). For example, 65.2 percent of the Hmong are foreign born and 63.6 percent of them live in poverty. In contrast, of the thirty-two percent of Japanese-Americans who are foreign born, only 7.0 percent live in poverty (U.S. Bureau of the Census, 1993a).

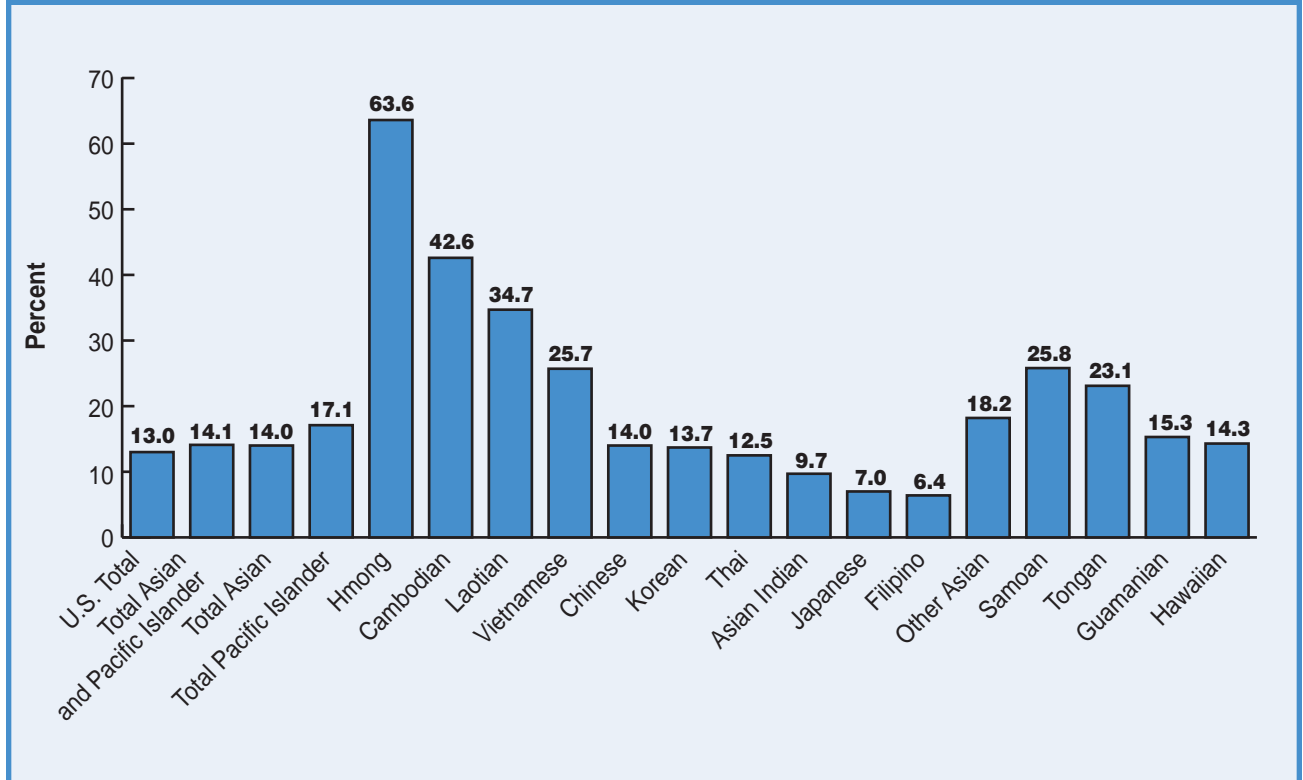
In 1989, about 17 percent (or 58,000) of Pacific Islanders lived below the poverty level, higher

FIGURE 7. ASIAN AMERICAN AND PACIFIC ISLANDER PER CAPITA INCOME, 1990



Source: U.S. Census, 1992.

FIGURE 8. ASIAN AMERICAN AND PACIFIC ISLANDER POVERTY RATES, 1990



Source: U.S. Census, 1992.

than the 14 percent poverty rate for all AAPIs. Samoans had the highest poverty rate, followed by Tongans. About one of every four Samoan families and one of every five Tongan families were below the poverty level in 1989 (U.S. Bureau of the Census, 1993b).

Employment

The proportion of college-educated AAPI women who worked in administrative jobs (20 percent) was about twice that of comparable white women, and the proportion who worked in service occupations was three times higher (6 and 2 percent, respectively). In 1993, the highest proportions of AAPI men 25 years and older worked in executive and professional occupations (16 and 21 percent, respectively). AAPI women worked predominantly in executive (18 percent), professional (20 percent), and administrative support (including clerical) (23 percent) jobs (U.S. Bureau of the Census, 1995b).

Pacific Islanders are more likely than the total AAPI population to be in service occupations and less likely to be in managerial or professional occupations. Tongans are more likely than all Pacific Islanders to work in service occupations and less likely to be managers or professionals (U.S. Bureau of the Census, 1993b).

The 1998 DHHS report, *Health, United States*, asserts that health in the United States is tied to income and education. While the Nation's overall health has improved, individuals with low income or little education are less likely to share the benefits of good health. Further, the report states that persons with lower income or education are more likely to acquire risk factors such as sedentary lifestyle and cigarette smoking, are less likely to have health insurance coverage or receive preventive care, and are more likely to report unmet health needs. For AAPIs with low socioeconomic status, this report provides yet another compelling reason to improve their health and to minimize their risks for CVD.

LANGUAGE DIVERSITY AND ENGLISH PROFICIENCY

Asian Americans and Pacific Islanders speak numerous languages and dialects. Approximately 75 percent of the Asian Americans speak a language other than English (Figure 9). About 30 percent of persons 5 years and older have limited English-speaking capacity (Figure 10), and 25 percent belong to linguistically isolated households (Figure 11). Linguistic isolation is defined by the inability to speak English. It is a major barrier to newly arrived Asian Americans to becoming mainstream members of society. The most linguistically isolated Asian Americans are: Hmongs (59.8 percent), Cambodians (54.7 percent), Laotians (51.5 percent), and Vietnamese (42.1 percent) (U.S. Bureau of the Census, 1993a).

Among Pacific Islanders 5 years and older, 25 percent speak a language other than English at home. Thirty-three percent do not speak English very well, and 11 percent are linguistically isolated. Within the group, Tongans and Samoans have the highest proportion of persons 5 years and older

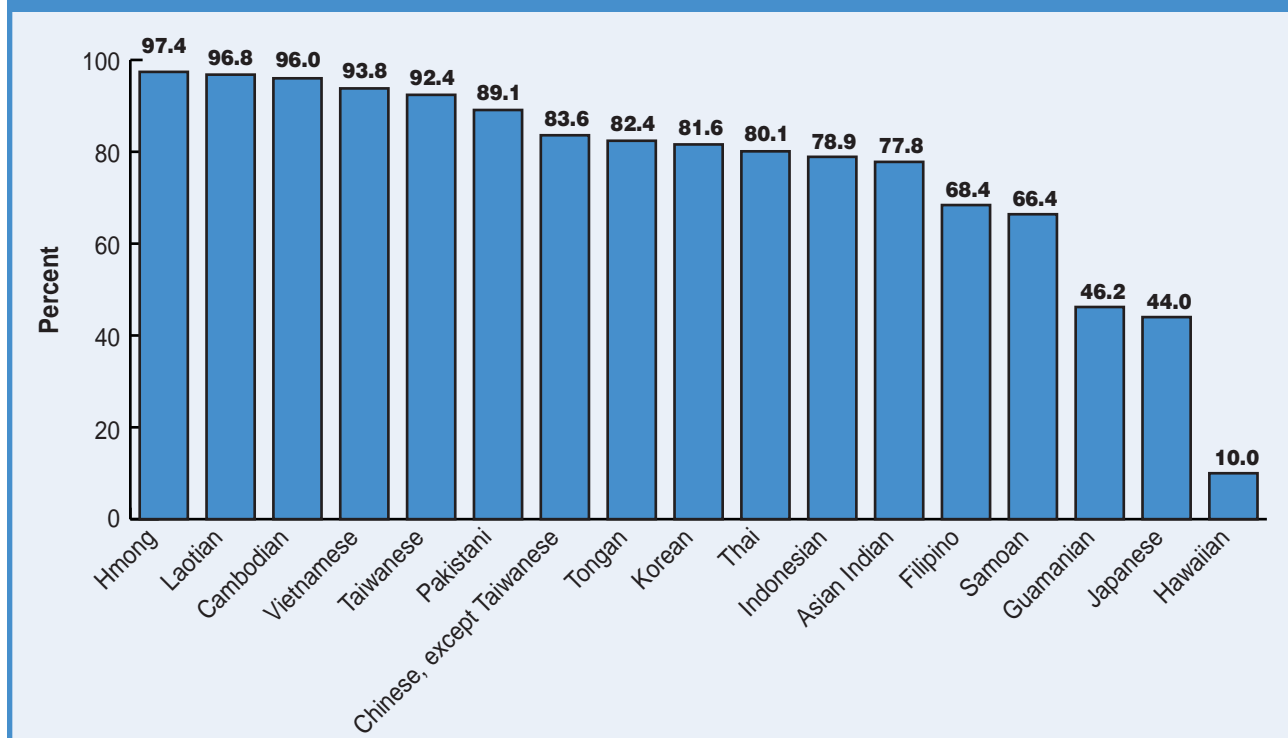
who do not speak English at home (72.4 percent and 63.9 percent, respectively). Hawaiians have the lowest proportion (7.7 percent). Nearly 22 percent of Tongans are linguistically isolated (U.S. Bureau of the Census, 1993b).

Nearly 31 percent of AAPIs 65 years and older are linguistically isolated, 58.2 percent do not speak English very well, and 79.9 percent speak a language other than English. The largest group of AAPI elders who are linguistically isolated are the Hmongs (58.5 percent), Cambodians (53.7 percent), Koreans (52.5 percent), Laotians (48.4 percent), and Vietnamese (45.9 percent). Among Pacific Islander elders (Samoan, Guamanian, and Hawaiian), 6.5 percent are linguistically isolated, 19.6 percent do not speak English very well, and 37.8 percent speak a language other than English (U.S. Bureau of the Census, 1990).

ACCESS TO HEALTH CARE

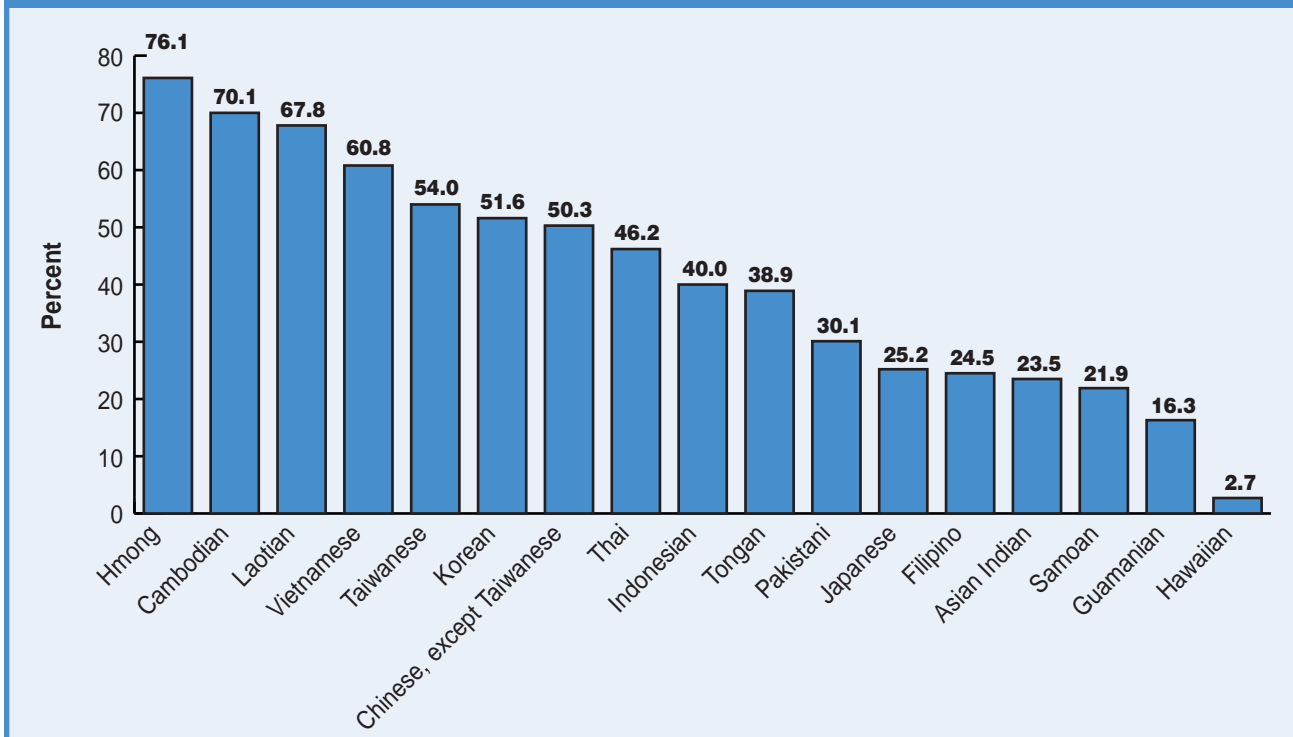
Income, poverty level, and occupation affect an individual's ability to access health services. In a study of minority health care, 23 percent of Asian

FIGURE 9. PERCENTAGE OF ASIAN AMERICANS AND PACIFIC ISLANDERS WHO SPEAK A LANGUAGE OTHER THAN ENGLISH



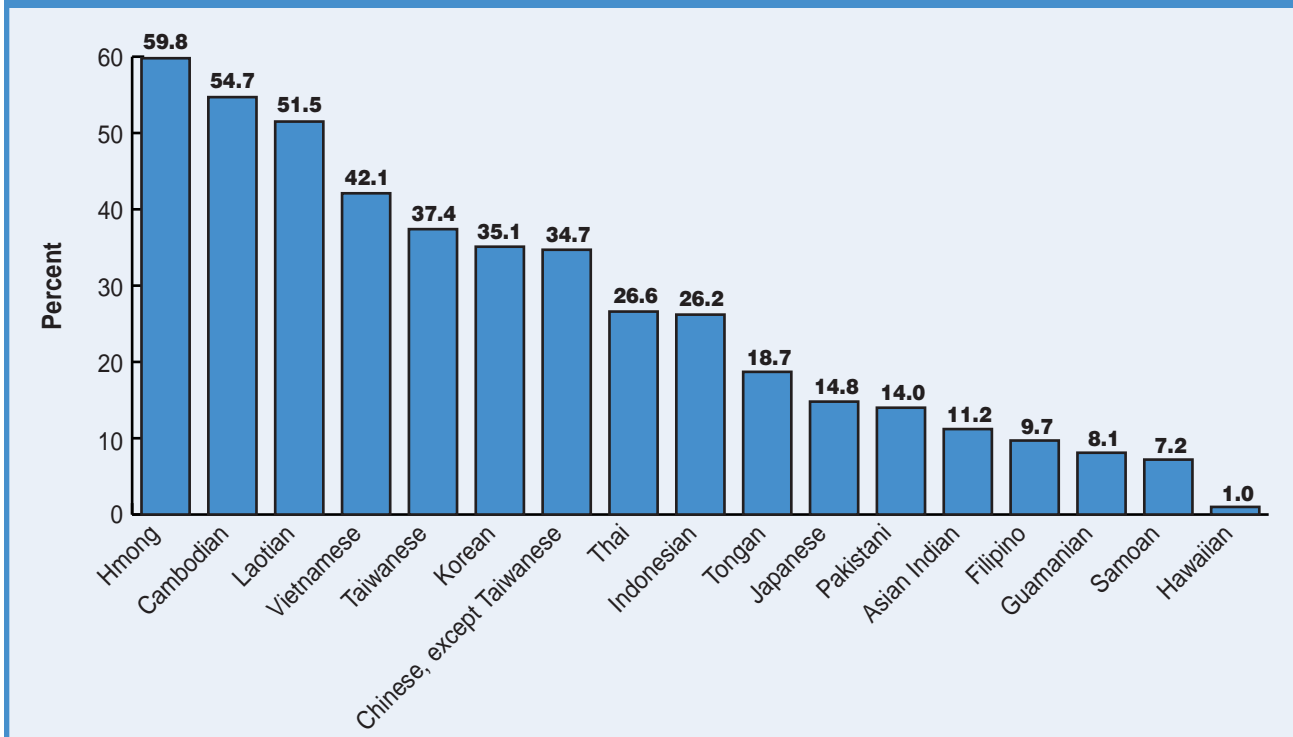
Source: U.S. Census, 1992.

FIGURE 10. PERCENTAGE OF ASIAN AMERICANS AND PACIFIC ISLANDERS WHO DO NOT SPEAK ENGLISH "VERY WELL," 1990



Source: U.S. Bureau of the Census, 1990 Census of Population, "Asians and Pacific Islanders in the United States," 1990-CP-3-5.

FIGURE 11. PERCENTAGE OF ASIAN AMERICANS AND PACIFIC ISLANDERS WHO ARE LINGUISTICALLY ISOLATED, 1990



Source: U.S. Bureau of the Census, 1990 Census of Population, "Asians and Pacific Islanders in the United States," 1990-CP-3-5.

American adults were uninsured, 60 percent did not have regular access to a doctor or provider, and 41 percent asserted that medical care represents a financial burden (The Commonwealth Fund, 1995). The same study showed that 41 percent of Korean-Americans lacked health insurance and that Chinese-American adults (55 percent) were more likely to report health care costs as a major problem. In Massachusetts, 17 percent of the AAPI population reported having no health insurance coverage, compared to 10.3 percent of the total State population (Massachusetts Department of Public Health, 1996). Moreover, few AAPI physicians are located in areas where the majority of AAPIs reside, thus, limiting the availability of culturally competent care providers. While 60 percent of AAPIs live in the West, only 15 percent of AAPI physicians reside in the West (U.S. Department of Health and Human Services, 1997).

For Hawaiians, access to care is impeded by the geographic location of health facilities, high costs of services, and required air transportation. Health care centers are inaccessible to many Hawaiians who live in rural areas. Some medical services, such as prescriptions and special treatments, are available only on one island or may not be covered by insurance (Mokuau et al., 1995). In totality, the U.S. Pacific territories are medically underserved; the physician-to-population ratio is at least 1 to 3,000 and the poverty and infant mortality rates are high (U.S. Department of Health and Human Services, 1997).

Only three U.S. territories in the Pacific—American Samoa, Guam, and the Commonwealth of the Northern Marianas—are eligible for Medicare and Medicaid programs. However, the Federal Government has imposed a limit for their share of reimbursements. Consequently, local governments are responsible for as much as 85 percent of the total costs of these programs. Financial restrictions impede future investment in health where current expenditures are already limited (Table 4) (Diaz, 1997).

Although the AAPI population has increased dramatically in the last decade, some of the health care barriers they face today mirror those encountered 15 years ago (Mayeno & Hirota, 1994). A 1989 California study indicated that AAPIs were among

TABLE 4: ANNUAL PER CAPITA HEALTH EXPENDITURE IN THE U.S. PACIFIC TERRITORIES, BY JURISDICTION (1994)

Jurisdiction	Health Expenditure per Capita
Northern Mariana Islands	\$581
Guam	\$409
American Samoa	\$258
Palau	\$244
The Marshall Islands	\$160
Federated States of Micronesia	\$ 59
Average	\$285

Source: Diaz, 1997.

the groups least likely to have access to employer-provided health benefits (Brown et al., 1991). The same study also showed that 20 percent of non-elderly AAPIs and “others” in California, and 21 percent nationally, were uninsured.

Health insurance coverage under Medicaid is available for Southeast Asian refugees through the Refugee Assistance Program. This entitlement, however, is time limited. Medicaid covers roughly one-third of the Southeast Asian refugee population (Phan, 1984). A group of Southeast Asians surveyed in the San Diego area indicated that 67 percent of those covered by MediCal, a California version of Medicaid, feared cuts in their coverage. The study also showed low levels of utilization because of language and cultural barriers (Rumbaut et al., 1988).

Logistical problems, such as transportation and safety, also affect the ability to access health care. Newcomers or elders who are not able to drive may not seek medical attention if the health center is inaccessible by public modes of transportation. Understanding the U.S. health care process is difficult for many minorities and underserved populations. This is especially true for AAPIs who have limited English proficiency. Complicated application forms and health benefit packages are generally not designed for non-English speakers or people with low socioeconomic status or low literacy.

Communication barriers remain an endemic problem for recent immigrants. The lack of bilingual or multilingual staff in health care settings and strong affiliation for informal support systems may discourage some AAPIs from seeking preventive care through mainstream avenues. Specifically, the lack of knowledge of AAPI cultures and values presents a major barrier to care. Western doctors often ask English-speaking children of immigrant families to translate messages to their parents. This practice is highly undesirable as it may violate hierarchical norms of some AAPI ethnic groups. Parents may feel uncomfortable sharing their health needs with their children, and some may perceive the role of a child as a translator a challenge to parental authority.

UNDERUTILIZATION OF SERVICES

Many AAPIs with immigrant status underutilize health care services due to confusion about entitlement eligibility, fear of deportation, and concerns about jeopardizing their residency status. Even permanent residents are reluctant to use Medicaid services because of fear of being marked as “public charges” by the Immigration and Naturalization Service. There is an enormous amount of confusion and ambiguity regarding these statutes and how they apply to AAPI immigrants (Mayeno & Hirota, 1994).

AAPI elders tend to underutilize health services as well. The 1979 National Ambulatory Medical Care Survey found that AAPI elders 65 years and older visit physicians half as often as their white counterparts in the same group (Liu & Yu, 1985). Another study showed that Chinese, Japanese, and Filipinos 50 years and older are less likely to see a physician than the rest of the general population. When asked if they have seen a physician in the prior year, 63.1 percent of Chinese women and 58 percent of Filipino men had seen a physician, compared to 81.5 percent of the overall comparable population (Stavig et al., 1988). According to a Minnesota survey, Asian American elders visited physicians significantly less frequently in the past year than whites, even among individuals who were at risk for repeated hospitalization: 43.0 percent versus 15.1 percent, zero to one time; 42.5 percent versus 49.4 percent, two to six times; 14.5 percent versus 35.5 percent, seven or more times (Boult & Boult, 1995).

The factors mentioned above limit many AAPIs’ ability to access health care in the United States, particularly for those with low socioeconomic status. In spite of the limited data on AAPI health, regional case studies used here document the lack of access to care for many AAPIs.

TABLE 5: ASIAN AMERICANS WITHOUT HEALTH INSURANCE, AS SHOWN BY LOCAL SURVEYS

Ethnicity/Location (Source)	Number Surveyed	% No Insurance
Asian Americans		
Boston (Gold & Socolar, 1987)	450	27
Chinese		
Oakland (Lew & Chen, 1990)	296	35.1
Chicago (Yu et al., 1990)	200	30.5
Koreans		
Los Angeles (Korean Health Survey Task Force, 1989)	350	50
Southeast Asians		
San Diego (Rumbaut et al., 1988)	739	37
Vietnamese		
San Francisco Bay Area (Jenkins et al., 1990)	215	15
Asian women		
Southern California (National Council of Negro Women, 1991)	304	21

Source: Table 13.1 in Zane et al., 1994.

CARDIOVASCULAR DISEASE AND ASSOCIATED RISK FACTORS AMONG ASIAN AMERICANS AND PACIFIC ISLANDERS

CARDIOVASCULAR DISEASE PREVALENCE AND MORTALITY RATE

H eart disease is responsible for 40 percent of all deaths in the United States. About 57 million Americans are diagnosed with some form of CVD, which includes heart disease and stroke. The cost of CVD to the Nation amounts to nearly \$260 billion annually (National Heart, Lung, and Blood Institute, 1997).

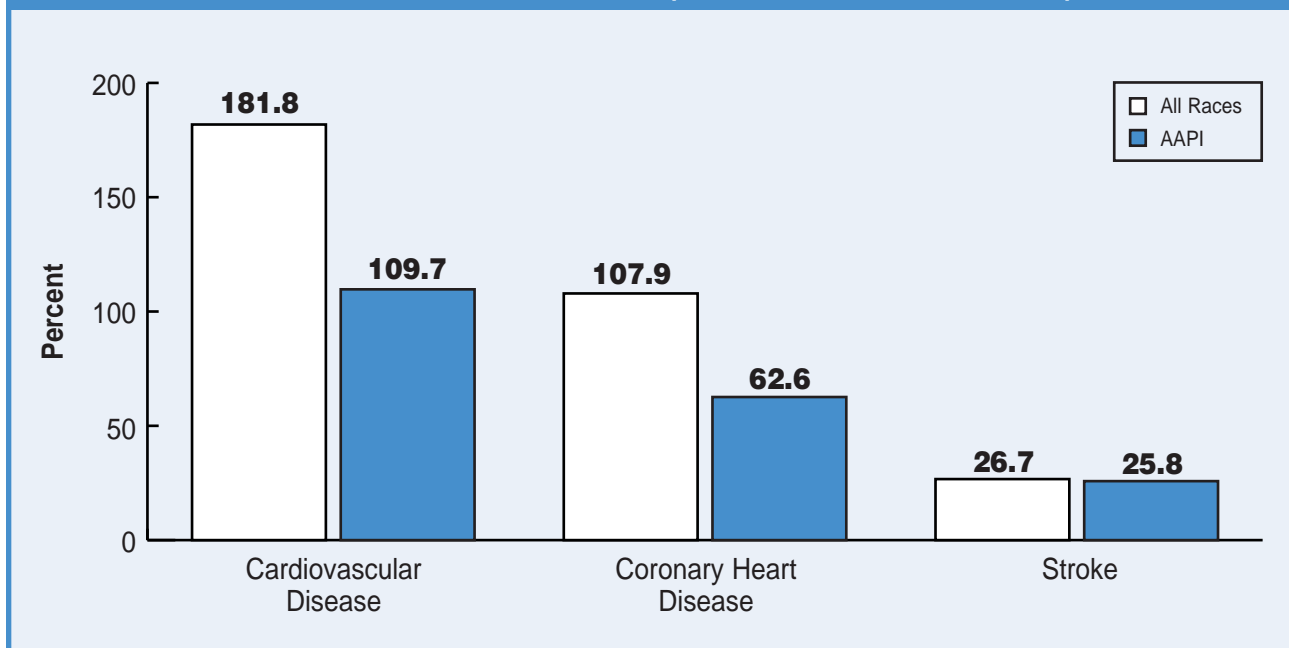
Heart disease is the leading cause of death among AAPIs. The age-adjusted CVD death rate for AAPIs is 109.7 per 100,000, compared to 181.8 for the total U.S. population. Specifically, the age-adjusted death rate due to coronary heart disease (CHD) for AAPIs is 62.6 per 100,000, compared to 107.9 per 100,000 for all races combined

(Figure 12) (National Center for Health Statistics, 1997). Death rates due to stroke for AAPIs is 25.8 per 100,000, compared to 26.7 per 100,000 for the general population (National Center for Health Statistics, 1997).

Native Hawaiians disproportionately suffer the burden of heart disease, compared to other ethnic groups in the State of Hawai'i. Most Native Hawaiians are unaware of the extent of their health problems. When compared to all races in the United States, there is evidence that Native Hawaiians suffer higher overall mortality rates for major ailments (National Heart, Lung, and Blood Institute, 1993).

In 1990, the mortality rate for heart disease for full-Hawaiians was still 4.7 times higher than that for "all races" and 2.5 times higher than that for part-Hawaiians. In addition, the mortality rate for

FIGURE 12. SELECTED 1995 DEATH RATES FOR ASIAN AMERICANS, PACIFIC ISLANDERS, AND ALL UNITED STATES RACES (AGE-ADJUSTED PER 100,000)



Source: Anderson, 1998.

part-Hawaiians was 1.9 times higher than that for the “all races” group. For all causes of death measured, the disparity between groups is the greatest for heart disease. While the mortality rate improved for all races between 1980 and 1990, the rates for Hawaiians worsened (Braun et al., 1995). The age-adjusted rate of death for Native Hawaiians is 333.4 per 100,000, making heart disease the leading cause of death for this group (Hawai'i Department of Health, 1993). Native Hawaiians' death rate from heart disease is 66 percent higher than that for the total State population (Johnson et al., 1996). The age-adjusted death rate per 100,000 population is 340.8 for pure Hawaiians, 125.8 for part-Hawaiians, and 89.0 for non-Hawaiians (Office of Hawaiian Affairs, 1996).

RISK FACTORS

Risk factors influence or increase an individual's likelihood of developing heart disease. While some risk factors cannot be changed, many are modifiable. The key risk factors for heart disease are high blood cholesterol, high blood pressure, cigarette smoking, obesity, physical inactivity, and diabetes. The following section discusses the most common modifiable CVD risk factors and their effect on the AAPI population where data are available.

High blood cholesterol

High blood cholesterol greatly increases one's chances of developing CHD. Excessive cholesterol in the blood settles on the inner walls of the arteries, narrowing them and restricting blood to pass through to the heart. An estimated 60 million American adults require treatment to lower their cholesterol levels (Tamir & Cachola, 1994). The National Cholesterol Education Program has determined blood cholesterol levels that define desirable, borderline-high, and high blood cholesterol. For adults, a blood cholesterol level lower than 200 mg/dL is desirable. Cholesterol levels from 200 to 239 mg/dL are considered borderline, and high blood cholesterol is defined as levels of 240 mg/dL or greater (National Cholesterol Education Program, 1993).

Clinical intervention trials have shown that a reduction in blood cholesterol levels lowers the risk for CHD. Diets high in saturated fat and

cholesterol raise blood cholesterol levels. The *Report of the Expert Panel of Population Strategies for Blood Cholesterol Reduction* recommends that individuals should consume less than 10 percent of total calories from saturated fats; consume an average of 30 percent of total calories or less from all fat; adhere to dietary calorie levels needed to reach or maintain desirable body weight; and consume less than 300 mg of cholesterol per day.

Two specific kinds of blood cholesterol are low-density lipoprotein (LDL) cholesterol and high-density lipoprotein (HDL) cholesterol. LDL cholesterol, sometimes known as “bad” cholesterol, causes cholesterol to accumulate in the walls of the arteries. The more LDL that exists in the blood, the greater the risk for heart disease. On the other hand, HDL is called “good cholesterol” because it helps the body remove cholesterol from the blood. Unlike total and LDL cholesterol, higher levels of HDL cholesterol reduce the risk for heart disease.

Studies on serum cholesterol levels of AAPIs are limited. Klatsky and Armstrong (1991) found that, in both men and women, the adjusted mean cholesterol levels were lowest in “other Asians” and highest in Japanese men and women, compared with other AAPI ethnic groups. Several studies have found that mean total cholesterol and LDL cholesterol levels are lower in Asian countries than in Western countries (Bates et al., 1989; Kesteloot et al., 1985; Yao et al., 1988). Klatsky and Armstrong (1991), however, reported that there is no significant difference between the cholesterol levels of U.S.-born Asians and foreign-born Asians.

An examination of the blood cholesterol levels of Native Hawaiians reveals that they are at risk for CVD. Both male and female Native Hawaiians have been shown to have prevalence rates of 50 percent and 45 percent, respectively, for blood cholesterol levels of ≥ 200 mg/dL or higher. For blood cholesterol levels of 240 mg/dL, the prevalence rate for the age group 50 to 59 has been as high as 40 percent (Curb et al., 1991). These data concur with the Moloka'i Heart Study where 50 percent of the participants had levels greater than 200 mg/dL (Native Hawaiian Health Research Project, 1994). Compared with whites, the age-adjusted mean HDL levels are significantly lower

among Hawaiian males and especially among females (Curb et al., 1991; Heiss et al., 1980). In addition, 43 percent of Japanese in Hawai'i indicated that they have been told they have high cholesterol levels, as have 33 percent of Filipinos, 24 percent of Hawaiians, 30 percent of Caucasians, and 32 percent of "other" (Hawai'i Department of Health, 1993).

The limited number of Asian Americans who have their blood cholesterol checked indicates a gap in knowledge and access to information. More importantly, it indicates a significant number of AAPIs who are unaware of their risk for heart disease. In 1993, only 44 percent of AAPIs had their blood cholesterol level checked within the past 2 years, compared to 54 percent of the total population (National Center for Health Statistics, 1993). In 1995, 30.6 percent of Asians Americans in Massachusetts failed to have their blood cholesterol checked, compared to 20.5 percent of the total State population (Massachusetts Department of Public Health, 1996).

Failure to undergo blood cholesterol screening is alarmingly prevalent among Southeast Asians. For example, a 1992 study by the Centers for Disease

Control and Prevention (CDC) found that a majority of Vietnamese men (56 percent) and women

TABLE 6: ESTIMATED PREVALENCE OF HIGH BLOOD CHOLESTEROL AMONG ASIAN AMERICAN AND PACIFIC ISLANDER ETHNIC GROUPS IN THE UNITED STATES

Ethnicity	% of HBC in Males	% of HBC in Females	Place and Years	Age Group	Source
Filipino	29.8	20.6	Northern California, 1978–1985	18 years old and older	Klatsky & Armstrong (1991)
Chinese	26.6	20.2	Northern California, 1978–1985	18 years old and older	Klatsky & Armstrong (1991)
Japanese	36.6	30.3	Northern California, 1978–1985	18 years old and older	Klatsky & Armstrong (1991)
Other Asian	20.4	13.5	Northern California, 1978–1985	18 years old and older	Klatsky & Armstrong (1991)
Japanese	23.6	26.6	Hawai'i, 1965–1968	45–69 years old	Reed et al. (1982)
Hawaiians	5.28	5.25		20–59 years old	Curb et al. (1991)

Source: Table 7.5 in Zane et al., 1994. HBC = High blood cholesterol.

(55 percent) had never had their cholesterol levels checked, compared with 41 percent of the men and 35 percent of the women in the general U.S. population. Vietnamese men were less likely to have their cholesterol checked but were not told (53 percent) or did not know (59 percent) their cholesterol levels, compared with Vietnamese women (67 percent and 76 percent, respectively) (Centers for Disease Control and Prevention, 1992).

High blood pressure

High blood pressure, also known as hypertension, is a risk factor for heart and kidney diseases and stroke. Hypertension is called the “silent killer” because most people are unaware of their elevated blood pressure and there are usually no symptoms associated with high blood pressure. Thus, it is critical for people to have their blood pressures checked regularly. Hypertension is defined as a condition in which the systolic blood pressure is equal to or exceeds 140 mmHg or the diastolic blood pressure is equal to or more than 90 mmHg. Individuals taking antihypertensive medications are also classified as hypertensive. According to this definition, approximately one out of four adults in the United States has high blood pressure (National Heart, Lung, and Blood Institute, 1996a). There is a tendency for blood pressure to increase with age. Hypertension is one of the modifiable risk factors associated with cardiovascular disease, particularly CHD and stroke. High blood pressure is also the primary risk factor for congestive heart failure (CHF). Heart failure is a serious condition in which the heart is unable to pump enough blood to supply the body’s needs. CHF causes excess fluid to accumulate in the

lungs, producing breathing difficulties, fatigue, weakness, and sleeping problems (National Heart, Lung, and Blood Institute, 1997). To prevent and lower high blood pressure, one should adhere to lifestyle changes and take medications as prescribed.

Compared to most Americans, AAPIs are less likely to be aware of hypertension or to be undergoing treatment. In a study of Cambodian, Laotian, and Vietnamese immigrants, 94 percent had no knowledge of what blood pressure is and 85 percent did not know how to prevent heart disease (Chen et al., 1991). Filipino-Americans, as a group, exhibited significantly higher levels of high blood pressure compared with other AAPIs, and closer to that of African Americans (National Heart, Lung, and Blood Institute, 1993). For example, in New Jersey, a health assessment of the Filipino community reported 23 percent of respondents had hypertension (Garde et al., 1994). In 1995, 15.7 percent of Asian Americans in Massachusetts reported to have never checked their high blood pressure, compared to 5.5 percent of the total State population (Massachusetts Department of Public Health, 1996).

Blood pressure levels among Asian Americans vary according to age and gender. The 1979 California Hypertension Survey revealed that the prevalence of hypertension for Japanese women 50 years and older was less than half of the corresponding rate for women of any other ethnic group in that age group (Stavig et al., 1988). In the same study, Filipino men 50 years and older had a hypertension prevalence rate of 60 percent and Filipino women 50 years and older had a rate of 65 percent, compared to the total U.S. prevalence

TABLE 7: CRUDE AND AGE-ADJUSTED PREVALENCE FOR HYPERTENSION FOR ASIAN AMERICANS AND PACIFIC ISLANDERS AND WHITES (BY GENDER), UNITED STATES, 1986–1990

	Crude Prevalence (%)	Age-Adjusted Prevalence (%)
AAPI Women	6.6	8.4
White Women	12.6	11.0
AAPI Men	7.5	9.7
White Men	10.6	10.3

Source: Centers for Disease Control and Prevention, 1992.

rate for the same age group of 47 percent. Among Chinese immigrants (60 to 96 years old) in Boston, blood pressure levels differed according to gender. Chinese males showed a 30 percent prevalence rate and females 34 percent (Choi et al., 1990).

Native Hawaiians have the highest incidence of hypertension in the State of Hawai'i. The prevalence of high blood pressure among Native Hawaiians is 16 percent compared to 14 percent for the total State population (Hawai'i Department of Health, 1993). The Moloka'i Heart Study revealed that hypertension was prevalent in about 25 percent of the study group (n=257).

Cigarette smoking

Cigarette smoking is the leading cause of preventable death in the United States (Centers for Disease Control and Prevention, 1998b). Several studies have shown that smoking increases the risk of CVD in all persons regardless of race and socioeconomic status. Cigarette smoking is the major cause of CHD in the United States for both sexes. More than one in every five U.S. deaths is a result of tobacco use (Centers for Disease Control and Prevention, 1998b). Since cigarette smoking is modifiable, many steps can be taken to prevent and control one's susceptibility to smoking-induced diseases. Hammond and Horn (1958) found that smokers had a 70 percent greater risk of dying from CHD than nonsmokers did and that CHD mortality rates among heavy smokers are two and a half times greater than that for nonsmokers.

In comparison with the general population, AAPI adults, on aggregate, exhibit lower smoking prevalence rates. Aggregated 1994 and 1995 national survey data show that overall adult smoking prevalence was 15.3 percent for AAPIs, 18.9 percent for Hispanics, 25.9 percent for whites, 26.5 percent for African Americans, and 39.2 percent for American Indians and Alaska Natives (Centers for Disease Control and Prevention, 1998a).

There is significant variation in smoking prevalence among AAPIs when data are disaggregated and analyzed on a regional basis. For instance, the prevalence of smoking among the general California adult population is 22.2 percent (25.5 percent among males and 19.1 percent

among females). The rate is 23.5 percent for California AAPI males and 8.9 percent for women (Burns & Pierce, 1992). AAPI males between ages 25 and 44 have the highest prevalence rate (27 percent), compared with 18 percent for men in the 18 to 24 age group.

Chinese men and women are found to have lower smoking rates, compared with other AAPI ethnic groups (Burns and Pierce, 1992). Filipino-American men were most likely to smoke (32.9 percent), followed by "other Asians" (30.9 percent), Japanese (22.7 percent), and Chinese (16.2 percent). Among females, Japanese-American women were most likely to smoke (rate), followed by "other Asians" (12.6 percent), Filipinos (11.4 percent), and Chinese (7.3 percent) (Burns and Pierce, 1992). In Massachusetts, 26.9 percent of Asian Americans are classified as smokers, compared with 22.5 percent of the total State population (Massachusetts Department of Health, 1996).

In a study of Southeast Asians, it was found that Southeast Asian women rarely smoke cigarettes. Southeast Asian men had similar smoking rates to white Americans and were twice as likely to be smokers in the youngest and oldest age groups (National Institutes of Health, 1980).

Studies conducted in the 1990s indicate smoking prevalence estimates for Southeast Asian men ranged from 34 percent to 43 percent (Jenkins et al., 1997; McPhee et al., 1995; Wewers et al., 1995). Another study showed that Vietnamese men had higher smoking prevalence rates, compared to the general population (National Center for Health Statistics, 1991). In Orange County, California, the highest prevalence rate of smokers is among Vietnamese males (31 percent in 1991 compared to 20 percent of white males) (County of Orange Health Care Agency, 1994).

One study found that some Southeast Asian males start smoking early in life. An analysis of 195 responses to a questionnaire about the smoking habits among Laotian males found that 82 percent started smoking before the age of 20 and 55 percent of those began before the age of 15. Approximately 99 percent of them started smoking while still in Laos and 72 percent were current smokers. Forty-six percent of the survey partici-

pants indicated that they smoked 20 cigarettes per day (Levin, 1987).

The prevalence of smoking is higher among Native Hawaiians than all other ethnic groups in Hawai'i. There is a 27 percent prevalence rate of smoking among Native Hawaiians, compared with 19 percent for the total State population (Hawai'i Department of Health, 1993). Another study found that 34 percent of Native Hawaiian females and 42 percent of males are smokers (Curb et al., 1991). The highest prevalence was found among males between the ages of 20 and 29 (48 percent).

Local surveys and studies also indicate that there is significant cigarette advertising in Asian American communities. A 1992 study conducted by the University of Southern California found that AAPI neighborhoods had the greatest number of billboards advertising cigarette smoking, 17 times as many as in white neighborhoods (Bader & Houseman, 1993). Among ethnic communities in San Diego, the highest average number of tobacco displays was found in Asian American stores (6.4), compared to Hispanic (4.6) and African American stores (3.7) (Elder et al., 1993).

The prevalence of smoking within the AAPI community raises major challenges for health providers. This concern is particularly imminent for youth as they have become more susceptible to smoking. There was a 30 to 50 percent increase in the Asian American teenage smoking rate from 1993 to 1996 in California (California Department of Health Services, 1998). Consequently, immediate action is warranted to combat the increasing rates of smoking in certain AAPI ethnic groups.

Obesity

Obesity is one of the leading causes of preventable death in the United States. Obesity is a complex disorder affected by the interaction between genetics and the environment. Overweight is defined as a body mass index (BMI) of 25 to 29.9 kg/m². Obesity is defined as a BMI of 30 kg/m² (NHLBI Obesity Education Initiative, 1998). Obesity is a complex condition that develops from an interaction of genotype and the environment (NHLBI Obesity Education Initiative, 1998). The presence of abdominal fat in proportion to total body fat is an independent predictor of risk factors and morbidity. Waist circumference is a clinically accept-

ed measurement for assessing abdominal fat. Adults with a BMI of 25 to 34.9 kg/m² are at a higher relative risk for developing obesity-related conditions if their waist circumference is ≥ 40 inches for men and ≥ 35 inches for women (NHLBI Obesity Education Initiative, 1998). There is evidence that genetic factors play a role in the development of obesity (Bouchard, 1991; Newman et al., 1987). An estimated 97 million adults in the United States are overweight or obese, a condition that substantially raises their risk of morbidity from cardiovascular diseases, cancer, stroke, and respiratory conditions.

Length of residence in the United States appears to have an effect on obesity for some AAPI groups. Among Korean men obesity is positively correlated with their length of residence in the United States. For Korean women, however, the relationship is not as strong (Han, 1990). Another study found that affluent Korean men tend to be more obese than the less affluent, although affluent Korean women tend to be leaner (Garn, 1993). In California, U.S.-born Chinese, Filipino, Japanese, and other AAPIs and Hawai'i-born men were more obese than their homeland counterparts. Educated AAPI men were also found to be more obese than those with less education (Klatsky & Armstrong, 1991). The same study also found the greatest prevalence of overweight among Filipino men (41.8 percent), compared to Chinese (26.9 percent), Japanese (38.0 percent), and other Asian (28.9 percent).

Overweight and obesity are most prevalent among Pacific Islanders. Samoans and Native Hawaiians are among the most obese people in the world. Native Hawaiian men and women are reported to have an average body mass index of 31 and 30, respectively (Klatsky & Armstrong, 1991). Samoans age 20 and above, regardless of their area of residency, consistently show high levels of obesity. Western Samoan men and women have an average BMI of 26 and 28, respectively; Hawai'i Samoans show an average BMI of 31 for men and 33 for women; California Samoans show an average BMI of 35 for men and 34 for women; and American Samoans have an average BMI of 30 for men and 33 for women (Pawson, 1986).

The prevalence of overweight and obesity in the Hawaiian population is alarming. The mean BMI

**TABLE 8: OVERWEIGHT PREVALENCE AND BMI DATA FOR ASIAN AMERICANS
(N = 13,031) IN A NORTHERN CALIFORNIA HMO, 1978–1985**

Trait	Chinese	Filipino	Japanese	Other Asian
Age (mean ± SD)				
Males	40.2 ± 14.2	39.2 ± 13.4	42.1 ± 14.1	35.9 ± 10.4
Females	38.0 ± 13.6	36.8 ± 11.6	40.9 ± 13.4	34.1 ± 10.5
BMI ≥ 24.4 kg/m²				
Males	26.9	41.8	38.0	28.9
Females	12.8	25.5	18.0	14.6
Mean BMI				
Males	22.9	23.9	23.7	23.6
Females	21.2	22.8	21.6	22.2

Source: Klatsky & Armstrong, 1991.

for Native Hawaiian women is 30.0 and 30.9 for men (Aluli, 1991). Thirty percent of Hawaiians between the ages of 45 and 54 are overweight (Hawai'i Department of Health, 1993). In 1990, 42 percent of Native Hawaiians were reported to be overweight, and this number increased to 43.4 percent in 1992. The prevalence of overweight for the total State of Hawai'i was 21.5 in 1990 and 24.9 in 1992 (Native Hawaiian Behavioral Risk Factor Surveillance Survey, 1991, 1992). Sixty-four percent of Hawaiians in the Moloka'i Heart Study were obese (Mokuau et al., 1995).

Obesity disproportionately affects older people in Micronesia, particularly women. In a study in the Marshall Islands, more than half of all women were found to be overweight. In a similar study in Guam, 38.6 percent of Chamorros, the indigenous people of Guam, were classified as overweight (Diaz, 1997).

Physical Inactivity

The 1996 Surgeon General's Report on Physical Activity and Health asserts that physical activity reduces the risk of premature mortality in general and CHD, hypertension, colon cancer, and diabetes in particular. A physically active lifestyle improves mental health, reduces stress, and leads to positive self-image. It is recommended that

individuals engage in moderate-intensity physical activities for 30 minutes on most days of the week (NIH Consensus Statement on Physical Activity and Cardiovascular Health, 1995). Increased physical activity improves the heart's capacity to supply more oxygen to the rest of the body.

Sedentary lifestyle is common among AAPIs and, as a group, AAPIs engage in less physical activity, compared to the general population. One California study shows that 40 percent (n=556) of Vietnamese males and 50 percent (n=453) of Vietnamese females were not exercising, compared to 24 percent of men and 28 percent of women in the U.S. population (Centers for Disease Control and Prevention, 1992). Thirty-one percent of Korean-Americans in Alameda County, California, do not exercise, compared to 21 percent of the total California population (Centers for Disease Control and Prevention, 1997).

The Hawai'i Department of Health defined sedentary lifestyle as no physical activity or physical activity fewer than three times per week or less than 20 minutes per occasion. Following this definition, Filipinos were most likely to have sedentary lifestyles (76.3 percent), followed by Japanese (57.1 percent), and Hawaiians and part-Hawaiians (54.7 percent).

Diabetes Mellitus

Sixteen million Americans have diabetes mellitus. Almost half of these individuals are unaware of their condition. Each year, about 650,000 people are diagnosed with diabetes, costing the American population \$92 billion in 1992 (National Institute of Diabetes and Digestive and Kidney Diseases, 1995).

Diabetes mellitus is a group of disorders characterized by high blood glucose levels. The vast majority of diabetics die from some type of CVD. This is partly because diabetes affects cholesterol levels. Thus, diabetes is related to lipoprotein metabolism and atherosclerosis as well as obesity and hypertension. Diabetes is an independent risk factor for CHD, and the risk is doubled when hypertension is present (National Heart, Lung, and Blood Institute, 1994a).

Existing data indicate that AAPIs are significantly affected by diabetes and its debilitating long-term complications (Association of Asian Pacific Community Health Organizations, 1997). Research in the Seattle Japanese-American Community Diabetes Study found that the prevalence of diabetes in second-generation Japanese-

American men (Nisei) was twice as high as that in U.S. whites and four times higher than that in Japan; 13.9 percent of 189 Nisei men and 8.3 percent of Nisei women age 45 to 74 had diabetes (Fujimoto, 1995). The prevalence of diabetes among Chinese-Americans 60 years of age and older in Boston was 12.5 percent among men and 13.3 percent among women (Fujimoto, 1995).

Data on diabetes for certain ethnic groups in the State of Hawai`i reveal some striking information. Filipinos had the highest prevalence of both total cases (21.8 percent) and new cases (15.5) of diabetes. The age-adjusted prevalence of total cases of diabetes among Koreans was 19.7 percent and 11.7 percent for new cases (Fujimoto, 1995).

Diabetes mellitus is highly prevalent among Native Hawaiians. A study of Native Hawaiians on the island of Molokai found that the prevalence of diabetes had greatly increased from previous years, particularly in groups 40 to 49 years old (greater than 15 percent) and 50 to 59 years old (greater than 20 percent) (Aluli, 1991). Data collected from 1988 to 1995 suggest that Native Hawaiians are twice as likely to be diagnosed with diabetes than are white residents of Hawai`i (Hawai`i Diabetes Control Program, unpublished).* The Native Hawaiian Health Research

* Hawai`i Diabetes Control Program. Based on Wen M, Unpublished Analysis of Data from the Behavioral Risk Factor Surveillance System (BRFSS) from 1988 to 1995.

DIETARY PRACTICES OF ASIAN AMERICANS AND PACIFIC ISLANDERS

Studies have shown that a diet high in total fat, saturated fat, cholesterol, and sodium increases the risk for CVD (NCEP, 1993). An excessive intake of salt and sodium may lead to increases in blood pressure. Salt and sodium occur naturally in food and are added in some form to almost all processed foods. The Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, convened by the NHBPEP, recommends limiting sodium intake to no more than 2.5 g of sodium a day (NHBPEP, 1997). Eating in a heart-healthy way and engaging in a physically active lifestyle can promote cardiovascular fitness. For example, a clinical trial known as DASH (Dietary Approaches to Stop Hypertension) showed that a diet rich in fruits, vegetables, and lowfat dairy products and with reduced saturated and total fat can significantly lower blood pressure (Appel et al., 1997).

It has been reported that length of residence in the United States influences an individual's eating habits. For Asian immigrants, adaptation to Western lifestyle is often manifested by increased intake of fatty and high-calorie foods. Traditional meals consisting of rice, fish, and vegetables are replaced with fatty meats, dairy products, and high-calorie snacks and desserts. This observation is supported by a study of Korean-American students who showed a decrease in their consumption of rice while showing a marked increase in intakes of fatty cuts of beef, pork, fried poultry, and regular dairy products (Pan et al., 1999). Ethnic-specific studies reveal important information on the dietary practices of AAPIs. In a study involving Filipinos, it was noted that frequent consumption of meat, salted red eggs, and sauces high in salt increased their risk for hypertension (Picache, 1992). Southeast Asians have maintained strong ties to their traditional diets and native foods in spite of dramatic changes in their food-buying

practices (Story & Harris, 1989). The effects of these practices and dietary changes on cardiovascular health are understudied and may reveal important information in regard to nutrition education for this population.

The same study (Story & Harris, 1989) also revealed that 45 percent of Southeast Asian youths reported that they had primary responsibility for preparing evening meals. In addition, 70 percent of female adolescents and 35 percent of male adolescents reported that they helped with grocery shopping once a week or more. The large proportion of adolescents involved in food preparation may suggest an opportunity for school-based nutrition education.

While information on the eating habits of Pacific Islanders is limited, some information indicates that the dietary habits of certain Pacific Islander communities warrant immediate attention. For example, in Micronesia deaths from CVD and diabetes have been attributed to heavy consumption of fatty food such as canned and other imported meat (corned beef and turkey tails), shortening, salt from canned fish and vegetables, soy sauce and instant noodles (Jackson, 1997). Studies indicate that these deaths may be prevented by eating a heart-healthy diet. The Ho`oke Moloka`i Diet Study suggests that the traditional Hawaiian diet lowers serum cholesterol levels to normal or near-normal levels. The traditional Hawaiian diet focused on Hawaiian staples such as taro, breadfruit, and sweet potato (Aluli et al., 1990).

Native Hawaiians, Chinese, Filipinos, and Vietnamese have been identified by DHHS as populations whose special needs and interests are not addressed by mainstream nutrition education efforts (U.S. Department of Health and Human Services, 1994b). Efforts to educate these high-risk groups about the role of nutrition must consider their cultural practices and socioeconomic circumstances.

ALCOHOL CONSUMPTION

Excessive alcohol intake is an important risk factor for high blood pressure and stroke. Alcohol intake should be limited to no more than two drinks for men and one drink for women (NHBPEP, 1997). While AAPI-specific studies on the relationship between alcohol consumption and heart disease are scarce, some studies indicate that alcohol consumption is positively correlated with elevated blood pressure levels, particularly among Filipinos. One study found that above-average alcohol intake tends to increase the prevalence of hypertension (Stavig et al., 1988). Filipinos in this investigation averaged 1.62 alcoholic drinks per sitting, which is 0.33 above the AAPI average. Another study found that

hypertensive Filipino men also exhibited heavy alcohol drinking (≥ 3 drinks per day) (Angel et al., 1989).

For Native Hawaiians the prevalence of acute drinking is 20 percent, compared with 15 percent of the total State population. Acute drinking is characterized by at least five drinks on at least one occasion in a given month. The percentage of adults in Hawai'i reported to be chronic drinkers (at least 60 drinks in a given month) ranged from 5 to 6 percent. For Native Hawaiians the prevalence of chronic drinking is 4 percent, compared with the national percentage of 3 percent (Hawai'i Department of Health, 1993).

ASIAN AMERICAN AND PACIFIC ISLANDER CULTURES, COMMUNICATION, AND HEALTH BELIEFS

SOCIOCULTURAL STRUCTURES AND VALUES

Culture involves a set of accepted norms, behaviors, and beliefs that influence the value systems of a group or an individual. It is an important determinant of one's identity and perceived role in society.

Culture, however, is unique to every group of individuals (Wiseman, 1995). For instance, Americans value individualism, and success and recognition are tied solely to an individual. For Asians, however, family and group pride predominate over individual achievement (Samovar & Porter, 1994).

In exploring the health profiles of AAPIs, it is critical that researchers, policymakers, and health professionals involved in community health education avoid focusing on the individual as separate from his or her family and the environment. These three factors—the family, individual, and the environment—function in an interlocking manner and define personal beliefs and choices. The interactions of these factors often explain the knowledge, attitudes, and behaviors of AAPI toward health and health-seeking practices. Obesity, for instance, is one of the major risk factors for heart disease and other diseases. In some cultures, however, obesity is a sign of wealth and happiness (Samovar & Porter, 1994). Thus, understanding how individual choices are affected by societal or environmental factors allows one to formulate strategies that respect and recognize the person's cultural circumstances.

Asian cultures place great importance on authority. While eye contact is considered a must for effective communication in Western cultures, it is a sign of disrespect for many Asians (Samovar & Porter, 1994). Moreover, people in positions of power are highly regarded and their opinions are not questioned. This presents a unique situation for the AAPI community. When confronted with a clinical visit with a physician, some AAPI patients may

not contest the diagnosis or even ask detailed questions about prescriptions and treatment recommendations. The physician, in a position of power, represents authority, and any effort to question his or her knowledge is considered disrespectful and impolite.

In addition, modesty, harmony, and stoicism are some cultural values common to the AAPI peoples (Shon & Ja, 1982; Lin-Fu, 1994). Manifestations of these values in their behavior leave the door open for miscommunication and misunderstanding between individuals who are unfamiliar with the meaning of these values. An Asian American patient may be perceived as withholding information when, in fact, he or she might simply feel that disclosing too much personal information to a physician is inappropriate. Doctors and other health providers must be sensitive to these cultural norms, behaviors, and communication patterns to avoid false diagnosis and treatment.

AAPI cultures represent “face societies” in which “saving face” is important (Ja & Aoki, 1993). Many AAPIs put great emphasis on protecting their public image or avoiding embarrassment. Consequently, AAPIs rely heavily on their family for advice, medical help, and guidance. Understanding the role of a family member in care provision and disease management is critical to improving the health of AAPIs.

Language plays an integral role in the manifestation of culture (Wiseman, 1995). The myriad of languages spoken by AAPIs present a major challenge for program planners and health providers. For many recent immigrants, their limited English-speaking abilities further limit the quality of interaction and access to health information and resource providers. Most immigrants with professional backgrounds have a high level of English fluency. Others, particularly those with refugee backgrounds, may have come from rural areas with high levels of illiteracy. Coupled with the

challenges of adapting to a Western culture, language barriers and limitations result in isolation. Health professionals are, thus, compelled to explore linguistically appropriate channels of communication in delivering their services.

Although the presence of a bilingual individual acting as a translator is useful, there are other ways health providers can establish communication with individuals with limited English.

For example, knowledge of past experiences is important to understanding the health profiles of AAPIs (Lin, 1986; Tung, 1985; Sue & Morishima, 1982; Kuo, 1984; Shon & Ja, 1982; Chin, 1981). For instance, physicians and other health professionals should be cognizant of the Southeast Asian refugee experience. Many refugees suffer from posttraumatic disorders and may have lost their traditional support networks. Elders in their homelands acted as healers, spiritual advisers, and traditional birth attendants. Among Southeast Asian refugees, many of these elders have died because of war, massacres, and starvation; have been abandoned at refugee camps; or are no longer available to provide care due to emotional trauma (Frye, 1995). Repeated resettlement in different locations has added stress and uncertainty to these individuals. The U.S. health care system is unfamiliar to Southeast Asian refugees, who often live in isolation as a result of discrimination. Providing quality care for these individuals requires an understanding of their history and cultural values.

The sociocultural attributes discussed in this section are not exhaustive. There are many other cultural and individual factors that health professionals must consider when dealing with patients from diverse backgrounds. The issues raised in this section attempt to highlight the importance of understanding cultural factors that may influence AAPI health behavior and practices.

HEALTH BELIEFS AND PRACTICES

Understanding the relationship between health and culture is essential to formulating effective health promotion programs and strategies. Perceptions of health within a given culture plays an important role in how individuals respond to health services. The World Health Organization (WHO) defines health as a state of complete physical, mental, and

social well-being, and not merely the absence of disease (WHO, 1992). For many, health is the absence of any symptoms of illness or disease. Among AAPIs, particularly the recent immigrants, this latter definition is pervasive (Frye, 1995).

The concept of preventive care as defined in Western medicine, which usually includes a physical exam in the absence of symptoms, often does not fit many AAPIs' understanding of health and their explanatory models of illness. Traditional health systems in many parts of Asia and Pacific Island regions have incorporated the themes of maintaining balance or harmony and considering the effects of events, including supernatural and cosmic forces, in the natural and social environment on a person's well-being. These concepts, which are elements of Taoist and Confucian philosophies, have contributed to the evolution of different indigenous cultural beliefs and health practices among Asian and Pacific Islander societies (McBride et al., 1996). It may partly explain, for example, some AAPIs' concern over clinical procedures such as blood pressure checks and tests for cholesterol level when "blood" is believed to be associated with balancing energy flow. Also, preference for culture-based interventions may take precedence over those recommended in Western health care systems. For some AAPIs, concurrent use of traditional health care and Western medicine may be a strong preference regardless of acculturation level.

The concept of balance is a prevailing theme in some Asian cultures. The imbalance of the *yin* and *yang* is believed to result in certain illnesses. *Yin* signifies passive unclear, inward, dark, soft, and cold; *Yang* signifies active, excited, external, forward, aggressive, volatile, hard, bright, and hot (McBride et al., 1996). According to such notions, a return to physical wellness requires the introduction of the required elements to balance one's well-being. For example, taking cold showers or drinking cold juices is not acceptable to many Asian women immediately after child delivery (Lin-Fu, 1994).

For the Khmer culture (an ethnic group from Cambodia), a change in the order of natural forces also induces illness. A common belief among Vietnamese, Khmer, and Hmong is that illness is caused by eating excess "hot" and "cold" foods.

Hot foods are characterized as having an energizing effect, and cold foods induce calmness to the body. Excessive consumption of “hot” foods are believed to contribute to arthritis or hypertension. Further, the imbalances are also believed to affect the mental state or emotional disposition of the individual (Frye, 1995).

In the Japanese culture, the *kampo* belief system emphasizes maintaining a harmonious relationship with the universe. *Kampo* practitioners also use herbs to treat aberrations of energy flow. *Gaman* or self-control is a cultural value that may be a reason for the reluctance of some Japanese-Americans to complain about pain or lack of access to community resources (Hashizume & Takano, 1983; Lee & Takamura, 1980).

Treatment of physical and emotional imbalance often makes use of practices considered unusual by Western medicine. *Cao gio*, the Vietnamese term for coin rubbing, is used by massaging the skin with ointment and hot coins, causing red welts on the body. Such traditional practices may be misinterpreted as abuse if a Western doctor detects bruises and red marks over a patient’s body (Frye, 1995). Cultural miscommunication often arises from lack of knowledge or understanding of traditional healing conventions.

The use of traditional healers and herbs is also prevalent in AAPI culture. For example, *hilot* is a common Filipino folk practitioner who uses faith healing through prayer, herbal medicines, and massage manipulation (Baysa et al., 1980). A study of World War II Filipino veterans showed that many seek medical help from an *albularyo* (herbalist) for treatment infusions of eucalyptus or red guava leaves even if they seek care from a physician. Similarly, Koreans practice a traditional form of healing called *hanbang*, which involves herbal medicine and acupuncture (Pang, 1989).

Among Pacific Islanders, herbal medicine and folk remedies have been practiced by families for generations. For instance, Tongan traditional folk

healers are called *taula tevolo*. These individuals are highly regarded in Tongan society as they act as intermediaries between spirits and people. They use herbal medicine and rituals to treat illness and their practice is imparted within a single family line (Puloka & Palafox, 1980).

Many AAPIs rely on family as the primary source of health care. In a study involving a group of clinically depressed Filipino adults, 69 percent identified a loved one or a trusted friend as the best person to treat their condition, while 15 percent picked a family physician (Tompar-Tiu & Sustento-Senriches, 1995). Use of family members for advice and assistance with health issues may also be associated with a large number of Filipino-Americans employed in the health care industry (Miranda et al., 1998). In a study of cervical cancer screening practices, McBride and associates (1999) found that the low screening rate for young Filipino-American women was associated with their perception that males in Filipino families prefer female health care providers for their female relatives (McBride et al., 1999).

Family is similarly important to Korean-Americans. A study of Korean elders in the San Francisco Bay Area who lived with their family members had more positive morale and better self-concept than those who were living alone or with a spouse only. This pattern of living with family members remained true even in situations of overcrowding, severe burden of work, and strained relationships in two- and three-generation households (Kiefer et al., 1985).

Traditional beliefs and practices discussed in this section provide examples of how cultural values may affect AAPI health behaviors. Understanding these factors may help physicians and health promoters deliver culturally appropriate care to this group. Traditional practices represent opportunities and challenges for creating effective treatment and prevention strategies for AAPIs.

ACTION IN THE COMMUNITY: SUCCESSFUL PROGRAMS FOR ASIAN AMERICANS AND PACIFIC ISLANDERS

Given the diversity and varying health profiles of AAPIs, community-based organizations act as important sources of social and health services for this group. Examples of community-based programs that address the needs of specific AAPI ethnic groups are highlighted in this section. These community outreach projects and activities are tailored to AAPI subgroup characteristics, strengthening their effectiveness and responsiveness to AAPI sociocultural values and health beliefs discussed earlier.

Many innovative intervention and prevention programs are thriving in pockets of AAPI communities across the country. The most visible are in California and in places where major research studies have documented the high prevalence of CVD in the local areas. The programs highlighted in this section are by no means exhaustive. They are presented here to illustrate compelling and effective features of health promotion projects. Most of the information presented here is derived from telephone interviews with executive directors and representatives of organizations responsible for implementing these programs. A major difficulty expressed by those interviewed was the lack of resources to conduct comprehensive program evaluations. Consequently, many community-based programs did not incorporate outcomes or performance measures in the overall design of the project. Readers should be cognizant of the limitations faced by many community-based programs.

SUC KHOE LA VANG! THE VIETNAMESE COMMUNITY HEALTH PROMOTION PROJECT (CALIFORNIA)

Suc Khoe La Vang! (Health Is Gold!) was started in 1988 as a community outreach project of the University of California at San Francisco's Division of General Internal Medicine and

received partial funding from the California Department of Health. The goals of *Suc Khoe La Vang!* were to promote a healthy diet by reducing fat consumption and increasing fiber intake and to reduce the rate of smoking among Vietnamese and other refugee and immigrant communities in the San Francisco Bay Area. Major activities of the project included a print and television anti-tobacco campaign; production and distribution of printed health education materials (brochures, posters, calendar, self-help quit kit); development and implementation of continuing medical education for Vietnamese physicians; and a tobacco prevention program targeting youths in Saturday Vietnamese-language schools. This program has been responsible for producing the first anti-smoking billboards in Vietnamese (Chen, 1993a).

CHINATOWN HEALTH CLINIC (NEW YORK)

The Chinatown Health Clinic began in the early 1970s as a result of community mobilization to provide access to health care to people who were unserved or underserved. By building a coalition of banks, associations, the American Cancer Society, and other organizations, street health fairs were held and soon led to the opening of the Chinatown Health Clinic. The clinic provides a full range of bilingual, culturally sensitive primary health care services. One of the key health education programs of the Chinatown Health Clinic is the CVD prevention program.

During the 1980s the clinic received support from the New York State Department of Health to launch a hypertension program. Using community outreach with health education and followup treatment, the program provided worksite screening for senior citizens. Those who were diagnosed with elevated blood pressure were provided with medication subsidies and introduced to workshops on stress management and proper diet. Classes were

held in Chinese. Clinic data on patients who participated in the program showed a decrease in blood pressure as compared to those who did not attend (NHLBI, 1993).

Health promotion campaigns focusing on smoking strengthened relationships with major organizations such as the American Cancer Society, which provided generous funding for additional programs. Participation by schools and community programs for youths are an important part of health education and outreach efforts among recent immigrants. Local banks participated by donating prizes, and Chinese-language media provided coverage of nonsmoking poster contests and other major community events (NHLBI, 1993). Currently, the Chinatown Health Clinic conducts a monthly radio show with SINO-Cast on varying health topics. Different staff members are featured on the show to answer questions from the audience.

HEART HEALTH FOR SOUTHEAST ASIANS (OHIO)

Launched in November 1988 as the first U.S. Office of Minority Health-funded minority coalition project, the Heart Health for Southeast Asians in Franklin, Ohio, provided extensive training for lay Southeast Asian adults to act as conduits of heart health messages. This program used the indigenous model. Lay persons were trained to measure blood pressure and offer health education to their Southeast Asian peers. Because these individuals were members of the intended audience, they successfully delivered culturally and linguistically specific information. Innovative tools were developed such as wall calendars that were linguistically specific to each Asian ethnic group and contained monthly heart health education messages (Chen, 1993a).

In addition, this program included a solid coalition of community organizations that showed strong interest in the health and welfare of the Southeast Asian community. Major partners included the Heart Health Coalition for Southeast Asians, Columbus Area Refugee Task Force, the Franklin County (Ohio) Hypertension Coordinating Council, and the Ohio Department of Health. Other community-based organizations also partici-

pated during community screening events. These organizations worked together in a synergistic and highly committed fashion to promote heart health to the Southeast Asian community of Franklin, Ohio.

ASIANS: LOVE YOUR HEARTS! (OHIO)

The Asians: Love Your Hearts! program was a result of the Franklin, Ohio, project. Started in July 1990, "Asians: Love Your Hearts!" is based at the Ohio State University and seeks to involve Asian American health professionals in a leadership capacity to promote healthy behaviors, train them to conduct heart-health education programs, and provide opportunities for involvement in community education initiatives. Several materials were developed to diffuse heart-health messages to the community. For example, refrigerator magnets with the message "Heart is wealth" were distributed in four Asian languages, note pads with the same message in five Asian languages, and heart-health messages in fortune cookies during the month of February (American Heart Month) (Chen, 1993a). Trained students also visited Asian American restaurants, markets, places of worship, and worksites with large numbers of Asian workers in Columbus, Ohio, and offered free blood pressure measurement and health risk assessment. To integrate the AAPI community at large, the first Asian American Leadership Forum was initiated, which brought together Asian American physicians and community leaders to formulate a framework for addressing health concerns for Asian Americans (Chen, 1993a).

FAMILIES IN GOOD HEALTH (CALIFORNIA)

Families in Good Health was part of a comprehensive health program known as the Southeast Asian Health Project (SEAHP) in Long Beach, California. The program is a collaborative effort among the United Cambodian Community, Inc., the St. Mary Medical Center, and the SEAHP. This venture is a multilingual, multicultural health and social education project that strives to provide quality outreach and education services to Southeast Asian and Latino communities in Long Beach.

From 1996 to 1997, SEAHP launched the Families in Good Health program, which focused on decreasing sedentary lifestyle and increasing physical activity among Southeast Asians. Outreach education focused on the family unit. Activities included traditional Cambodian and Lao dance classes for youths, walking groups for families, and water aerobics for Cambodian elders.

Considerable time and effort were spent in identifying the needs and desires of the community. Community elders voiced their interest in gardening activities, which subsequently led to regular family gardening events. Because some members of the community felt unsafe in their neighborhoods, program coordinators worked with the police department to provide escort services or increase neighborhood surveillance during scheduled group walking events.

During the course of the program, it was noted that temples were the main socialization venue for Hmong elders. Fitness activities were developed at temples and churches. In addition, program managers solicited the community to donate fitness machines for the elders that were subsequently housed in the temples, giving Hmong elders the opportunity to engage in physical activities in a comfortable and safe environment. Recognizing that membership in fitness clubs is costly, SEAHP worked with the local YMCA to develop low-cost programs for the community.

Moreover, brochures on physical activity and healthy eating habits were developed in Cambodian, Lao, and Hmong. A cassette tape on exercise and nutrition incorporating traditional music and songs was created for community members who could not read their traditional language or understand English. These tapes were distributed at health fairs, at ethnic New Year's celebrations, and during regularly scheduled door-to-door outreach.

KHMER HEALTH ADVOCATES (CONNECTICUT)

Khmer Health Advocates (KHA) is a Cambodian organization that provides services for Cambodian torture victims who are at high risk for stroke, diabetes, and coronary heart disease while at the same

time experiencing posttraumatic stress disorder. The KHA clinic has been in operation for more than 14 years. It began as a mental health clinic but started coordinating health care in early 1990s because of the high rate of physical illness in the patient clientele. As a treatment program for torture victims, KHA treats a population that is difficult to reach besides having complex medical and psychological problems.

KHA has been successful in increasing the knowledge about cardiovascular health among its Cambodian constituents. Once screened for high blood pressure, patients are interested and committed to keeping their levels down. While no quantitative data are available to track these changes, anecdotal evidence shows an increase in the number of questions about heart health asked by Cambodian patients. These individuals request periodic blood pressure screening and solicit advice on how to improve their diet and nutrition. Because the Cambodian population that KHA serves is mostly illiterate individuals, no written materials are produced to address cardiovascular health. Instead, videos are used to educate the patients on how to take better care of their hearts.

KALIHI-PALAMA HEALTH CENTER (HAWAII)

The mission of Kalihi-Palama Health Center (KPHC) is to deliver quality, integrated primary care services, including making referrals to specific services. KPHC delivers and advocates for health care services to anyone who would not otherwise receive care. The KPHC also provides services to those with limited English proficiency. Bilingual staff and volunteers provide services in Chinese, Ilocano, Korean, Laotian, Samoan, Spanish, Tagalog, Tongan, Vietnamese, and Visayan. Community health fairs are conducted several times a year with free screening and referrals. In addition, training sessions on managing diabetes, cholesterol, and hypertension are also offered to patients.

NA PU`UWAI CARDIOVASCULAR RISK CLINICS (HAWAII)

The Na Pu`uwai Cardiovascular Risk Clinics (CRCS) emerged from a landmark 1985 study which revealed an alarming prevalence of multiple

cardiovascular risk factors among Native Hawaiians. (Aluli and Reyes, 1998). Based on a survey of 257 Native Hawaiian adults, the study found that 65 percent of both males and females were overweight, compared to 27 percent of U.S. adults in the same age group. Moreover, 42 percent were smokers and those with significant cardiovascular risk factors were unaware of their condition and not seeking any form of treatment. The study amassed a high number of research participants due to the involvement of a Native Hawaiian, primary care physician, and community members during the door-to-door recruitment period. Furthermore, arrangement was made with the researchers to involve community members in the use of data and publication of the results.

The Na Pu`uwai, Inc. was formed to address ongoing research among Native Hawaiians to ensure respect for Native Hawaiian people and their cultural beliefs and practices. Na Pu`uwai, Inc. is a nonprofit organization comprised of Native Hawaiian residents from Moloka`i and Lana`i. The name, Na Pu`uwai, means hearts or many hearts represents the life force of the Native Hawaiian community, a force that sustains the mind, body, spirit, and a`ina (land). The goal of Na Pu`uwai, Inc. is to raise the health status of Native Hawaiians on Moloka`i and Lana`i to the highest possible level and to encourage the maximum participation of Native Hawaiians to achieve this goal.

The Na Pu`uwai CRCs were established to address the lack of intervention and followup services available to those individuals identified in the Heart Study as high risk. Utilizing clinical screening protocols from the 1985 Na Pu`uwai Heart Study and the Strong Heart Study coupled with community based outreach methodology, the program is in its 7th year and continues to be instrumental in identifying Native Hawaiians at high risk for CVD. The first year of CRC clinics (1992) screened a total of 224 persons, of which 122 were participants of the original Moloka`i Heart Study. To date, more than 1,000 Native Hawaiians have been screened on Moloka`i. CRCs have also been conducted on the island on Lana`i and Maui. Clinic services include: height/weight measurements; blood pressure monitoring; waist/hip measurements; urine testing for

glucose; fasting blood chemistry including cholesterol; triglycerides, education of healthy lifestyle practices; and incorporates traditional healing practices. The CRC concludes with an exit interview with a physician or nurse, who 1) reviews the patient's questionnaire on cardiovascular risk factors, and 2) sets a future appointment with the client to review lab results and set up a health care service plan.

CRCs are staffed by a multidisciplinary team of healthcare providers. They include medical staff, student interns, professional volunteers, professional contract hires, and traditional medicine healers. The island of Moloka`i has been designed as a Medically Underserved Area and must, therefore, rely on resources from other islands to complete the staffing for the CRCs. Nutritionists, health educators, and nurses volunteer or are deployed from other agencies to assist with the screening, monitoring, and education for patients. Data collected from the CRCs will be used to assess the prevalence of cardiovascular risk factors and create programs and services aimed at reducing chronic and acute diseases and disabilities among Native Hawaiians.

WAIANAЕ DIET PROGRAM (HAWAÏI)

The Waianae Diet Program is a community-based program designed at the Waianae Coast Comprehensive Health Center in response to the high prevalence of obesity and chronic diseases among Native Hawaiians (Shintani et al., 1994). Using traditional Hawaiian diet and cultural teachings, the Waianae Diet Program employs comprehensive health promotion strategies: noncalorie-restricted weight protocol, dietary clinical intervention, cultural sensitivity, transition diet, whole-person approach, group *ohana* (family) support, community intervention, and role modeling. Persons who participated in the program showed significant weight loss and improvement in blood pressure, blood sugar, and serum lipids. After 3 weeks, participants demonstrated increased levels of physical activity and reduced their weight by 5 to 20 pounds.

In an effort to replicate the success of the program in various communities in Hawai`i, the Moloka`i General Hospital in the island of Moloka`i has initiated a weight loss program that includes exercise.

The first group of participants consisted of nine men and two women whose average weight was 411 pounds. Initial physical activity included stretching and light resistance training and later progressed to a quarter mile walk, light weight training, and paddling a canoe specially designed for larger people. The Hawaiian canoe plays a unique and special role in this program as it evokes cultural pride and empowerment. The diet component of the program focuses on traditional

Hawaiian staples such as taro, breadfruit, and sweet potato.

An important lesson learned in the establishment of this program is the critical role families, friends, and community members play in working on the problems of exercise and diet. Family and community involvement highlights the level of commitment and support for the participant, increasing the likelihood of completing the program and

CONCLUSION

While tremendous progress has been achieved in the battle against heart disease, AAPIs have not fully reaped the benefits of this success. Combined with misleading data, the perpetuation of the “model minority” myth, and linguistic isolation among several AAPI ethnic groups, cardiovascular health promotion remains an eminent need for this population. The unprecedented growth of the AAPI ethnic group in the United States presents opportunities and challenges. However, to realize the full potential of this population, a solid commitment and investment in their health must first ensue, for without it, Asian Americans will remain the Nation’s “invisible Americans.”

Because AAPIs are one of the fastest growing populations in the United States, an investment in their health is beneficial to the Nation as a whole. With AAPIs entering the American workforce and AAPI children in the educational pipeline, their health must be improved so that they may reach their full potential as productive citizens.

The initiation of a national cardiovascular health promotion program will pave the way for improving the health of AAPIs. Robust intervention goals and strategies must be formulated to counteract the devastating effects of heart disease. Promising programs have already been developed at the community level and they represent opportunities for expansion at different levels of society.

Community-based programs teach powerful lessons in sharing the health and wealth of the Nation: while there are struggles and barriers in

the process of building effective programs, it starts with the smallest step forward. More importantly, community leaders and the participating audience are part of each step of the program. Participants, planners, multidisciplinary health educators, and physicians must work together as partners to achieve success.

An investigation of the linkages between the individual, family, and the environment is important to understanding the health behaviors and needs of AAPI people. Thus, a simple scrutiny of individual choices is inadequate and will fail to explain the reasons why behaviors do not change even when information about health benefits is readily available.

The diversity of the AAPIs serves as the strength of the community and must be used effectively to generate a breadth of innovative and promising ideas for health promotion. Their cultural heterogeneity should be transformed into opportunities for long-lasting collaborations and sustained commitment to heart-healthy behaviors.

AAPIs have become an important pillar of American society, whose contributions span decades of history. Like many Americans before them, they came to the United States with hopes of building better lives and brighter futures. In the pursuit of the American dream, one must not forget that health is an important part of making that dream come true.

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APPENDIX A

THEORETICAL MODELS FOR HEALTH PROMOTION AND DISEASE PREVENTION PROGRAMS

Health educators and public health officials have used different models of health promotion to deliver effective messages to target audiences. As minority populations become the Nation's emerging majority, traditional health behavior and communication theories are being revisited and reexamined for their cultural relevance and applicability to the needs of people of color. Greater emphasis is being placed on the comprehensiveness of theoretical approaches and their flexibility to respond to changing racial/ethnic diversity within communities. Health promotion programs are most likely to succeed if they are based on a clear understanding of individual health behaviors and their environmental contexts (Glanz & Rimer, 1997).

Because the AAPI population is extremely heterogeneous, representing multitudes of languages and cultural systems, the need for a culturally sensitive and appropriate health promotion program is even more pronounced. Selected theoretical models are discussed in this section to assist program planners in developing a successful outreach program.

STAGES OF CHANGE MODEL

The stages of change model arose from work in the area of smoking cessation and drug and alcohol addiction. It centers on the individual's readiness to change and adopt healthy behaviors. This approach focuses on the basic infrastructure and definition of self and how an individual resolves conflicting issues within his or her personal value system. The underlying premise is that behavior change is a process and not an event. Further, individuals have varying degrees of readiness, motivation, or readiness to change (Prochaska et al., 1992).

The five distinct phases of the stages of change model are precontemplation, contemplation, decision/determination, action, and maintenance. Individuals will go through each phase and eventually return to an earlier phase at a different level of awareness and response. People enter and exit at different points and often enter a continuing process of recycling.

A worksite smoking cessation program illustrates the application of stages of change model. To get a smoker's attention, information about the benefits of a cigarette-free lifestyle might be disseminated as a first step. Once a personal decision has been made to quit smoking, the individual may then sign up for a trial program. As the individual progresses through the different and more intense stages of the cessation program, messages must be adapted to the changing knowledge and attitudes of the participant. Individuals are not pressured to enter the program. They are given information and the decision to quit is entirely left to the individual.

HEALTH BELIEF MODEL

The health belief model is useful in explaining inaction or noncompliance in following preventive care despite the availability of health information and the diagnosis of a prevailing disorder. The health belief model originated in the 1950s from a group of social psychologists at the U.S. Public Health Service in an effort to understand low participation rates in disease prevention and detection programs (Hochbaum, 1958; Rosentock et al., 1988). Under this model, it is assumed that people fear diseases and health choices are made in relation to the degree of fear. Decisions are made on the basis that the net gain outweighs practical and psychological obstacles to taking action. The health belief model is made up of four constructs representing perceived threats and perceived benefits: perceived susceptibility, perceived severity,

perceived benefits, and perceived barriers. The barriers define and influence an individual's readiness to take action.

Additional concepts associated with the health belief model are cues to action and self-efficacy (Larson et al., 1982; Bandura, 1977a, 1977b, 1986). Cues to action relate to messages or signals that activate one's readiness for actual behavioral change (Larson et al., 1982). Self-efficacy describes belief in one's ability to perform an action successfully (Bandura, 1977a). Because the health belief model focuses on motivation, the provision of incentives and tangible benefits is central to its effectiveness. Thus, positive reinforcement and encouraging messages play a critical role in the implementation of this model. Programs that promote physical activity may benefit from such a model if participants see the results of their work and believe that a return to a sedentary lifestyle would be harmful.

COMMUNITY LEVEL MODELS

The word "community" evokes many meanings, all of which play an important role in understanding how health promotion interacts with the community. A community has been defined in several terms: functional spatial units meeting basic needs for sustenance, units of patterned social interaction, and symbolic units of collective identity (Hunter, 1975). A community plays an instrumental role in delivering health messages (Glanz et al., 1990). A community facilitates, shapes, influences, and oftentimes, filters the messages that penetrate its surroundings. Because a community always represents a collective group of individuals who share the same principles, it is important to understand who makes up the community, how the community functions, and what types of dynamics characterize the level of interaction within the given group. Community-level models are frameworks that seek to explain how social structures affect change.

Community-based models link the individual to the larger societal structure, both in the immediate and larger scale. They integrate individual behavior with community support and institutions. Because of the interlocking nature of community-based models, they often stimulate advocacy and

policy development, giving them a comprehensive scope. These models are powerful because members of the community itself initiate, develop, and implement health promotion strategies. Thus, there is high credibility for health promoters in the community setting. Community-level models have several underlying conceptual frameworks:

- ❑ Community organization emphasizes social networks and support and the active participation of community members in solving problems.
- ❑ Diffusions of innovations focus on how new ideas, products, and practices spread within a society or from one society to another.
- ❑ Organizational change relates to the processes and strategies that lead to the formal adoption and institutionalization of programs.

Community organization is the process by which community members and groups mobilize their resources together to identify a common problem and develop a solution (Rothman & Tropman, 1987). A predominant aspect of community organization is the notion of empowerment. People within a given community are the decisionmakers, the planners, and the promoters. Thus, there is ownership of the process and byproducts associated with a program, and community participation is encouraged. An illustration of this framework is the use of churches in promoting cardiovascular health, where the church acts as the central point for organization. Community groups then form strategies to deliver messages that they see fit for the community. A community health fair may be sponsored by the church where physicians residing in the community offer blood pressure and blood cholesterol screening, respected leaders of the group form walking clubs, and others perform cooking demonstrations.

Diffusions of innovations examine how new ideas, products, and practices spread in a society (Rogers, 1993). This model explains how people will respond to programs and the type of information disseminated. The key components of the diffusions of innovations theory are relative advantage (the degree to which an innovation is seen as better than the idea, practice, program, or product it replaces), compatibility (consistency of the innovation with values, habits, experience, and needs of the population), complexity (ease of use),

trialability (extent to which the innovation can be tried before being adopted), and observability (extent to which the innovation provides tangible or visible results) (Kolbe & Iverson, 1981).

The viability of innovations is determined by the existing communication channels. Diffusions of innovations put high value on social networks and interpersonal channels for spreading messages. Thus, health care providers and community leaders are important communication vehicles for promoting new ideas and practices. More importantly, the method of delivery also determines the success of the program. A nurse who demonstrates a home testing kit to a diabetic patient at his or her home will most likely influence the individual to use it properly at home.

Organizational change is best illustrated by the principles of stage theory which is based on the premise that organizations undergo several phases as they change (Parcel et al., 1988). Four key stages are associated with this theory: problem definition, initiation of action, implementation, and institutionalization (Beyer & Trice, 1978). When managers and stakeholders gather together to identify issues of concern and attempt to reach a consensus on the acceptable solution, they engage in problem definition. This heightens the level of awareness for a particular dilemma and induces those affected to confront the problem. The initiation of action is the adoption stage where policy or directives are issued by leaders to enforce a message or dedicate resources toward the solution of a problem. Implementation of change involves specific measures geared toward amelioration of the situation, such as training, information sessions, and consultation services. Institutionalization of change involves the creation of structures to incorporate a program formally into existing institutions, whereby a principle becomes common practice and is integrated in the core value system of an organization.

ECOLOGICAL MODEL

The ecological approach to health promotion examines and integrates the individual and the interpersonal and environmental aspects of life (Fellin, 1987). It is dynamic in nature and takes into account the interrelationship that exists between the individual and society. The ecological

model encompasses an interwoven set of principles that allows for a close scrutiny of the processes surrounding the individual (McLeroy et al., 1988). The ecological model suggests that behavior is governed by the following determinants:

1. Intrapersonal factors—includes the developmental history of the individual; knowledge, attitudes, behavior, self-concept, and skills
2. Interpersonal processes and primary groups—formal and informal social networks including the family, friends, support groups, and work groups
3. Institutional factors—social institutions with formal and informal rules, procedures, and operations
4. Community factors—relationships among institutions and informal networks with prescribed parameters
5. Public policy—local, State, and national laws, policies, and regulations

With five levels of interlocking analysis, the ecological model is compatible with health messages dealing with populations surrounded by several mediating structures. It allows health educators and program planners to adopt a broad perspective and expands the opportunity for further action. One of the most compelling features of the ecological model is its high propensity for institutionalization. With adequate resources, technical assistance, and support, health care professionals involved in health education can influence policy at the local, State, and national levels. Institutionalization of ideas and practices allows for effective programs to be replicated in other localities and increases the viability of a project. Without solid institutional support and infrastructure, worthy programs are often abruptly terminated after much time and effort have been invested by employees and community members.

Because the ecological framework studies the forces affecting the individual, it allows program developers to incorporate family and social actors into health promotion efforts and activities. The inclusion of families and friends strengthens support systems that are crucial to the success of health promotion messages. Further, it provides a strong personal advocacy base for the individual to adhere to healthy behaviors and practices.

INDIGENOUS MODEL

The indigenous model centers on the strength of a given community: its own people. It asserts that the most effective health education services will be delivered through individuals most acceptable and most accessible to the target community (who), using a nationally standardized protocol (what), frequently (when), conveniently (where), and in multiple ways (how) (Chen, 1989). This model was the basis for the Heart Health for Southeast Asians project in Franklin, Ohio (see detailed description under “Successful Programs”).

In the Heart Health for Southeast Asians program, Southeast Asians were identified as the group of individuals most acceptable and accessible to the target community. They are the most knowledgeable and most culturally sensitive cadre of people who can most effectively deliver heart health messages to the Southeast Asian community.

Training for the individuals included blood pressure measurement, heart-healthy food preparation, and ways to promote heart health.

The most important component of the indigenous model is empowering ethnic community leaders to decide who the most effective agents are, when and where services should be delivered, and how these activities will occur. In this process, the community itself becomes the owner of the concept and directs the implementation of the program. Subsequently, trained members are able to gain technical skills that will allow them to continue the program on their own.

These models should be regarded as a set of tools for health promoters and planners. While no single approach can be deemed most effective, a combination of different frameworks may yield better results. More importantly, taking a broad and overarching perspective is critical in understanding the dynamic thinking and behavioral processes of the individual since actions made on an individual level are, indeed, influenced and determined by environmental factors.

APPENDIX B

DESIGNING CULTURALLY APPROPRIATE COMMUNITY-BASED PROGRAMS

This section discusses key elements to consider in the design of community-based health promotion programs targeted to AAPIs. The strategies are based on findings from intervention studies of AAPIs and other minority populations, the experiences of actual programs, and the demographic and epidemiological realities of the AAPI community as established in this background paper. These highlighted strategies are not presented in order of priority and are not meant to represent the universe of successful program strategies.

STRATEGIES

A review of programs providing health promotion services to AAPIs indicates the need for an indepth analysis of the specific needs and characteristics of the intended population. This can be done by conducting a geographic and needs assessment of a particular locality. Identifying the critical areas of needs and opportunities for improvement must involve direct input from the participants, and more importantly, the endorsement of community leaders. When participants are involved in the planning, design, and implementation of the program, they become more than just participants—they share ownership of the project ideas and take responsibility for its impacts and consequences.

Several factors underlie the success of a health promotion program for minorities and underserved populations: (1) the provision of culturally and linguistically appropriate materials to the intended audience; (2) the active participation of community members as key health educators and promoters; (3) strong and committed partnership among community-based entities, physicians, and other health care providers, researchers, and local resource providers. Resource providers may represent a funding organization or groups of individu-

als who can mobilize monetary and nonmonetary resources to initiate and sustain the viability of the program.

Effective community-based partnerships exhibit a high level of learning opportunities where health promoters and recipients simultaneously become educators and learners. They mutually teach, coach, critique, and adapt to the changing needs of the community. However, acquiring the skills necessary to communicate and deliver services to the target population is a continually evolving process that requires periodic assessment, continued commitment, and swift readjustment when needed. Some key strategies to consider are:

- ▣ *Use compelling and accurate data.* The lack of ethnic-specific data on AAPIs is well documented. The need for establishing a solid and comprehensive data registry and tracking system persists. Organizations targeting AAPI communities must be able to access sources of data, interpret them in useful terms, and identify areas where gaps exist. The provision of data helps define the research, clinical, preventive, and communication needs of the AAPI population. Specific information on local demographics is also recommended for identifying high-risk groups.
- ▣ *Develop a cadre of knowledgeable lay counselors.* Community members represent the most qualified people to promote heart health. These individuals are aware of the characteristics of the intended audience and are culturally sensitive to the special needs of the population. One example of an effort to develop human capital within the community is the Heart Health for Southeast Asians project in Franklin, Ohio (Chen, 1993a). Using a lay-led approach to health promotion, counselors were accepted and accessible to the community.

- ▣ *Establish alliances and coalitions.* Collaborations strengthen and sustain health promotion at the community level. Organizations with resources and access to the population are best equipped to serve the people if they work together and collaborate on program goals and objectives. Coalitions work best when there is equal representation of indigenous leaders, medical experts, health care practitioners, health educators, and community lay volunteers (NHLBI, 1993). Churches, temples, and other places of worship should be incorporated within the alliance because they have been shown to be effective partners in promoting health messages to community members. For instance, the Families in Good Health program described earlier used temples to provide fitness activities to elders in the community.
- ▣ *Provide linguistically relevant materials.* The development of language-specific materials goes beyond the literal translation of English brochures to another language. It encompasses the use of words, concepts, and meanings that are easily understood and provide the intended audience with a compelling reason to initiate healthy behaviors. Thus, messages must take into consideration the cultural value system, thought patterns, and environmental factors surrounding the individual (Chen, 1993a).
- ▣ *Use cultural themes and symbols that evoke affinity.* Cultural imagery highlights family cohesiveness and harmony, which are dominant values in the AAPI community. Further, cultural imagery allows for creative communication. Picture stories and storytelling with folklore characters is an excellent approach to communicate health information (Frye, 1995).
- ▣ *Determine the role of public policy.* When creating models for intervention or health promotion, it is important to become familiar with the policymaking process. Formulating strategies with a policy framework allows the advocate to identify ways local, State, and Federal governments can be held accountable for eliminating health disparities for minority populations. Specifically for AAPIs, generating policy alternatives gives service providers a tool for effective negotiation (Ponce & Guillermo, 1994).
- ▣ *Be prepared to adapt to rapidly changing needs of the population.* Many unexpected circumstances arise once a program is put in place. Planning for abrupt changes is difficult. However, a plan that incorporates steps for flexibility increases the likelihood of program success and survival.

APPENDIX C

ASSESSING AND EVALUATING PROGRAM EFFECTIVENESS

CONDITIONS FOR MONITORING PROGRAM EFFECTIVENESS

An evaluation plan should be in place before a program is launched. Performance goals with measurable objectives should be stated in quantitative and qualitative terms at the onset of the program. These measures can be used to gauge systematically the progress and effectiveness of the chosen strategies and activities. Strategies for developing performance measures are suggested below. The list is by no means exhaustive, but it provides guidance for ensuring program effectiveness.

▣ *Community response:* An assessment of the level of community response should shed light into the amount of support and scope of endorsement harnessed from the community. Community endorsement is a critical component of the program and will determine the lifespan and reach of the program. Ensure that there is enough “fuel” to sustain the life of the program. A performance measure related to this strategy may be the number of community partners and program cosponsors.

▣ *Focus groups:* Focus groups are a good way to test the effectiveness of a new program or idea. By gathering a small group that is representative of the total target population, program activities and materials can be presented to the focus group for feedback. Focus group assessments are extremely useful in identifying areas that are in need of improvement and bring to the surface issues that might have been overlooked in the planning and design stages. Focus groups should be considered particularly for large-scale national campaigns or programs as they allow program planners to determine what works and what does not before considerable money and time are spent. The number of

focus group participants may be used as a performance measure.

▣ *Meeting consumer demand:* The intended audience has preferences in regard to their health needs and priorities. It is the responsibility of the agency or organization in charge of program development to identify products, ideas, and activities in demand within the community. In the context of community-based health promotion, consumer demand may be articulated in what the intended audience enjoys or feels comfortable doing. The Families in Good Health program, for instance, showed that family-oriented gardening activities proved to be a popular venue to increase physical activity. The number of program participants may be used as a performance measure.

▣ *Community volunteers:* Findings of bilingual health promoters is a challenge for many, particularly in areas where AAPI communities are relatively small. In localities where bilingual employees exist, they should be used extensively to assist patients with limited English proficiency. Clinics and health centers should also capitalize on the language skills of volunteers. The Kalihi-Palama Health Center in Honolulu, Hawai`i, uses volunteers who speak a number of AAPI languages to deliver health messages to low-income and uninsured patients. Sufficient training, however, must be provided to volunteers to equip them with skills the necessary to explain medical information. An approach to increase cultural awareness and competency in working with different AAPI groups should also be part of the volunteers’ training program. The increase in the number of volunteers may serve as a performance measure.

ENHANCING OPPORTUNITIES TO ENGAGE THE COMMUNITY

The paucity of AAPI health data should not preclude community organizations, health agencies, and advocacy groups from formulating visionary models to tackle the needs of underserved populations. The creation of innovative programs may, in fact, give rise to acceptable and accurate data surveillance mechanisms.

One of the promising areas of health education is the cultivation of interest in health promotion at the community level. Social services have traditionally focused on job training, housing, and youth development. Opportunity exists in integrating health promotion in the social services structure. By working with community-based organizations to identify cost-effective ways to include cardiovascular health promotion in their program goals, the level of awareness about the importance of health in alleviating social disparities is increased. Political support may be magnified if CVD prevention is embedded in the agenda of social services organizations.

More importantly, community health centers may foster the involvement of multidisciplinary team members in providing care to community members. Public health nurses, nurse practitioners, clinical specialists, primary care physicians, physical therapists, and nutritionists should collaborate in creating innovative cardiovascular promotion programs using their diverse academic and professional experiences.

PERFORMANCE PARTNERSHIPS

Maintaining high-performance partnerships is the key to a program's viability and success. However, forming partnerships requires considerable investment in time and intellectual capital at the onset of the program. The following are suggested ways to develop and sustain community partnerships.

Living Alliance

The alliance model is an infrastructure that brings together national and community partners who are best equipped to identify the specific needs of the intended audience. The national partner provides technical assistance and resources while the

community partner acts as the central figure in mobilizing support and awareness. Their combined efforts are effective in identifying the target population and strategies that best suit their needs. The credibility of the local partner helps propel health promotion goals into the lifestyle of the people it serves. The living alliance concept takes this principle a step further and builds accountability measures within the terms of the partnership so that each participant is involved from the beginning of the process and continues to be involved in the proceeding stages of the program. As the program grows and the population it serves expands, original partners provide additional networks and resources, thus enabling the alliance to continually develop innovative ways of sustaining the program. More importantly, a living alliance transfers full ownership of the promotional and educational concept to the community itself, enabling the recipients of the services to become providers themselves.

The NHLBI Ad Hoc Committee on Minority Populations identified the following types of organizations that offer potential for strong relationships:

- ▣ National and regional advocacy groups
- ▣ Medical associations
- ▣ Native Hawaiian Health Care Systems
- ▣ Professional associations
- ▣ Business associations
- ▣ Medical journals
- ▣ Community health centers
- ▣ Hospitals
- ▣ Managed care organizations
- ▣ Government agencies
- ▣ Entrepreneurs and AAPI chapters of Chambers of Commerce
- ▣ Ministry groups
- ▣ Schools, colleges, and universities
- ▣ Student groups
- ▣ Geriatric education centers
- ▣ Media networks

CAPACITY BUILDING

Capacity building for health promotion workers involves actions that enhance the capacity of the system to prolong and multiply health effects (Hawe et al., 1997). The value of capacity building is more evident in the long run, and measures to gauge its immediate effect may be difficult to identify. However, a commitment to building a framework that allows for capacity building inevitably yields better results. Inadequate capacity-building measures often lead to short-lived programs in spite of their notable endeavors. Successful capacity building involves a declared commitment to population health, a history of collaboration, a set of critical skills, and experience in putting together diverse resources and structures to turn planned change into reality (Hawe et al., 1997). A foundation for capacity building includes the organization's ability to generate and create a demand for services, ability to continue service delivery through a network of agencies, and ability to solve emerging problems and crises (Roper et al., 1992; Bracht et al., 1994; Biegel, 1984).

Capacity building is one tool agencies can use to further expand their ability to promote health practices. Moreover, it provides additional means of articulating to a wider audience the challenges, rewards, and future actions associated with disease prevention. In regard to cardiovascular health promotion and intervention, capacity building offers an alternative path to pursuing a multifactorial approach to heart health. The multiple levels of opportunities presented by capacity building serve as a venue for creating productive community alliances.

HEALTH CARE PROFESSIONALS

Asian Americans and Pacific Islanders have varying degrees of access to health care. Overall, the level of health coverage for AAPIs needs to be improved (Uba, 1994). In Palau, the Republic of the Marshall Islands, American Samoa, and the Federated States of Micronesia, residents are medically underserved. The ratio of primary care physicians to residents is at least 1 to 3,000 (U.S. Department of Health and Human Services, 1997). Moreover, few AAPI physicians are located in areas where the majority of Asian Americans and

Pacific Islanders reside, thus, limiting the availability of culturally competent care providers. While approximately 60 percent of the AAPIs live in the West, only 15 percent of the physicians reside in the West. Only 6.5 percent of AAPI physicians are in primary care, the remaining 93.5 percent are specialists. Many Federal programs do not include the category AAPIs in minority recruitment programs for health care professionals because, in the aggregate, AAPIs are considered "overrepresented" in the health professions (Mayeno & Hirota, 1994).

The Native Hawaiian Center of Excellence has identified 103 Native Hawaiian physicians practicing in the State of Hawai'i. They represent 4 percent of the all practicing physicians in the State, illustrating a major underrepresentation in the field of medicine. Native Hawaiians account for 18 to 22 percent of the State population.

These gaps in service provision and health professionals indicate a great need for culturally competent health care providers, better distribution of AAPI physicians and more focused delivery of primary care. There is a prevailing need to invest in human capital to meet the health needs of the AAPI populations. It is, therefore, critical that AAPIs are included in minority outreach programs and, more importantly, that students training to become health professionals are exposed to curriculum that allows them to develop cultural knowledge and skills applicable to local community needs.

There is also a prevailing need to train a cadre of AAPIs from a variety of health disciplines who are trained to provide community health education. These types of health educators would have the ability to bridge the gap between scientific discoveries and health services delivery in the community. In general, the availability of culturally competent health professionals affects the level of utilization of services by AAPIs. Studies have shown that AAPIs underutilize health services when there is a lack of ethnically matched professionals. Some will increase their use of certain types of services if they are provided by AAPIs (Asian Pacific Islander American Health Forum, 1986; Lovejoy et al., 1989). More importantly, bilingual health professionals with AAPI backgrounds are more likely to provide culturally

sensitive and appropriate services because they share a common understanding of culturally specific communication styles and traditions.

Overall, the unequal distribution of AAPI physicians across the United States, the lack of culturally competent health professionals, and the required presence of lay health workers provide strong evidence for the need to saturate the human capital pipeline with more AAPIs.

RESOURCES

NHLBI NATIONAL EDUCATION PROGRAMS OFFER LEADERSHIP AND INFORMATION

Since 1972, the NHLBI has taken steps to apply the latest research to the development of practical methods to promote successful health interventions.

Through its national educational programs and initiatives, the NHLBI plays a leadership role by educating health care professionals, patients, and the public about the prevention and treatment of heart, lung, and blood diseases and sleep disorders. The national programs develop and distribute patient and professional materials, including clinical practice guidelines, and sponsor special events such as the **National High Blood Pressure Education Month (May)** and the **National Cholesterol Education Month (September)**, which promote awareness of heart disease risk factors and encourage regular screening.

Visit the NHLBI web site at <http://www.nhlbi.nih.gov> for more information about the programs and initiatives listed at right or to access publications in electronic format.

Cardiovascular Information

National High Blood Pressure Education Program

National Cholesterol Education Program

National Heart Attack Alert Program

NHLBI Obesity Education Initiative

Sleep Disorders Information

Sleep Disorders Initiative

Lung Information

National Asthma Education and Prevention Program

You can also contact the NHLBI Information Center to request information about any NHLBI-sponsored program or initiative or to request a publications catalog:

NHLBI Information Center
P.O. Box 30105
Bethesda, MD 20824-0105
Telephone: (301) 592-8573
Fax:(301) 592-8563

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