Cardiovascular Disease & Prevention
Among American Indians & Alaska Natives

U.S. Indian Health Service

Roundtable Report

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Charles Grim, DDS, Director
Indian Health Service
Rockville, Maryland

James M. Galloway, MD, FACP, FACC
Director, Native American Cardiology Program
Indian Health Service
Tucson, Arizona

KAUFFMAN & ASSOCIATES, INC.

425 West First Avenue
Spokane, WA 99201
(509) 747-4994

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The way that our ancestors lived was why they lived so long. A way of life that promotes life, promotes synergy, is the way that we want our quality of life to be. Education doesn't necessarily mean you get the answers. I don't know that there is an answer. Maybe by us trying to find the answer we are doing what Creator meant for us to do.

Jeffery Knight, Council Delegate, Middletown Rancheria

Introduction

Cardiovascular Disease (CVD) is the leading cause of death among American Indians and Alaska Natives. American Indian and Alaska Native (AI/AN) populations suffer disproportionate mortality and morbidity rates when compared to other races in the United States. Many of these problems are exacerbated by limitations in infrastructure, geographic isolation, and poor linkages to health care systems as well as high rates of CVD risk factors, including Type 2 Diabetes, hypertension, dyslipidemia, obesity, physical inactivity and in some regions, high levels of tobacco use.

While CVD is the leading cause of death for AI/AN populations, CVD rates have been significantly underestimated among this population, in part due to racial misclassification on state death certificates and limited data. Up until several decades ago, CVD was not a major health problem for Indian populations. However, recent studies, some of which are referenced in this paper, reveal significantly increasing rates of CVD, exceeding rates for other races in the United States.

CVD prevention recommendations generally are grounded in the adoption of healthy lifestyles, including a healthful diet, avoidance of unhealthy behaviors and regular activity as well as control of those risk factors present. These strategies, for both personal and community prevention, also generally include the consideration of the optimal environmental changes and supports often required to sustain healthy lifestyle changes. Primordial and primary CVD prevention strategies involve reducing the risk factor burden that contributes to CVD, such as diabetes, hypertension, obesity, physical inactivity, elevated triglyceride and LDL-cholesterol levels, as well as low HDL-cholesterol levels. Secondary CVD prevention activities primarily focus on the prevention of recurrent events among those with CVD and generally incorporate the above recommendations into additional clinical activities to prevent the reoccurrence of heart events, such as those incorporated into the American Heart Association's "*Get With The Guidelines*" Program. In addition, many of the improvements achieved in the larger society to

intervene and treat CVD rely upon quick response ambulances and close proximity to cardiac intervention centers and tertiary care medical centers, which are largely not available in Tribal and rural areas.

Many of the prevention initiatives launched to address Diabetes in AI/AN communities also may have secondary benefits to help prevent CVD, however, the dramatic rise in CVD morbidity and mortality among the AI/AN population suggests that a more targeted CVD-specific effort is also warranted. One example of a diabetes prevention effort with a positive impact on CVD is the Indian Health Service Special Diabetes Program for Indians grant program. Congress established the Special Diabetes Program for Indians in the Balanced Budget Act of 1997 to provide prevention and treatment services to address the growing problem of diabetes in American Indians and Alaska Natives (AI/ANs). The IHS awarded Special Diabetes Program for Indians grants to 318 programs in 35 states. The IHS distributed 27 (9%) grants to IHS programs, 33 (10%) grants to urban Indian health programs, and 258 (81%) grants to tribal programs. The Special Diabetes Program for Indians funding has resulted in increases of services within these communities. Many programs have an emphasis on primary prevention and promote healthy lifestyle changes through increased physical activity, nutrition education and community awareness activities. With a more targeted approach on CVD, inroads in primary and secondary prevention and to improvement in survival outcome through earlier intervention and improved treatment systems would be possible.

The U.S. Indian Health Service (IHS) in collaboration with representatives from Tribal governments, urban Indian health programs and other key Department of Health and Human Services (HHS) agencies, leading organizations focused on CVD and DM prevention, academic medical centers and other interested non-federal entities conducted a roundtable conference on September 25 and 26, 2003 to identify major elements and contributing factors, as well as to identify an action plan for the prevention of CVD among American Indian and Alaska Natives.

Approximately 25 individuals gathered for this two-day conference to review the latest information on CVD among AI/AN populations and to discuss strategies for a five-year prevention plan. Specifically, the roundtable conference served three main objectives:

1. To provide a forum for leading experts, organizations and agencies in cardiovascular disease (CVD) prevention and Indian health, with Tribal and urban Indian leadership and guidance, to discuss issues related to CVD in American Indian and Alaska Native communities and to develop findings and recommendations.

2. To identify and discuss current knowledge and understanding of CVD with regard to American Indian and Alaska Native communities in relation to the following areas:

    - Current data and research regarding the impact of CVD on American Indian and Alaska Native health status and health care.

- Major elements, regional considerations and contributing behavioral factors which place persons "at risk" for CVD in American Indian and Alaska Native communities.

- Effective or promising strategies for the prevention of CVD in American Indian and Alaska Native populations.

3. To develop a 5-Year Action Plan for the Prevention of CVD among American Indian and Alaska Native populations, and identify opportunities for implementation.

The results of this roundtable conference are summarized in this final report and strategic plan. This report and plan is disseminated by the IHS as a means to continue the dialogue among Tribes, urban Indian health programs, IHS and key federal and non-federal partners regarding strategies to prevent cardiovascular disease in American Indian and Alaska Native communities.

This report is divided into four main sections. It provides a limited overview of the current literature regarding cardiovascular disease in Indian country, findings from key respondent telephone interviews on this topic, a summary of the Roundtable Conference discussion and, finally, proposed strategies for the prevention of CVD in American Indian and Alaska Native communities.

Collectively we need to take the responsibility for prevention, as leadership and as community. We find out this information and we take it back to the reservation. The community and the leadership need to take up the knowledge and own the problem. This is an important step.

John Blackhawk, Winnebago Tribe of Nebraska

Literature Review

INTRODUCTION

As part of its contract with the Indian Health Service (IHS), KAI assembled a review of some of the most relevant literature associated with heart disease among American Indian and Alaska Native populations. In assembling those articles to be reviewed, Internet search engines, including Google, Infoseek and Yahoo were used. Medline, available on-line via Entrez PubMed, was extensively searched as was the Library of Congress, and the Native Health Database. Other available databases considered included the National Institutes of Health, the Center for Disease Control, the Office of the Surgeon General, Office of Minority Health, the Secretary of Health, the American Heart Association, the American Diabetes Association and the American College of Cardiology. More than 1,000 abstracts were considered in selecting the reviewed source materials for the literature review.

The literature review focuses upon those materials that illustrate both the extent and the trend of the disease state within the AI/AN population. This literature is well-defined and sufficiently extensive to illustrate the depths of the issue. The Indian Health Services annual study, *Trends in Indian Health,* provides an excellent picture of the health of American Indian and Alaska Native Populations. For the purposes of comparing health status with other U.S. populations, this literature review referenced data from the National Center for Chronic Disease Prevention & Health Promotion. In addition, the Strong Heart Study Data Book, the seminal study on the prevalence of heart disease within American Indian and Native Alaskan populations, was reviewed. The data from this study, initiated in 1988 with nearly 5,000 enrollees, spawned no fewer than 67 additional articles on topics ranging from diabetes to diet, gallbladder disease and genetic influences in the prevalence of heart disease in the studied populations.

Understanding the risk factors for cardiovascular disease, both generally but also specific to the studied populations, is a central concern of this literature review. The Indian Health Service's companion study, *Regional Differences in Indian Health*

(Regional Differences), opens a window on the issue through its illustration of the sharp divergences in disease incidence by geographic area. A complement to *Regional Differences* is a recent article from *Ethnicity & Health* that examines geographic variation in cardiovascular disease risk factors among American Indians. In addition, this literature review looks at a companion study to the Strong Heart Study, the Strong Heart Family Study, that explores genetic and environmental contributions to cardiovascular disease risk in American Indians. Finally, a recent article from Dr. James Galloway outlines the basic epidemiology of atherosclerosis among American Indians and Alaska Natives, that is, the build-up of plaque in the arteries of the heart.

It should be noted, however, that the literature on risk factors for cardiovascular disease among American Indians and Alaska Natives is thin in comparison with the relative wealth of data and depth of understanding regarding cardiovascular health in other populations in the United States and around the world. A more wide-reaching review of the literature suggests that in addition to the more obvious risk factors for cardiovascular disease, including contributors such as high blood pressure, high cholesterol levels, diabetes, and lack of exercise, other outside influences and cultural factors may play a distinct role in predisposing populations to disease. By way of example, a number of studies suggest a role for racism as a distinct element in risk for cardiovascular disease amongst African-American populations. Wyatt, et al. suggest three distinct levels of racism affecting the cardiovascular health of African American populations: 1) differential access to goods and resources and poor living conditions; 2) perceived racist acts as a stressor that negatively affect cardiovascular health; and, 3) that the acceptance of negative cultural stereotypes that can have harmful effects on cardiovascular health. That these factors may, indeed, have an impact on American Indian populations is, at this point, unexamined.

As roundtable participants explore active steps to address the rising incidence of cardiovascular disease in American Indian and Native Alaskan populations, it is important to examine past models to determine what has worked elsewhere. Despite the paucity of data related to CVD prevention in this population, there have been some successful interventions in cardiovascular disease noted to date. From the perspective of prevention, the underlying cause of most chronic diseases may be found within the realms of diet and lifestyle. Moreover, the rapid increase in cardiovascular disease among American Indian and Native Alaskan populations specifically has been attributed primarily, although not exclusively, to the rising incidence of diabetes. A number of successful diabetes prevention programs have been studied and reviewed in the literature. This literature review considers the Kahnawake Schools Diabetes Prevention Project and the Native American Diabetes Prevention program as successful programmatic initiatives that address the key behavioral challenges that must be overcome if prevention interventions among and within these populations are to be successful. A more comprehensive abstract review suggests that given the close parallels between American Indian and Alaska Native populations and developing world populations including median age, birth rates, disease profile and economic status, there may be some

logic in looking towards non-first world experiences when developing action plans for these populations.

CVD AMONG AMERICAN INDIANS & ALASKA NATIVES: DEFINED

Trends in Indian Health (Trends) 1998-1999, the most recently produced bi-annual report of the Indian Health Service (IHS), provides a statistical foundation for the understanding of the impact of CVD among the AI/AN population. *Trends* describes both the nature and scope of services offered by IHS while providing relevant health statistics on those American Indians and Alaska Natives living within the IHS service area, approximately 60% of the population living in the United States. Noteably, CVD and diabetes are two of the six principal foci of the IHS's major public health initiative currently underway with the U.S. Public Health Service, the "Initiative to Eliminate Racial and Ethnic Disparities in Health" by 2010.

The statistical snapshot presented of the AI/AN population by *Trends* contrasts with that of the overall US population in several indices. The covered population includes approximately 1.51 million people for FY 2000, a 2.3% increase from the past year. By age and based on 1990 Census data, the population is not representative of the overall U.S. population, but, in fact, is more representative of a Third World population: 6% are over age 65 vs. 13% U.S.; 33% are 15 years or younger vs. 22% for the United States as a whole. The birth rate per 1,000 is 24.1 vs. 14.8 for the U.S. in its entirety. Birth rates for AI/AN are from 1994-1996 compared with US All Races data from 1995. While there has been a significant decrease in maternal and infant mortality since 1972-74, it remains approximately 20% higher than for the U.S. as a whole.

Comparison of the leading causes of death for these populations shows a more complex relationship. As with the United States as a whole, cardiovascular disease is the leading cause of death for both AI/AN men and women (Figures 1-3). When rates are adjusted for racial misclassification, American Indian and Alaska Native populations have substantially higher CVD rates. These statistics are confirmed by data from the *Strong Heart Study,* reviewed below, that suggests that CVD incidence rates are almost double when compared to other studies with participant mixes more closely resembling the general U.S. population. AI/AN populations also experience higher mortality. Accidents are the second leading cause of death for AI/AN men. Death rates for alcoholism, tuberculosis, diabetes, accidents, suicide, pneumonia and/or influenza and homicide are all significantly higher than in the United States population as a whole. Figures 1-3, at the end of this literature review, provide age-adjusted death rates for the leading causes of death as well as changing, age-adjusted death rates for diabetes and heart disease since 1972 as well as comparisons with the U.S. population as a whole.

When comparing these populations, there are certain limitations to *Trends* statistical data - not the least of which is its reliance on Official U.S. Census Bureau County Data. To account for this phenomena, a "smoothing" technique has been

employed to adjust for the growing accuracy of census takers over time in measuring American Indian and Alaska Native populations. In addition, significant regional variances in health care statistics are addressed in *Trends'* companion study, *Regional Differences in Health*, reviewed later in this paper. Vital Event Statistics, such as heart attacks, were obtained from the National Center for Health Statistics. A significant effort is underway to adjust for miscoding of race on death certificates. Finally, much of the data is age-adjusted to reflect the major difference in ages between the overall U.S. population and the studied population.

The Strong Heart Study, undertaken in 1988, provides significant weight to the current understanding of heart disease within the American Indian and Alaska Native population. The study was designed to investigate cardiovascular disease and its risk factors, to identify differences in CVD among the four study centers, and to determine if the differences in known risk factors explained well-established variation in incidence. For study purposes, the definition of cardiovascular disease was broad and included heart attack, congestive heart failure, and stroke. For event measurement purposes, it included all survivors as well as those who died during the examination period. The largest of its kind, the *Strong Heart Study* included data gathered from three time-separated physical examinations given to 4,549 American Indian men and women between the ages of 45-74. These participants were from 13 American Indian tribes in three distinct geographic regions that also acted as study centers: Arizona, Oklahoma, and South Dakota/ North Dakota. Among its most important conclusions, the *Strong Heart Study* showed the dramatically increased incidence rates of CVD among American Indians compared to other populations and confirmed that diabetes is a significant risk factor for CVD in this population, with diabetes contributing substantially to this rising incidence of cardiovascular disease.

The expanded scope of the Strong Heart study has provided a rich data set from which to make such reliable assessments and conclusions about CVD, its risk factors and related conditions in American Indian and Alaska Native populations. In addition to examining conditions of the heart, the *Strong Heart Study* examined self-reported rates of emphysema, arthritis, cancer, and gallstones. The study also looked at knowledge of CVD and its risk factors. While it found a high level of knowledge regarding these risk factors, including high blood pressure, diabetes, high blood cholesterol, stress, inactivity, and smoking, the study concluded that "changing high-risk behaviors is very difficult at both the individual and community level." In areas of measured data, the study looked at total cholesterol levels, low density lipoproteins (bad cholesterol) and high density lipoproteins (good cholesterol), triglyceride levels and the prevalence of overweight and obesity. There was significant variation by region as suggested by Table 1. Other risk factors examined within the study included environmental and lifestyle risk factors. Tobacco and alcohol use, nutritional intake (including level of saturated fats, cholesterol, calcium, sodium, salt, zinc, potassium, and vitamins) and physical activity were all measured as part of the *Strong Heart Study*. In nearly all instances, the studied populations experienced standards of nutritional performance that were far below the recommended daily allowances.

There were few comparisons within the *Strong Heart Study* to the larger U.S. population. One such comparison, however, found that mild ventricular dysfunction, that is a reduced ability to pump blood with each heart beat, among the American Indian men studied was 50% higher (Arizona) to 350% higher (Dakotas) compared with a similarly-aged New York City population. In addition, the prevalence of mild to severe ventricular dysfunction was significantly higher among American Indian men compared to American Indian women.

Although very difficult and expensive to achieve, the *Strong Heart Study's* impact would be greatly strengthened through regular comparison in each of these data sets to the U.S. population overall; what is indisputable, however, is the rapidly increasing incidence of metabolic syndrome, diabetes, and CVD within this population. Chapter 5 of the *Strong Heart Study* Data book is devoted to "diabetes prevalence and diabetes-related variables." Diabetes rates varied widely from nearly 65% in the Arizona group to 32% in the Dakotas's population among men, and 71% and 43% respectively among the women studied. As the data in Figures 2 and 3 suggest, and the Strong Heart Study confirms, the emergence of CVD as the major health threat to Native American populations is closely related to the rapid increase in the incidence of diabetes among these populations.

Perhaps the most valuable contribution of the *Strong Heart Study* has been the nearly 70 peer-reviewed journal articles that drew upon the study's data. Among the most important of these is Howard, et al.'s article, *The Rising Tide of Cardiovascular Disease in American Indians (Rising Tide)*, examining the basis for what it characterizes as a "rising tide" of CVD mortality rates among American Indian communities. The clinical literature long held that American Indian populations had an inherent protection against cardiovascular disease and early data from the Indian Health Service and other studies indicates very low rates. Current analysis from the *Strong Heart Study*, however, suggests that contrary to other populations in the United States, cardiovascular disease is rapidly increasing within American Indian populations and the incidence rates are almost double that of the general US population. In addition, there is a significant contribution of diabetes to this rapidly increasing trend. Indeed, 56% of all CVD events in men and 70% in women in the *Strong Heart Study* occurred in individuals with diabetes.

The Rising Tide hypothesizes that hyperglycemia, that is abnormally high concentrations of glucose in the blood, may contribute to atherosclerosis (build-up of deposits on the walls of the arteries) by interfering with normal endothelial function (that is the function of the cells lining the walls of the heart and the lymph and blood vessels). Howard, et al., also hypothesize that albuminuria, which is the abnormal leakage of albumin (a protein) from the kidneys into the urine, and is an indicator of microvascular disease in the kidneys, may also be an indicator for vascular disease in other organs such as the heart. This study notes: "The consistent finding of albuminuria as a major risk factor further emphasizes the importance of measuring urinary albumin in clinical assessments of individuals with diabetes and applying aggressive measures to attempt to retard the progression of microvascular

disease as a strategy to control coronary disease." *Rising Tide* concludes that "even in those populations that may have had an innate protection" against CVD, that protection may be "overridden by diabetes."

CVD AMONG AMERICAN INDIANS & ALASKA NATIVES: RISK FACTORS

The value of the companion statistical abstract to *Trends in Indian Health*, *Regional Differences in Health, 2000-2001 (Regional Differences)* lies in exploring statistical variation in health data between the 11 regional administrative offices and a 12th office in Tucson, AZ. This includes 155 administrative units of which 92 are run directly by the tribes. The population for each IHS Area ranges from just over 20,000 for the Tucson office to more than 250,000 in the Oklahoma office. There are significant regional variations in health status. The differences are at times startling. The diabetes mellitus death rate per 100,000, for example, ranges from a low of 10.9 in Alaska to a high of 78.7 in Tucson (1994-96). The death rates for heart disease range from 85.1 in Albuquerque to 229.7 in Aberdeen. Further detail on regional differences is provided in Figures 4-6 at the end of this review.

Regional differences were examined in the publication, *Geographic Variation in Cardiovascular Disease Risk Factors Among American Indians and Comparisons with the Corresponding State Populations*. In this article, Levin, S., et al compared the prevalence of self-reported cardiovascular disease, diabetes, hypertension, perceived health status and smoking incidence from three surveys of Americans Indians, two of which were from the Southeast and one from the upper Midwest. They found substantial variation in the prevalence of disease states and health status. They concluded that "distinct cultural norms, historic conditions, and important health issues of each American Indian community must be recognized and incorporated into all health promotion programs and policies." These sentiments are echoed throughout the literature on health promotion and disease prevention in American Indian populations.

Galloway's overview on the epidemiology of CVD in this population, *The Epidemiology of Atherosclerosis and Its Risk Factors Among Native Americans*, reiterates the prominent roles of diabetes, hypertension and obesity in the increasing incidence of cardiovascular disease. Most noteably, the incidence of obesity among the Navajo was three times that of the general U.S. population. He concludes that risk factor clustering is a major contributor to CVD in this population and notes that the "association between obesity, glucose intolerance, dyslipidemia [inability of the body to metabolize fat and cholesterol properly], hypertension, and diabetes has been substantiated in Indian and non-Indian populations." Indeed, given the rapid rise in obesity throughout the general U.S. population, the rising incidence of cardiovascular disease among certain American Indian populations may be seen as a "canary in the coal mine" that merits further research.

CVD AMONG AMERICAN INDIANS & ALASKA NATIVES: CLINICAL INTERVENTIONS

In 1993, James Galloway, MD, et al., initiated the Native American Cardiology Program, the IHS Center of Excellence in Cardiology, to "provide direct cardiovascular care to Native Americans on-site at reservation clinics, as well as to provide tertiary care for complex cardiovascular disease". *The Native American Cardiology Program (NACP): A Collaborative Approach to Subspecialty Cardiology Care* describes its genesis. Its mission is to promote cardiovascular health and wellness, education and prevention for Native American patients throughout the nation. Prior to the launch of the NACP, American Indian populations in the southwest were forced to rely on private cardiology practices for their care. Much of the care was atomized, disconnected from the lives of the individuals seeking care and lacking in continuity, cultural sensitivity and coordination. A regionalized, systematic approach, clearly demonstrated as valuable by the literature, was missing.

The NACP today supports over 40 hospitals and clinics in Arizona, Nevada, New Mexico, California and Utah. They offer comprehensive, on-site clinics throughout their service area and supplement these capabilities through telemedicine, which includes both tele-Doppler imaging, and tele-echocardiogram. Significantly, NACP is a collaborative program with many partners, including a leading academic medical and cardiovascular center, which assists the program in providing their patients the highest level of care, cutting edge technology and top-notch consultative support. The NACP focuses on preventive activities while providing "high quality, culturally sensitive and appropriate cardiology services" which includes the integration, when desired, of traditional healing methods. In an effort to track the impact of its work, the NACP maintains several registries including a pacemaker registry of all Native American patients with pacemakers living in Arizona as well as high risk registries. The NACP has received a number of citations including the "Secretary of Health and Human Services Award for Distinguished Service" for its "innovative delivery of comprehensive cardiovascular care for Native American people through exceptional teamwork and collaboration with academic, federal, state, private and tribal institutions."

CVD AMONG AMERICAN INDIANS & ALASKA NATIVES: PREVENTION STRATEGIES

As discussed in previous sections, the literature on CVD in AI/AN communities suggests that any prevention strategy must be culturally sensitive. The article, *Participatory Research Maximizes Community and Lay Involvement,* reviews the final draft of the policy statement for participatory research produced by members of the North American Primary Care Research Group. This policy statement was developed to guide researchers in their work with indigenous peoples and comes as a much needed corrective to the often destructive and misinformed research

of the past, the most famous of which may have been produced by Margaret Mead, Columbia University's noted anthropologist of the first half of the 20th century. Summary points made include the following:

- The knowledge, expertise and resources of the involved community are often key to successful research.

- Three primary features of participatory research include collaboration, mutual education and acting on results developed from research questions that are relevant to the community.

- Participatory research is based on a mutually respectful partnership between researchers and communities.

- Partnerships are strengthened by joint development of research agreements for the design, implementation, analysis, and dissemination of results.

- Results of participatory research both have local applicability and are transferable to other communities.

In *Developing a Code of Research Ethics for Research with a Native Community in Canada: A Report from the Kahnawake Schools Diabetes Prevention Project,* also by Ann Macaulay, the principles of community participation in research initiatives amongst indigenous peoples are elaborated. In particular, she references the Kahnawake School Diabetes Prevention Project. By defining the roles of the outside researchers as well as those based within the community of study itself, the study was able to overcome resistance and obtain buy-in from all parties involved in the project.

The Native American Diabetes Project is the final example of prevention strategies reviewed for this project in the article *Strong In Body and Spirit*. The Native American Diabetes Project is one of several successful diabetes intervention projects that include the Kahnawake Schools Diabetes Prevention Project with the Mohawk Nation in Canada and the Zuni Model Diabetes Program in Zuni, New Mexico. The objective of the Native American Diabetes Project was to determine the effects of a "…culturally appropriate diabetes lifestyle intervention…" Three sites, and three interventions were selected for the project. Assignment was not random; rather, each site was assigned a specific intervention. Site A received the intervention of family and friends; Site B received the intervention of a medical specialist one-on-one and Site C simply received normal medical intervention. The interventions themselves used community preferences and were based on social learning theory. There were five learning sessions including "Get more exercise," Eat less fat," "Eat less sugar," "Together we can," and "Staying on the path."

Results were measured by changes in blood glucose levels and weight. 104 individuals participated in the three sites. Given the small number of subjects, there was no statistically significant difference between the three sites individually. However, when combining the two intervention sites and comparing them with the control (Site C), there was a statistically significant change in weight and blood glucose level. Study authors concluded that: "…because the risk factors for preventing or delaying the onset of diabetes complications are complex and interdependent, it may be that interventions that include comprehensive clinical and culturally appropriate lifestyle intervention have the greatest potential to reduce the risk factors associated with diabetes complications." They also suggested that because the intervention "used traditional Native American educational messages that were more culturally appropriate and more effectively communicated than standard diabetes education materials, this may have improved the effectiveness of the intervention."

We need to consider a broader notion of family. Family is a set of relationships. What are the aspects of family that are essential to those relationships? There are a lot of kids without a family in the narrow sense. How do we look in a broader sense and find the characteristics that are healing and supportive. How do we build an expanded notion of family into the strategy that we come up with?

Ralph Forquera, Seattle Indian Health Board

Interview Findings

To better understand the views and perspectives of local tribal communities regarding the impact of Cardiovascular Disease (CVD), the Indian Health Service solicited input from elected tribal leaders, tribal health directors and urban health program directors. Nine community leaders were contacted and asked to share their perspectives on the impact of CVD in their community, major risk factors and prevention strategies and approaches which seem most effective.

Four elected tribal leaders participated in this process:

Jefferson Keel, Lt. Governor of the Chickasaw Nation;

Rachael Joseph, Chairperson of the Lone Pine Paiute Tribe;

Pearl Capoeman-Baller, President of the Quinalt Indian Nation; and

Julia Davis, Councilmember of the Nez Perce Tribe.

In addition, five health directors from either tribal or urban health programs participated in this process:

Modina Waters, Health Director of the White Eagle Health Center of the Ponca Tribe of Oklahoma;

Ron Begay, CEO of the ACL Service Unit;

Arnold Loera, Medical Director of the Bristol Bay Native Corporation;

Benson Kelly, Akwesasne Mohawk Reservation; and

Dr. Peter Talbot, Medical Director of the Seattle Indian Health Board.

In selecting these community leaders, efforts were made to ensure wide geographic representation while recognizing that there were not enough interviews to generalize findings across Indian Country. Rather, these brief discussions with opinion leaders in tribal and urban Indian health programs were conducted to help identify a sampling of views and perspectives regarding CVD in tribal communities for purposes of continued discussion.

A formal, structured interview was not used. Instead, a discussion guide was followed to allow for free flowing discussion about CVD from the local perspective of each key respondent. The following three questions were asked to trigger further elaboration and analysis by the respondents.

1. How do you view the impact of CVD in your community? What priority is placed on programs to prevent CVD in the context of other community concerns?

2. How would you describe the risk factors that you feel pose the greatest challenge to cardiovascular health in your community?

3. What is the most valuable direction for the IHS/tribes/urban health programs to take regarding CVD? What type of preventive or disease management support, or actions are most needed?

Findings are described in three major sections and are grouped in thematic categories. These sections follow the interview questions. The first section considers the impact of CVD on tribal and urban Indian communities. The second section considers the respondents' understanding of the major CVD risk factors in their communities. The third section describes community perspectives on CVD prevention strategies.

IMPACT OF CVD ON TRIBAL & URBAN INDIAN COMMUNITIES

Leaders Identify CVD as a Major Health Problem for their Community: Both tribal leaders and health directors agreed that Cardiovascular Disease poses a significant impact on the overall health of Indian communities. Providers know it is the number one killer. Most respondents agreed that CVD is among the top health priorities in the community along with Diabetes and Alcohol/Substance Abuse. Several respondents indicated their local programs have targeted CVD for future initiatives. Its impact is measured in terms of high treatment costs and increasing morbidity and mortality rates.

Denial is a Factor: Several respondents identified "denial" as a factor in community recognition or acknowledgement of CVD. One respondent noted that individuals tend to ignore warning signs and are motivated to embrace lifestyle changes only after a major CVD event occurs personally or within their immediate family circle.

Competing Priorities: While Indian community health leaders understand CVD is a major health problem, other priorities compete for the attention of health systems and policy-makers. More attention is given to annual budget negotiations with federal agencies, implementing local Diabetes initiatives and meeting demand for direct clinical care during budget shortfalls.

Community Awareness Improving: Respondents saw a general improvement in community awareness about CVD as an important effort, through both local education efforts and mass media public service messages. One respondent identified new, non-invasive testing, as a step to bringing more patients in for screening and education. Respondents indicated that improved awareness has changed views about CVD, and people understand that it strikes women as well as men, young people as well as older people.

Linkage with other Diseases: There was a general understanding that CVD can also be related to other disease and conditions, such as diabetes and obesity.

Health Systems Coordination: The providers interviewed expressed the need for health systems linkages to coordinate the intervention and treatment of CVD so that Indian patients receive the most appropriate care and treatment. This may involve referrals to CVD specialty clinics or providers, linkages to tertiary care centers and improved emergency response systems.

MAJOR CVD RISK FACTORS

Risk Factors Among AI/AN Communities Similar to General Population: Respondents tended to identify the most common risk factors associated with CVD. One provider noted that the risk factors are the same for Indians as for non-Indians, except some risk factors, such as diabetes, are more prevalent among Indian populations. These commonly identified risk factors included the following:

- Diabetes
- Obesity and Overweight
- Poor Nutrition
- Lack of Exercise/Sedentary Lifestyle
- High Blood Pressure
- Smoking
- High Cholesterol Levels
- Family History or Heredity

Unique Risk Factors Identified: Respondents also identified some aspects of tribal community life and health status which produce risks unique or more pronounced in AI/AN communities. These were as follows:

- Federal "Commodity Foods Program" too Fatty and Unhealthy
- Poverty
- Limited Food Choices (processed foods, fast foods)
- Social/Cultural Norms About Eating or Feasting
- Moving Away from Traditional Native Foods
- Alcohol and Substance Abuse Undermines Lifestyle Change
- Overwhelming Socio-Economic Challenges of Daily Living
- Increasing Rates of Diabetes
- Increase in Obesity and Overweight Among Youth
- Denial about Effect of Unhealthy Lifestyle

Loss in Traditional Native Cultures/Values a Common Theme: Numerous respondents mentioned the loss of traditional foods and the decline in traditional physical activities (hunting, gathering, dances, etc) as a contributing risk factor. Several respondents described the physical fitness of ancestors found in old photographs. They were not overweight and looked healthy. Traditional diets of elk, deer, salmon, clams, roots, berries have given way to fast foods or high-fat, poverty diets.

Poverty and Psychosocial Dynamics: Scattered throughout the responses, were concerns about poverty, alcohol/substance abuse, mental health and family survival challenges. Each of these issues can impede individuals and communities from sustaining meaningful lifestyle changes which could prevent CVD on a long-term community-wide basis. This theme was expressed in terms of community denial, poverty, substance abuse, violence and overwhelming survival complexities challenging the daily lives of many Indian families today.

COMMUNITY PERSPECTIVES ON CVD PREVENTION STRATEGIES

Increase Funding: It will be important for Congress and federal agencies to provide the funding required for tribal and urban health systems to sustain a CVD prevention initiative. The IHS and other federal agencies should put more money into prevention efforts. Respondents reported that their communities need more resources for promoting exercise, providing exercise equipment, instructional videos, wellness centers, nutrition support.

Education and Awareness Campaigns: Several respondents mentioned the effectiveness of a CVD prevention campaign similar to the "stop smoking" initiatives sponsored by IHS and in the general population.

- Nutrition Education
- Dietary Instruction
- Fitness Programs in the Community
- Community Outreach

Identify and Support Best Practices: Respondents noted that while many interesting programs exist, we don't know which if any are really effective and can be replicated. Support for excellence in community education and outreach programs was identified as being critical to any CVD prevention effort. This includes not only financial resources, but training and access to skilled practitioners who have experience in areas such as teaching methods, exercise physiology and related fields.

Integrate CVD and Diabetes Efforts: An integrated approach to prevent diseases with common risk factors was proposed by several respondents. It is the technique through which some communities respond to the CVD concerns. Interdisciplinary teams including the diabetes education programs, community health representatives, public health nursing and hospital health screening services was identified as one option. Some very exciting initiatives are being developed through the Diabetes Program, and these "best practices" could prove beneficial to the prevention of CVD as well.

Prioritize Health Promotion & Disease Prevention: Choices must be made within the Indian health delivery system, and more priority should be given to better fund Health Promotion and Disease Prevention (HP/DP) programs.

Measuring Sustained Lifestyle Changes: The key to preventing CVD is making sustained lifestyle changes to eliminate major risk factors, such as obesity and sedentary living. However, local programs need support to help implement programs and to find meaningful ways to measure progress from both an individual and a community standpoints.

Focus on Children and Youth: Several respondents mentioned that it would be more effective to direct CVD prevention efforts at AI/AN youth before unhealthy habits have been established. They will be more likely to adopt healthy lifestyle changes and easier to influence with the support of schools and tribal youth programs. Existing programs such as Head Start or tribal Youth Camps could provide the best forum for preventing CVD among the American Indian and Alaska Native populations.

Intergenerational Family Involvement is Key: Long term, sustained lifestyle changes must be supported by the family and community environment. Activities that also promote family involvement are more likely to be sustained according to respondents. Theses types of activities include family swimming, aerobics, fun runs/ walks, community games, and other events that involve the whole family. The extended family can also play a key role, by using "aunties" and "grandmas" as the advocates to support lifestyle changes.

Tax Unhealthy Foods: Tribes and local governments can utilize their government powers to impose taxes on the sale of unhealthy foods in communities, or prohibit high sugar drink vending machines in schools. This could lower the sale of unhealthy foods and send a message to the community about the importance of healthy nutrition.

Take Full Advantage of the *"Strong Heart Study"* and Implement Recommendations: Numerous respondents were aware of the Strong Heart Study and want to see it more broadly disseminated across Indian Country with its recommendations implemented. Many of the issues and questions addressed in this Roundtable were also identified in the study and could provide an important roadmap for future planning.

Respect Regional Differences: Whatever plans are developed to prevent CVD in Indian Country, we must remember that every section of the country is different and that one approach may not be appropriate in all communities. Local tribal and health care leadership should be consulted in determining the best allocation of resources and programs.

Prevention and Treatment must Work Together: A two-pronged approach that effectively addresses both prevention and treatment was identified as key by several respondents. Primary prevention may be difficult in many communities due to the early onset of diabetes and overweight/obesity among Indian youth. Early intervention and treatment must also be a part of any CVD prevention strategy to ensure people who want to quit smoking are helped, diabetics are taught to manage their nutrition and exercise and others "at risk" are involved in some type of intervention strategy. Aggressive outreach and provider referral systems were identified as a need by one respondent. Such a program matches patients with the needed counselor, nutritionist or CVD provider.

Medication Options: One respondent, a clinician, noted the difficulty many patients have in achieving sustained lifestyle changes. For these individuals other options should be available. For example, many patients are able to quit smoking using a nicotine patch, but not by "cold turkey" withdrawal. For some patients, improved diet and exercise may not be within their abilities, and statin drugs and other cholesterol lowering mediations may be more effective than continued "lip service" about the importance of exercise and dietary changes.

Interagency Coordination: Respondents were aware of several activities under the sponsorship of various federal agencies regarding CVD prevention among AI/AN populations. An interagency initiative should be investigated to bring more policymakers and resources together for Indian communities.

Prevention Initiatives and Cultural Connection: Prevention initiatives should build upon traditional Native knowledge and cultural strengths. Messages crafted for the general public do not always resonate with Native listeners. Native American cultures and values can be a tremendous asset in any CVD prevention effort. Several ideas for making these cultural connections were offered by respondents:

- **Traditional Games:** Such as stick ball, Lacrosse, running, etc.

- **Traditional Physical Activities:** Organized activities such as gathering, hunting, berry picking, fasting, sweats, dancing, etc.

- **Traditional Foods**: Support should be offered for Tribal programs and other Indian communities seeking to reintroduce traditional foods to contemporary diets. In addition, American Indian and Alaska Native communities should build upon current collaborations with the US Department of Agriculture (USDA) to improve nutrition in AI/AN communities. The USDA's Food and Nutrition Services (FNS) Programs and Food Distribution Program for Indians (FDPIR) are currently using grassroots to encourage communities to eat a healthy diet. These grassroots efforts make healthy foods more available locally, encourage people to eat these healthy foods, and promote changes in local nutrition policies.

- **Restoration of Traditional Self Image of "Health"**: Overweight and obesity is a post-contact occurrence among AI/AN populations which needs to change. Images of healthier pre-contact AI/AN leaders could provide an alternate image.

- **Use of Humor and Culture:** Campaign messages must resonate with Indian people. One respondent recommended an exercise video called "Rez-Robics", in which an Indian aerobic instructor/comedian engages an Indian class with a mixture of Indian jokes and exercise.

- **Tribal Initiatives:** Respondents identified several examples where a tribal council or tribal chairperson has made health and wellness a priority for themselves individually and for their community. In these cases, a tribal chairman may start a walking program or a council may commit to construct a wellness center, or any other number of programs. The key is tribal leader commitment to both community wellness and personal wellness.

The CVD Prevention Plan Must Include Immediate Opportunities: Tribal leaders and health directors are enthusiastic about this current effort to address CVD prevention in Indian Country. Several expressed hope that this will lead to immediate opportunities for tribal and urban Indian CVD prevention initiatives, and not "just a plan" that is delayed or not implemented. One respondent suggested taking the results of the Roundtable discussion to the next National Indian Health Board Consumer Conference.

CVD Patient Registry: One respondent identified positive results by tracking diabetic patients through a clinic registry. It has improved patient tracking, follow-up and case management. The same could be done for CVD patients.

Remember the "Hard-to-Reach": Education and awareness campaigns are most often designed for the mainstream population. Even Indian community campaigns often overlook the "hard-to-reach" people within our own tribes or urban centers. There are subsets within the AI/AN population whose lives are so overwhelmed by daily socio-economic complexity that they are never impacted by community-wide campaigns. Mental health issues, poverty, domestic violence, and alcohol/substance abuse are examples of these factors.

One thing many people don't understand is that heavy people are not eating more than thin people. Native Americans 100 years ago ate more than today. That's because physical activity predominates in the equation. The problem is that today we eat like lumberjacks and few of us are.

Dr. Ira Ockene, University of Massachusetts

Summary of Roundtable Proceedings

The Roundtable Conference was convened by the Indian Health Service and the IHS Native American Cardiology Program. The IHS Director, Dr. Charles Grim, provided an opening presentation to the Roundtable participants, summarizing the efforts of the Indian Health Service to better understand and impact the many health problems in Native American communities related to behavioral and lifestyle issues. He urged Roundtable participants to tackle these difficult issues and to remember the hardships experienced in tribal communities.

Roundtable participants heard several formal presentations prior to beginning their discussions and strategic planning efforts. The first presentation was provided by Dr. James Galloway, Director of Native American Cardiology for the IHS. He provided an overview of cardiovascular disease in American Indian and Alaska Native populations, including general trends showing the dramatic increases in CVD as well as obesity and diabetes among American Indian and Alaska Native populations. He cited diabetes as one of the major risk factors. He also identified hypertension, dyslipidemia and tobacco abuse as major predictors for developing CVD. Prevention strategies were defined. Primordial prevention strategies were defined as those that prevent risk factors, for example, community education initiatives. Primary prevention strategies included the targeting of individuals at risk for CVD, such as prediabetic persons. Secondary prevention strategies were described as those designed to prevent recurrence of heart events after initial episodes through clinical and behavioral interventions. Limitations in access to the full range of required health care systems and services were identified, particularly in rural areas of the IHS service system.

Dr. Barbara Howard, a Principal Investigator with The Strong Heart Study, provided the second presentation on understanding risk factors and prevention opportunities. This study, funded by the National Heart, Lung, and Blood Institute represents one of the largest studies on CVD in Indian country, involving 13 Indian communities in Arizona, Oklahoma, North Dakota and South Dakota. Regional comparisons were possible with this diverse sample. The study found that CVD

mortality among American Indians was higher than state general populations. Overall, mortality rates are increasing. She also noted that diabetes has a major effect on CVD rates, attributable to 50% of heart disease among men and 70% of heart disease among women. One of the major challenges facing Indian health is the 10 to 15 year lag-time from the onset of diabetes to the time it begins to manifest in complicating conditions. Other methods for identifying those at risk for CVD, such as testing for protein in the urine, measuring insulin resistance and metabolic syndrome were also discussed.

The final presentations included a panel of tribal and urban Indian community leaders sharing their views and experiences with regard to effective prevention strategies. Presentations were made by John Blackhawk, Winnebago Tribe; Ralph Forquera, Seattle Indian Health Board; Jerry Freddie, Navajo Nation; Jeffrey Knight, Middletown Rancheria; and John Pipe, Ft. Peck Tribe. These presentations set the tone for indepth discussion among Roundtable participants to address the more difficult issues of creating behavior change in a struggling environment.

Chairman Blackhawk spoke about the need for tribal leadership to bring education and awareness to tribal communities, and to support through personal actions behavioral change in the community. He noted a community fun-walk at Winnebago which has grown to a major event each year. Likewise, Mr. Forquera, described the efforts of community leaders in Seattle to sponsor an annual "spirit walk", which has also become a fundraiser for behavioral health programs. Jerry Freddie, Council Delegate and Chairman of the Health and Social Services Committee for the Navajo Nation Council, spoke about the dramatic social and cultural changes tribal people have seen in the last 20 to 50 years. Mass media has moved us away from thinking of the community and more to thinking of the self. He noted the challenge of overcoming mass media messages and getting back to our traditional values and knowledge.

Councilman Pipe spoke about his experiences on the Ft. Peck reservation and the devastation he has seen among friends and family from heart disease and diabetes. In particular, he noted the lack of access to adequate health care systems and technology on reservations, limited emergency response systems and the hundreds of miles which separate Indian patients and tertiary level health centers. He noted that 'fear' has much to do with individuals not seeking healthcare or screening for chronic illnesses. He challenged the Roundtable participants to address the question of motivating the individual patient to take responsibility for personal health and wellness. Mr. Pipe also discussed the importance of reaching those who are "hard to reach" in the community: those individuals who are not within the reach of the usual preventive efforts, such as adolescents who are already morbidly obese and generally stay at home without venturing out to health fairs and other activities.

Finally, Mr. Knight from Middletown Rancheria in California spoke about the impact alcohol and drug abuse has on the tribal community, Indian family and individual patient. The cultural upheaval, loss of land and socio-economic conditions of

tribal communities must be understood to effectively assess behavior change options and strategies.

The Roundtable Conference moved forward to identify a vision for effective CVD prevention in the future. Strategies were developed in break-out sessions to address primordial, primary and secondary prevention levels. The following section of this report outlines the CVD Prevention Strategy proposed by this Roundtable Conference.

CVD represents a crisis in Indian Country… In developing our strategies, we must remember the hidden or hard to reach populations in our communities. By that I mean, those segments in American Indian and Alaska Native communities for whom the challenges of poverty, substance abuse, violence and just daily living can be overwhelming.

Dr. Charles Grim, IHS Director

Strategic Plan to Prevent CVD

VISION STATEMENT

To restore the natural state of good health Native American people traditionally enjoyed, building upon the strength, knowledge and resilience found in the traditions, values and cultures of American Indian and Alaska Native people.

GOAL

The goal of this plan is to promote heart health in American Indian and Alaska Native populations. To do this we will lower heart disease through a comprehensive prevention strategy encompassing community-based (primordial), primary and secondary prevention efforts. This plan recommends strategies for the national, regional and local levels designed to increase knowledge and awareness; to support sustained behavioral change in American Indian and Alaska Native communities, and to expand and improve CVD prevention focused resources.

This roundtable affords us a unique opportunity to focus on primordial and primary prevention of CVD and its causes. By focusing on the children of those with diabetes, for example, there is an opportunity to lower heart disease down the line. The same primary prevention strategies that work for addressing diabetes will also have an effect on CVD.

Barbara Howard, PhD, Strong Heart Study

Primordial Prevention Strategies

NATIONAL SCOPE

1. **Create a National Tribal Holistic Vision for Health:** The initiation of a process to develop a National Tribal Holistic Vision for Health should be supported and developed, addressing cardiovascular disease as well as other health risk factors. By broad IHS, Tribal and urban Indian discussions and consultation related to a vision for health, we will create a multi-generational roadmap for the future, which can support actions and strategies at multiple levels. It is suggested that the optimal mechanism to develop this is with the guidance of the NIHB at their next national meeting.

   Initiation within year.

2. **National Tribal Advocacy**: The National Indian Health Board (NIHB) should support a resolution to support local Tribal and urban Indian communities in the development of CVD prevention efforts. Other national organization such as the National Congress of American Indians, the National Council on Urban Indian Health and the Tribal Leaders Diabetes Committee should also be approached for collaborative leadership efforts.

   One year

3. **Resources Directory and Technical Assistance:** A list of available resources and funding opportunities should be developed and cataloged that will include a variety of effective CVD prevention activities as well as the agencies and organizations focused on addressing CVD prevention. These resources should be provided in an easy-to-use manual or resource guide for Tribal and urban Indian communities. Web-based resource pages should also be considered to match up tribes seeking assistance with tribes willing to share their successes. The IHS should consider support for regional

Epidemiology Centers (Epi-Centers) to provide the training or technical assistance needed by Tribes to identify and successfully compete for grant dollars related to CVD prevention. Resource centers, libraries or a clearinghouse may be needed to increase tribal access to available resources and to learn how to apply for funding.

Two years

4. **Health Promotion/Disease Prevention – Coordination of Initiatives**: A Tribal Leaders Diabetes Committee has guided initiatives for reaching communities regarding HP/DP activities, particularly related to Diabetes, and should continue to be supported. In addition, many existing initiatives, including those sponsored by the American Heart Association (AHA) should be supported by this plan. The Healthy People 2010 initiative would be a reasonable means to coordinate CVD and other HP/DP initiatives.

   Immediately

5. **Target Indian Youth in Schools:** A CVD education and awareness initiative should be developed and targeted at Indian youth schools, (public schools, BIA schools, tribal schools, charter schools). These messages should be developed to be compatible with Native schools cultural curricula. To begin, AHA and other school-based tools might be adapted to Indian country. In addition, tribes and urban Indian leaders should become advocates for impacting local school curricula, advocating Physical Education (PE) in schools and keeping junk food and high sugar drinks out of school lunch menus and/or vending machines.

   2 years

6. **Develop Effective Media Messages :** Education and awareness messages that resonate with Native American communities must be developed and disseminated through a variety of national and local media channels. Messages developed for the larger society may not always resonate with tribal communities. Much more needs to be done to develop effective media messages regarding CVD prevention among American Indian and Alaska Native populations.

   1-2 years

7. **Link with Diabetes Prevention Efforts:** As there is a close relationship between CVD prevention and diabetes in American Indian communities, improving the coordination of CVD and DM preventive efforts between the Indian Health Service National Diabetes Program, Special Diabetes Program for Indians (SDPI) grantees, the Native American Cardiology Program and other CVD Prevention efforts is an important aspect of the successful prevention of CVD. Clearly, due to limited resources, linking these prevention efforts will

improve the impact of both initiatives and provide more significant information and awareness for local communities.

One year

8. **Find the Right Tools**: Identifying or creating the right tools for Indian communities to increase the recognition of health risks (e.g. a simple BMI measurement) is a key step to any strategy. Providing these tools to communities for individual self-assessment should be a priority. Kiosks at local clinics could provide patients with access to these latest tools. Placing participatory health screening systems in waiting rooms for personal use would help patients understand their own bodies and health risks and identify issues to talk to providers about.

   3 years

REGIONAL & LOCAL SCOPE

1. **Partnerships:** Local tribal or urban Indian CVD prevention efforts should work to develop collaborative partnerships with local, regional and national efforts as a means to maximize limited resources, to share methods proven effective, and to celebrate successes.

2. **Community Needs Assessments/Leadership:** Local communities need to find out what's happening in their population and understand community perspectives about CVD and related risk factors. It is important to seek community guidance in the development of community programming.

3. **Community-based Prevention Efforts:** A community led and driven project working with tribal leadership, local tribal administrator and other key leaders and programs is essential for an effective CVD prevention effort. Community participation in discussing CVD, CVD risk factors and identifying strategies will be important for developing a community based approach that is sensitive to the population history and culture.

4. **Local Message Development:** There are many opportunities locally to provide strong and effective CVD prevention messages. For example, messages for use at local Powwows should be developed and disseminated around the country. Powwow announcers might be called to make announcements to audiences. These messages could also be carried on local tribal radio stations and in tribal newspapers.

5. **Accountability and Documentation**: It is always difficult to prove the effectiveness of prevention initiatives. However, it is critical that local accountability for CVD prevention programs be considered early in the planning stages. Community-based evaluation and monitoring should be

considered so that effective programs can be documented and replicated in other settings.

6. **Local Role Models:** One of the great challenges in creating and supporting behavior change at a community-wide level is identifying role models who can provide leadership on a sustained and meaningful basis. Whether this leadership comes from tribal elected leaders, teachers, athletes, elders, counselors or parents, these role models must be identified and incorporated into the community CVD prevention initiative. Training for local role models or local leaders is recommended. It is also important to note that leaders need support for their own wellness, and a support network for tribal leaders and other role models seeking behavioral health changes locally should be established.

7. **Local Health Promotion/Disease Prevention Activities:** There are many local health and fitness efforts taking place in Indian communities all across the U. S. which should be supported financially and politically. Indian community fun-runs, wellness walks, family swim nights and similar events provide an important catalyst for sustained family wellness. A National CVD Prevention Walk-run, widely publicized throughout Indian communities on a certain day of the year should be considered for raising CVD awareness and prevention.

8. **Creating Healthy Environments:** Local tribal and urban Indian leadership should work for healthy environments in local worksites and public places. Local leadership is encouraged to review those activities within their immediate control and to make changes that will foster healthy eating habits, sustained physical fitness and increased public education and awareness about CVD prevention. Implementation of programs to encourage children to turn off TV and video games, development of smoking cessation activities and smoke-free workplaces as well as implementation of programs such as Healthy Schools and Healthy Workplace programs should be strongly considered. Providing opportunities for employees to engage in health and fitness activities is another option for local policy consideration.

The bottom line is how does one change their lifestyle. It's all about self. How does the individual person look in the mirror and say how can I change into something healthy? How does self make self eat right? How does self get self up off the couch and start walking? How does self do it?

John Pipe, Councilman, Fort Peck Tribe

Primary Prevention Strategies

NATIONAL SCOPE

1. **Prioritize Prevention Funding and Support:** The IHS and other federal and non-federal agencies seeking to prevent CVD must increase funding levels which will support activities and initiatives unique to tribal cultures, history and communities.

   1 year

2. **Focused National Prevention Activities**: It is important to further increase awareness and prevention of CVD and its risk factors by a significant public education campaign, including national initiatives, national "Heart Walk" days, effective videos on CVD prevention, focusing on health and community leaders as role models. In addition, coordinated efforts to promote TV-free days in Indian communities nationally would be an important tool to consider.

   1 year

3. **Provider Training:** Increased and targeted clinic provider training is required to ensure everyone that makes contact with a patient-at-risk provides patient-centered, culturally appropriate screening and counseling and is knowledgeable about the most effective prevention and treatment tools available.

   Continuous

4. **Expand AI/AN Behavioral Research:** Additional information and research is needed to better understand the factors behind lifestyle behavioral patterns

as well as the most effective intervention options to create healthy behavioral changes within American Indian and Alaska Native populations.

5 years

5. **Target Diabetes Link:** Priorities for funding should be provided for specifically targeting American Indian and Alaska Native individuals with diabetes and other high-risk conditions to prevent CVD. Further development of the American College of Cardiology-American Diabetes Association "Make the Link" program for American Indian and Alaska Native communities should be undertaken. A "message of hope" should be developed. In addition, the National Diabetes Education Program, "Be Smart about Your Heart: Control the ABC's of Diabetes" campaign on the link between heart disease and diabetes, is another resource to be utilized in AI/AN communities. A competitive grant process opportunity to get more focused prevention activity related to heart disease through the Special Diabetes Program for Indians has been recommended by Congress and the IHS Director. We recommend continued partnering with the IHS National Diabetes Program on its implementation.

   1 year

6. **CVD Prevention System Development**: Create systems that enhance and enforce primary prevention interventions, including hospital, clinic and community-based programs, including guidelines enforced with checklists, linguistically and culturally-appropriate patient handouts, central (perhaps web-based) listing of tools available to individuals, communities and providers, as well as other systems tools for CVD prevention.

7. **Calendar Information Dissemination**: Develop a CVD Prevention calendar that informs Tribes and Tribal leaders about dates of educational and prevention activities related to CVD.

8. "**10 Leading Causes of Life**": Develop a positive national prevention effort focused on the "10 Leading Causes of Life" in Indian Communities.

REGIONAL & LOCAL SCOPE

1. Indian Health Service, Tribal and urban Indian health leaders should develop strategies to increase physical activity within the community, including the development of appropriate environmental conditions, where necessary, including sidewalks, bike paths and other enhancements to the environment conducive to increased activity.

2. Tribal and community health leaders should work towards developing a local team approach to CVD prevention for optimal community involvement, including community leaders, traditional healers, community health

representatives, public health nurses, pharmacists, nutritionists, physicians, nurses and others interested in being included.

3. The development of fitness challenges among and between American Indian and Alaska communities is encouraged.

4. Promote and create positive role models (including Tribal leaders, American Indian sports celebrities, as well as peer role models in the schools) for healthy lifestyle impact and influence particularly among youth.

5. Community health leaders should develop partnerships with medical organizations, businesses, schools and other community organizations to foster healthier lifestyles and for the implementation of effective community prevention efforts, including the development of support groups for those with CVD (such as the Mended Hearts Group models) or diabetes, healthy food cooking classes, physical activity programs, etc.

6. IHS and Tribal health programs should pilot the implementation of novel clinical approaches to medical care, such as group visits for those with diabetes or at high risk of CVD, for instance.

7. Indian health facilities and communities must begin to aggressively screen for those at significant risk for cardiovascular disease, with an emphasis on the diagnosis and rigorous management of the metabolic syndrome.

All levels need to link in the network and have a continuity of effort. All parts of the healthcare system must be aligned.

Jerry Freddie, Navajo Nation

Secondary Prevention Strategies

NATIONAL SCOPE

1. **Implement "Get With The Guidelines" in Indian Health:** The American Heart Association has an effective program, entitled "Get with the Guidelines" (GWTG) with a protocol to ensure discharged patients following a heart attack are discharged on appropriate medications that can reduce the risk of recurrent events and death by 70%. All current and future IHS, Tribal and urban inpatient facilities with Intensive Care Unit facilities and ability to keep patients with acute myocardial infarctions should implement this program or a similar program as soon as possible.

   Implement guideline program within 2 years in all sites. Complete continuous assessments and publish results of how effective implementation has been at the end of the third year.

2. **Develop New CVD Guidelines for Outpatient Facilities:** The Indian Health Service in conjunction with other partners should develop similar interventions to the "Get with the Guidelines" for outpatients who are at high risk of cardiovascular disease, including those with diabetes, utilizing, at the least, a reminder system at the primary care level. The American Heart Association could be a possible partner in the development of this protocol

   Develop guideline process over 2 years. Complete alpha and beta testing of the guidelines in the third year and assess the process in year four.

3. **Develop and Expand Emergency Medical Services:** Indian Health Services, Tribal and urban health programs should work together to expand funding possibilities to develop and expand Emergency Medical Services to an optimal response system. Minutes are crucial in the case of heart attack

and in other life threatening illnesses. Such a program should include the following components:

- Develop or expand Ambulance services to improve transportation times.

- Establish universal 911 systems in Indian communities.

- Pilot and subsequently develop ways to implement tele-diagnostic ECG so that diagnosis can be completed and appropriate measures taken under supervision of trained specialist in the field, prior to hospital arrival. The goal would be an intervention delivery system such as the one in Europe where appropriate interventions can be done in the ambulance on the way to the ER.

- Develop a national public health campaign on symptom recognition so that individuals can seek attention in time frame necessary.

Within one year recruit and implement a full program at one pilot site. Implement program in 10% of sites over the next 2 years and 10-20% more sites each 2 years following.

4. **Develop an Effective Data Collection Strategy**: The Indian Health Service should develop a more extensive data collection strategy related to the appropriate treatment and outcomes of cardiovascular disease in American Indians and Alaska Natives, allowing for a more detailed analysis related to disparities of cardiovascular care and clinical outcomes.

   A data collection strategy should be developed within one year with implementation in year two and initial results in year three.

5. **Develop Regional Preventive Cardiovascular, Sub-specialty Support Centers**: The Indian Health Service should develop regional preventive cardiovascular, sub-specialty support centers that any Indian health, Tribal and urban health programs could access for consultation and assistance. The Center could have a significant impact by providing acute and chronic intervention guidance, monitoring of clinical parameters, education protocols, and web-based downloadable capability.

   Fund and approve development of one additional center in year. Assess program in second year.

6. **Electronic ICU Model:** In partnership with other organizations and agencies, Indian Health Service should pilot an Electronic ICU model that is accessible to Indian health, Tribal and urban health programs that have inpatient special care capabilities.

Pilot program developed and implemented in 3 years.

7. **Expand Telemedicine Capacity**: Telemedicine capacities within and among Indian health, Tribal and urban health programs for community-focused prevention efforts along with clinical diagnosis, treatment and CVD prevention efforts, among others.

   Expansion of availability of telemedicine programs by 10 sites nationally per year.

8. **Expand Health Profession Scholarship Program:** By 2015, there will be a shortage of cardiovascular support professionals and cardiologists. Rural Indian communities and Indian Country in general will be very hard hit by such shortages. Efforts must be taken to ensure additional support for American Indian and Alaska Native clinicians and providers in this field.

   Further expansion of the health profession scholarship programs with a specific focus on cardiovascular specialists and prevention experts within three years.

LOCAL & REGIONAL SCOPE

1. **Cardiac Prevention/Rehabilitation Center:** The Indian Health Service, in collaboration with a Tribal or urban Indian program, should develop a joint cardiovascular prevention and cardiac rehabilitation demonstration project to provide aggressive intervention and education at a site with current high rates of cardiovascular events and interventions.

   Develop partnership and begin planning year one with implementation in year two and outcome assessment in year 3.

2. **Develop Cardiovascular Disease Support Groups**: IHS and Indian community leaders should introduce a modified American Heart Association "Mended Hearts" program, a family-based education, intervention and support program, with extensive family education in CVD prevention, certification in Basic Life Support, and community mobilization.

   A model program should be initiated in two years after appropriate cultural and linguistic modification of program material for American Indian and Alaska Native communities in year one.

3. **Public Education Program Utilizing Mass Media**: This roundtable recommends that the IHS, Tribes and urban Indian programs expand their current utilization of the media to further CVD prevention activities through the use of national, local and tribal newspapers and magazines to disseminate information regarding the prevention of CVD and its risk factors, cardiac symptoms of concern and the need for prompt evaluation at a health care facility and prompt intervention.

Let's turn our passions for health into our medicines,
our preventions and our cures.

Dr. James Galloway, Indian Health Service

Conclusions

Although very uncommon until recently, cardiovascular disease has now become the leading cause of death among American Indians and Alaska Natives. Despite the dramatic decreases in cardiovascular mortality rates in the general United States, during this same time period the incidence of cardiovascular disease among American Indian and Alaska Natives has dramatically increased with the CVD incidence rates are now almost double that of the general US population. These significant increases in mortality, human suffering and health care costs must be eliminated with a goal towards the prevention of CVD and its risk factors in American Indians and Alaska Natives.

However, many prevention strategies designed for the general public are often not particularly effective within American Indian and Alaska Native communities, especially those designed to encourage lifestyle or behavioral changes, unless these messages can build upon the cultures and traditions of Native communities, and are reinforced by local leadership. In addition, a complexity of socio-economic factors, such as poverty, violence, mental health issues, and alcohol/substance abuse may often undermine education and awareness campaigns for those families overwhelmed by the challenges of daily living.

From this, it becomes clear that to be effective in the prevention of these serious and life threatening conditions, we must dedicate ourselves to multiple, simultaneous efforts from a variety of approaches from both within our communities and our Tribes as well as from local and national levels.

From this perspective, the Indian Health Service sponsored "The Roundtable on Cardiovascular Disease Prevention Among American Indians and Alaska Natives" on September 25th and 26th in Washington, DC and brought together elected Tribal leaders, health leaders and urban Indian leaders (from the Winnebago Tribe, the Navajo Tribe, Middletown Rancheria, Fort Peck Tribe, the Ho-chunk Tribe and the Seattle Indian Health Board) with the leading cardiovascular disease prevention

experts (including leaders from Harvard University, the University of Massachusetts and Northwestern University), lead agencies (including the Indian Health Service, the Office of Disease Prevention & Health Promotion, National Institutes of Health and the Centers for Disease Control and Prevention) and service organizations (including the American Heart Association, the American College of Cardiology and the American Diabetes Association) and provided them an opportunity to address, together and with Tribal and urban Indian leadership and guidance, the complexity of issues surrounding CVD in Indian communities and to explore more effective prevention strategies for the future. This report documents the dedicated and enthusiastic recommendations of those participants.

Clearly, those working to improve Indian health face great challenges, as many leading causes of death among this population are lifestyle related, including cardiovascular disease. Primordial and community prevention strategies which might prove useful and effective with one lifestyle related disease, such as diabetes, may also produce benefits with others, such as CVD, and the coordination of these efforts is important. However, it is also clear that the prevention of CVD will also require additional aggressive, specific and focused attention as well as strategic intervention. Additionally, consideration of the development of a systemic mechanism for the integration of CVD treatment components, including acute interventions as well as secondary and tertiary prevention, into the Indian health care system is important.

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Tables & Figures

Figure 1:
Age-adjusted Death Rates for Leading Causes of Death, American Indians & Alaska Natives
(1994-1996, per 100,000;
adjusted for misclassification of race on death certificates)
*Trends in Indian Health, 1998-99

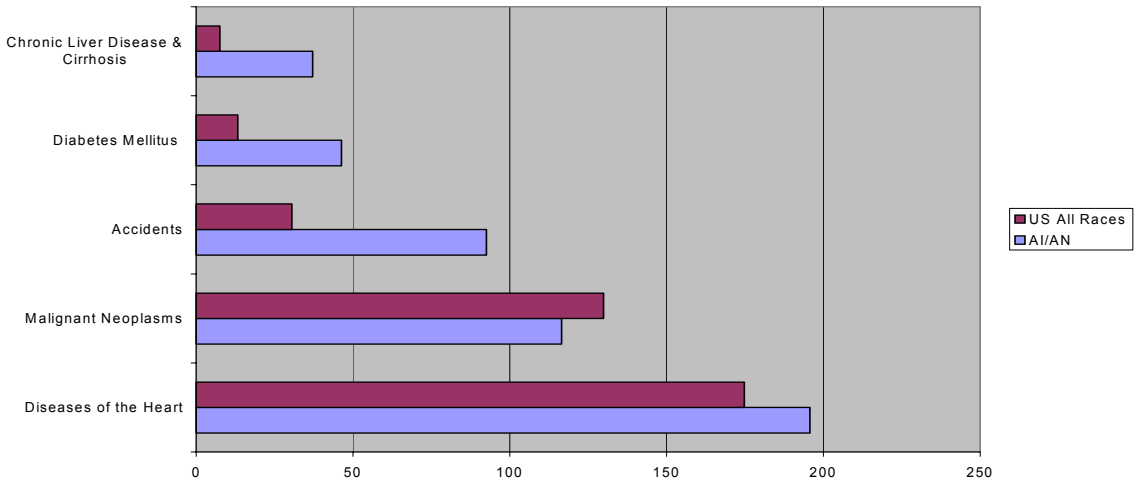

Figure 2:
Age-Adjusted Heart Disease Death Rates
(1973-95, per 100,000 --
adjusted for racial misclassification on death certificates -- 1987-96)
*Trends in Indian Health, 1998-99, Chart 4.48

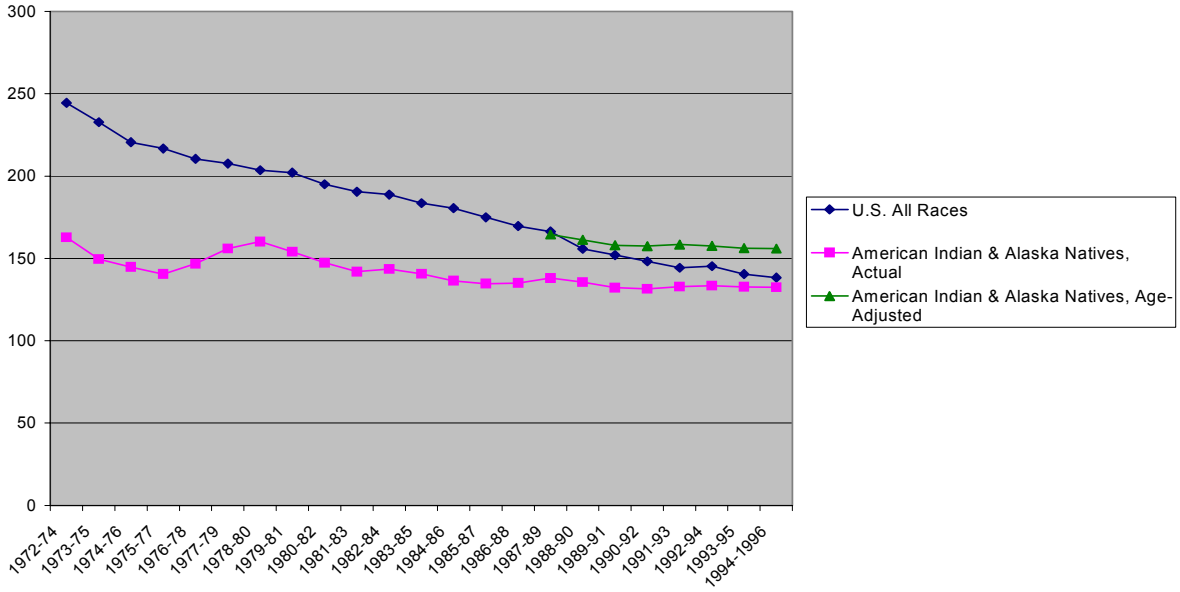

Figure 3:
Age-Adjusted Diabetes Mellitus Death Rates
(1973-1995, per 100,000)
*Trends in Indian Health, 1998-99, Chart 4.46

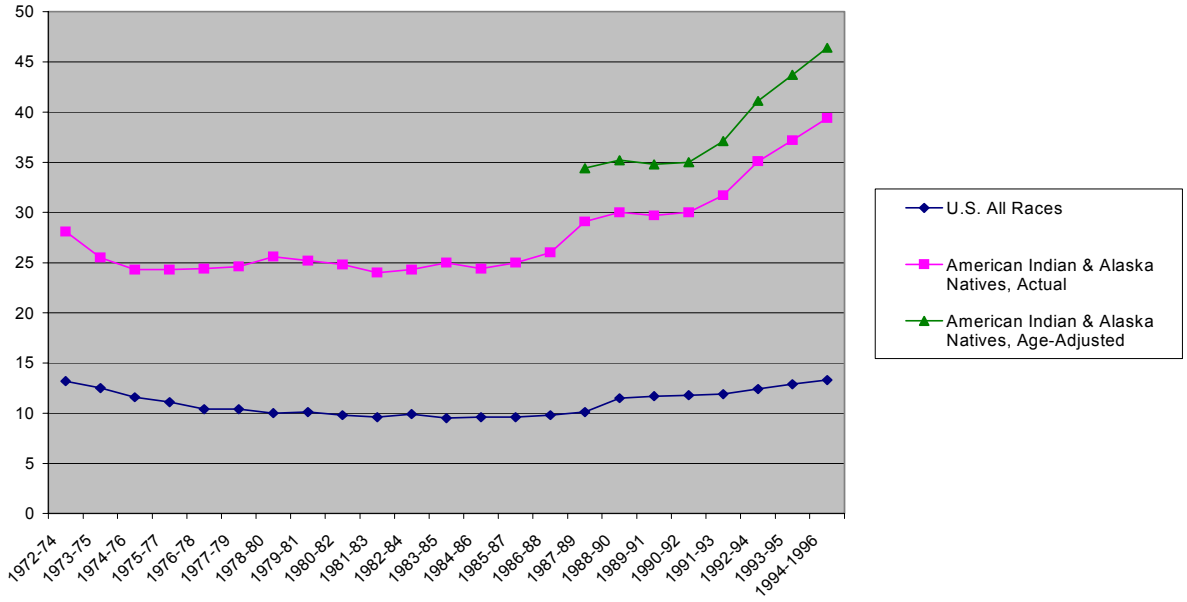

Figure 4*:
Age-Adjusted Diseases of the Heart
Death Rates per 100,000 (1994-96)
*Regional Differences in Indian Health 1998-1999

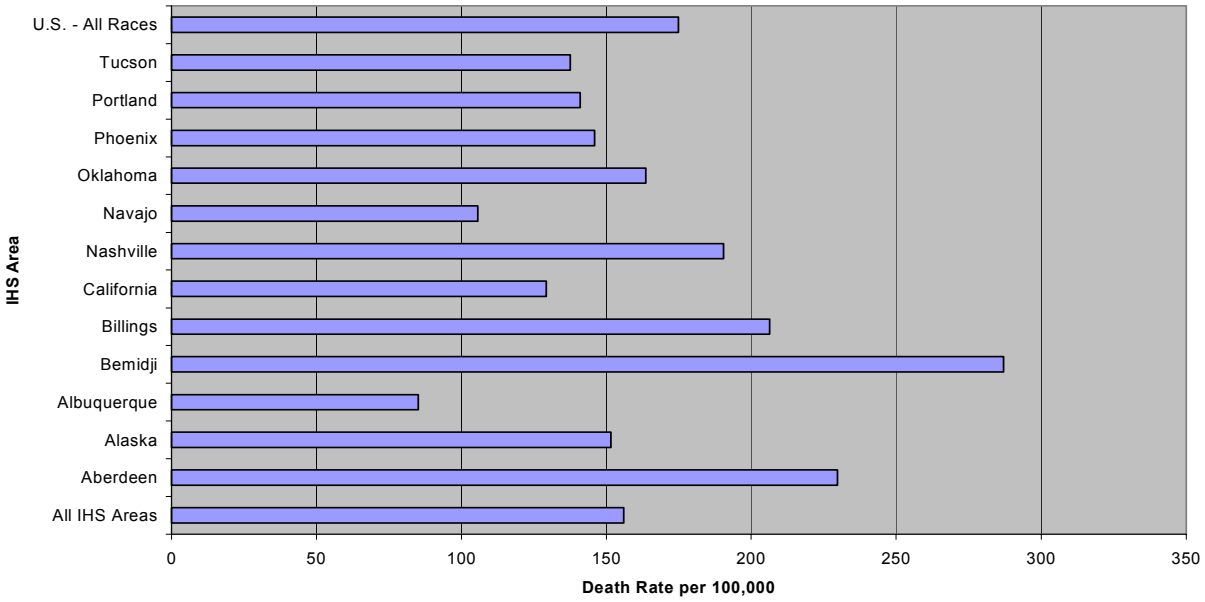

Figure 5*:
Age-Adjusted Diabetes Mellitus
Death Rates per 100,000 (1994-96)
*Regional Differences in Indian Health 1998-99

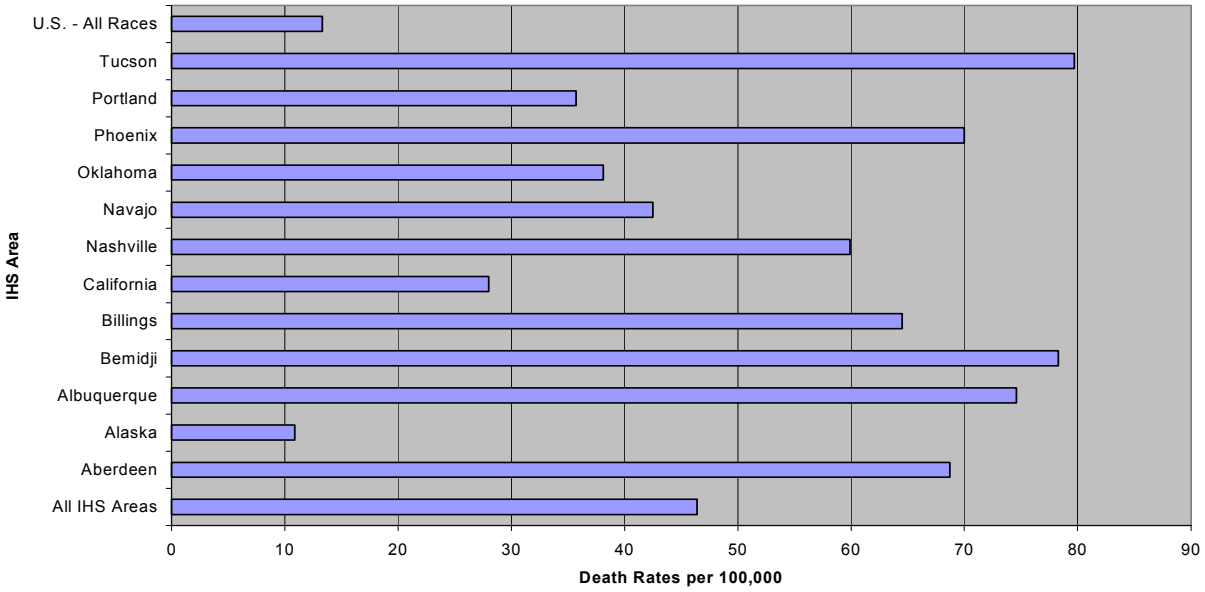

Table 1									
Mean Lipid Levels for Men and Women by Center - The Strong Heart Study									
Men					**Women**				
	AZ	**OK**	**Dakotas**	**Total**		**AZ**	**OK**	**Dakotas**	**Total**
Total Cholesterol	**177** (43)	**193** (35)	**199** (43)	**190** (41)	Total Cholesterol	**181** (42)	**196** (37)	**202** (40)	**193** (40)
LDL Cholesterol	**102** (32)	**120** (33)	**122** (33)	**115** (34)	LDL Cholesterol	**105** (32)	**115** (32)	**120** (34)	**113** (33)
HDL Cholesterol	**44** (14)	**42** (12)	**44** (14)	**43** (14)	HDL Cholesterol	**45** (11)	**49** (14)	**49** (14)	**48** (13)
Triglicerides	**160** (184)	**150** (125)	**149** (232)	**153** (186)	Triglicerides	**153** (106)	**147** (102)	**149** (129)	**150** (112)

Mean levels for triglicerides are calculated as the geometric mean.

Numbers in parentheses are a measure of variation equal to one standard deviation.

Table 2*								
Risk Factors for Chronic Disease by Sex, Race, Ethnicity, 1999								
Activity	**Total**	**Male**	**Female**	**White**	**Black†**	**Asian/Pacific Islander†**	**American Indian/ Alaska Native†**	**Hispanic†**
Cigarette Use	**22.3**	**24.2**	**20.6**	**23**	**21.6**	**13.5**	**35.1**	**19.3**
Overweight	**57.3**	**66.2**	**48.7**	**55.8**	**67.6**	**36.9**	**60.2**	**63.2**
<5 Servings Fruits/Vegetables	**75.6**	**80.1**	**71.3**	**75.6**	**78**	**70.3**	**77.2**	**75.2**
No Health Insurance	**16.4**	**17.1**	**15.8**	**11.9**	**20.3**	**13.7**	**22.1**	**37.5**

*Source: The Burden of Chronic Diseases & Their Risk Factors, National and State Perspectives, 2002, National Center for Chronic Disease Prevention & Health Promotion

Agenda

Thursday, September 25, 2003

8:00 AM	Morning Refreshments
8:15 AM	Welcome and Introductions Dr. Charles Grim, IHS Director
8:45 AM	Overview and Purpose of the Roundtable Dr. James M. Galloway, Native American Cardiology, IHS
9:00 AM	Review Agenda and Briefing Book Jo Ann Kauffman, Facilitator
9:15 AM	*Understanding Cardiovascular Disease in AI/AN Populations* Dr. James M. Galloway, Native American Cardiology, IHS
9:45 AM	Discussion
10:00 AM	Break
10:30 AM	*Understanding Risk Factors and Prevention Opportunities* Dr. Barbara Howard, Strong Heart Study
11:00 AM	Discussion
11:15 AM	*Community Prevention Perspectives* Community-Based Roundtable Participants
11:45 AM	Discussion

12 Noon	Lunch Break
1:30 PM	Discussion of Future "Vision for CVD Prevention"
3:00 PM	Break
3:30 PM	Discussion of Challenges and Barriers to Effective CVD Prevention
4:30 PM	Recess for the Evening

Friday, September 26, 2003

8:00 AM	Morning Refreshments
8:15 AM	Review Activities of Previous Day and Review Today's Objectives
8:30 AM	Develop Strategies for Prevention of CVD in AI/AN Communities
10:00 AM	Break
10:30 AM	Review 5-Year Action Plan for Prevention of CVD
11:00 AM	Discuss Marketing of the AI/AN CVD Initiative to Constituents and Advocates
11:30 AM	Closing Remarks
12 Noon	Adjourn

Participant List

John Blackhawk
Chairman,
Winnebago Tribe of Nebraska
Email: chairman@winnebagotribe.com

Janet M. Brooks
Vice President, National Minority Initiatives
American Heart Association, National Center
Email: janetbrooks@heart.org

Clark H. Denny, PhD
Epidemiologist,
Cardiovascular Health Branch,
Centers for Disease Control
Email: cdenny@cdc.gov

Ralph Forquera, MPH
Executive Director,
Seattle Indian Health Board
Email: ralphf@sihb.org

Jerry Freddie
Council Delegate, Dilkon Chapter,
Navajo Nation
Email: DilkonChapter@ShiDineh.com

James M. Galloway, MD, FACP, FACC
Director, Native American Cardiology
Assistant Professor of Clinical Medicine,
Assistant Professor of Public Health,
University of Arizona
Senior Cardiologist,
Indian Health Service
Email: jgalloway@umcaz.edu

Charles Grim, DDS, MHSA
Director,
Indian Health Service

Barbara V. Howard, PhD
President, MedStar Research Institute
Principal Investigator, Strong Heart Study
Email: Barbara.V.Howard@MedStar.net

Jeffrey C. Knight
Council Delegate,
Middletown Racheria
Email: svpomo2@pacific.net

Teri Manolio, MD, PhD
Director of the Epidemiology and Biometry Program,
Division of Epidemiology and Clinical Applications,
National Heart, Lung, and Blood Institute,
National Institute of Health
E-mail: manoliot@nih.gov

Sue Martone
Office of Disease Prevention and Health Promotion,
Department of Health and Human Services
Email: SMartone@OSOPHS.DHHS.GOV

Kelly Moore, MD
Clinical Specialty Consultant,
National Diabetes Program,
Albuquerque Area Office,
Indian Health Service
Email: Kelly.moore@mail.ihs.gov

Emmeline Ochiai
Senior Health Advisor
Office of Disease Prevention & Health Promotion,
Department of Health & Human Services
Email: EOchiai@OSOPHS.DHHS.GOV

Ira Ockene MD
David and Barbara Milliken Professor of Preventive Cardiology
Director of Preventive Cardiology Program,
University of Massachusetts
Email: ira.ockene@umassmed.edu

John Pipe
Councilmember,
Fort Peck Tribal Executive Board
Email: pipe@nemontel.net

Robert Rosenson, MD
Director, Preventive Cardiology Center
Associate Professor of Medicine and Preventive Medicine,
Northwestern University, Feinberg School of Medicine
Representative of the American College of Cardiology
Email: r-rosenson@northwestern.edu

Patricia Schoolcraft
Augua Caliente Delegate
Email: DRSPAS@aol.com

Gwen Twillman
Director, Special Projects
Scientific & Medical Division
American Diabetes Association
Email: gtwillman@diabetes.org

Thomas Walker, MD
Medical Director,
Ho-Chunk Tribal Nation Health Department
Email: rulein63@yahoo.com

Francine Welty, MD, PhD
Associate Professor of Medicine,
Director of Preventive Cardiology and Nutrition Education,
Harvard Medical School
Director of Cardiovascular Care for Women,
Beth Israel Deaconess Medical Center
Email: fwelty@bidmc.harvard.edu

OBSERVERS

Richard R. Fabsitz
Leader, Genetic Epidemiology Scientific Research Group,
National Heart, Lung, Blood Institute
Email: rf20s@NIH.GOV

Frank GrayShield, MPH
Community Health Specialist,
National Institutes of Health
Email: grayshif@mail.nih.gov

Gary Hartz
Acting Director,
IHS Headquarters
Email: GHartz@HQE.IHS.GOV

Duane Jeanotte
Deputy Director for Health Policy,
IHS Headquarters
DJeanott@Hqe.ihs.gov

Frances M. Murphy, MD, MPH
Deputy Under Secretary for Health Policy Coordination,
Vetrans Health Administration
Email: murfra@hq.med.va.gov

Richard Olson, MD
Director, Office of Clinical Preventive Services,
Office of Public Health
IHS Headquarters
Email: ROlson@HQE.IHS.GOV

ROUNDTABLE FACILITATOR

Jo Ann Kauffman, MPH
President,
Kauffman & Associates, Inc
Email: joann@kauffmaninc.com

ROUNDTABLE RECORDER

Ara Walline
Research Assistant,
Kauffman & Associates, Inc.
Email: ara@kauffmaninc.com