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Disparities and Chronic Health Care Needs for Elderly American Indians Living on or near a Reservation

KYNNA N. WRIGHT

The American Indian tribal nations and communities have long experienced health status worse than that of other Americans. Although major gains in reducing health disparities were made during the last half of the twentieth century, most gains stopped by the mid-1980s. Consequently, health disparities continue to exist with marked variation across Indian Health Service (IHS) areas and within tribes. This is especially concerning for low-income, elderly members of the American Indian community. Addressing chronic diseases in elderly American Indian communities will help us reach the *Healthy People 2010: Understanding and Improving Health* goals of improving the quality of life and increasing the life expectancy of American Indians.¹ In an effort to reduce these existing health disparities, it is important to understand the major illnesses affecting the American Indian community and address mechanisms to address the illnesses within the American Indian community. This is a review of the literature about the major illnesses found among elderly American Indians living on or near a reservation. Four sources, including CINAHL, Google Scholar, MEDLINE, and PsycInfo, were used to review the literature regarding elderly American Indians living on or near a reservation for the three leading causes of death (heart disease, cancer, and diabetes) and suggested recommendations for health intervention programs in these disease areas.

DEMOGRAPHIC PICTURE OF AMERICAN INDIANS LIVING IN THE UNITED STATES

Approximately 2.5 million people identified themselves as American Indian in the 2000 US census.² The American Indian population includes members of

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more than 550 federally recognized tribes, which represent different cultural traditions and lifestyles. Currently, 62 percent of all American Indians, or urban Indians, identified in the 2000 census reside off-reservation.³ Approximately 38 percent of American Indians live on reservations in the western United States, and 22 percent live near reservations. In general, the population is poor, with 32 percent living below the poverty rate (vs. 13.1% of the US population). The high school dropout rate is 35 percent compared to 25 percent for the general population, and unemployment is two times as high as and income two-thirds of that of the rest of the country.⁴ According to the US Census Bureau July 1999 population estimates, there are nine states with high numbers of American Indians (see table 1).⁵

Table 1
States with the Largest Number of American Indians

State	Number of American Indians
California	313,642
Oklahoma	262,581
Arizona	261,168
New Mexico	165,444
Washington	104,819
Alaska	101,352
North Carolina	99,277
New York	76,755
Florida	60,358

Source: US Census Bureau, "States Ranked by American Indian and Alaska Native Population, July 1, 1999" (Washington, DC: Population Estimates Program, Population Division, US Census Bureau, 2000), <http://www.census.gov/population/estimates/state/rank/aiea.txt> (accessed 27 July 2009).

Elders, defined for this publication as persons fifty-five years and over, comprise approximately 11 percent of the American Indian population. Indian elders also have a lower economic status than elders do in the general population and tend to die younger than the general population.⁶ According to the IHS department of the US Department of Health and Human Services (DHHS), heart disease, cancer, and diabetes are the three leading causes of death for American Indians aged fifty-five or older. Chronic diseases such as these have a negative impact on the general health status and the quality of life for American Indian elders, especially for those living on or near a reservation where access to quality health care is problematic. The US Department of Commerce, Bureau of the Census predicts that the burden of chronic diseases on American Indian communities will increase as the number of elders grows from approximately 310,000 in 2000 to 459,000 in 2010.⁷

ACCESS TO HEALTH CARE FOR ELDERLY AMERICAN INDIANS LIVING ON OR NEAR A RESERVATION

Most American Indians living on or near reservations receive their health care through the IHS, an agency of the US Public Health Service.⁸ The IHS is the principal federal health care provider for American Indians. Its services are provided directly, through tribally contracted and operated health programs, and through 48 hospitals and 272 health centers (as well as health stations and school health centers); it currently provides health services to approximately 1.9 million people with a budget of approximately 3.1 billion dollars. Although IHS is a federally funded agency, many elderly American Indians are without quality health care services due to a lack of funds for the infrastructure of IHS's many health programs. Moreover, lack of access to providers, especially specialists, is a large problem for the agency and leads to decreased access to proper health care for elderly American Indians.⁹

BURDEN OF DISEASE AMONG ELDERLY AMERICAN INDIANS LIVING ON OR NEAR A RESERVATION

Cardiovascular Disease

Definition. *Cardiovascular disease (CVD)* is a term that generally refers to conditions involving narrowed or blocked blood vessels that can lead to a heart attack, chest pain (angina), or stroke. CVD remains the leading cause of death in the United States despite improvements in prevention, detection, and treatment. CVD is no longer thought of as a disease that primarily affects men as they age. It is a killer of people in the prime of life, with more than half of all deaths occurring among women.

Risk Factors for CVD. A number of health-related behaviors practiced by people every day contribute markedly to CVD; six will be discussed. Three nonmodifiable risk factors include:

- Age: More than 83 percent of people who die of coronary heart disease (CHD) are sixty-five or older. At older ages, women who have heart attacks are more likely than men to die from them within a few weeks.
- Gender: Older women who have heart attacks are more likely than men to die from them within a few weeks.
- Ethnicity: Heart disease risk is higher among American Indians, African Americans, Mexican Americans, Native Hawaiians, and some Asian Americans. This is partly due to higher rates of obesity and diabetes.¹⁰

Three modifiable risk factors include:

- Tobacco use: Smokers have twice the risk of heart attack as nonsmokers; consequently, one-fifth of the annual one million deaths from CVD are attributable to smoking.
- Lack of physical activity: Sedentary people have twice the risk of heart disease as those who are physically active. Despite these risks, America remains a predominantly sedentary society.
- Poor nutrition: Finally, only 27 percent of women and 19 percent of men report eating the recommended five servings of fruits and vegetables each day.¹¹

There are several major risk factors for CVD among elderly American Indians living on or near a reservation. An important study among the American Indian elderly is the Strong Heart Study (SHS). The SHS was initiated in 1989 and is a population-based study with the purpose to investigate CVD and its risk factors in geographically diverse groups of American Indians.¹² The study cohort initially consisted of 4,569 American Indians aged forty-five to seventy-four years from thirteen American Indian tribal reservation-based centers in Arizona, Oklahoma, and South and North Dakota (SD/ND).¹³ The SHS found hypertension, high-density lipoproteins (HDLs), cholesterol (inverse), albuminuria (excess albumin in the urine), fibrinogen (a protein in the blood plasma that is essential for the coagulation of blood), and diabetes to be associated with CVD in men and women. Another study looked at the SHS up to December 2001 and confirmed the above risk factors for CVD among elderly American Indians living on or near a reservation.¹⁴ A study using the Behavioral Risk Factor Surveillance Survey, a telephone survey among American Indians over the age of fifty-five, also confirmed the risk factors found in the SHS and found no leisure time/physical inactivity to be a risk factor for CVD among elderly American Indians.¹⁵

However, risk factors for CVD vary among the geographic regions and tribes. Results from the SHS indicate that hypercholesterolemia (high cholesterol) was found almost twice as much for SD/ND elderly American Indians as compared to Arizona elderly American Indians.¹⁶ Rates of high cholesterol were also much higher among elderly American Indians in all three centers than rates in the entire United States. Hypertension (high blood pressure) among Arizona and Oklahoma elderly American Indians was also found to be higher than that for the entire United States. Cigarette smoking was higher for all American Indian groups except among elderly Arizona American Indian women in comparison to US rates. Smoking rates were highest among elderly American Indians living in SD/ND. Arizona elderly American Indians had the highest prevalence of diabetes mellitus, where more than 60 percent of those participants were diabetic. In Oklahoma and SD/ND one-third of the elderly men and more than 40 percent of the elderly women were also diabetic. Prevalence of obesity was high in all three centers, with Arizona elderly American Indians having the highest rates and the highest mean body mass indices (BMIs). Although prevalence of alcohol use was lower among elderly American Indians than in the nation as a whole, binge drinking was common among those elderly American Indians who used alcohol. These results indicate that CVD risk factors vary significantly among tribal groups. Therefore, prevention programs tailored toward preventing risk factors are recommended for long-term reduction of CVD rates in elderly American Indians living on or near a reservation.

CVD Prevalence. American Indians/Alaska Natives had the highest heart disease prevalence (11.2%), and Asians had the lowest prevalence (4.7%). There was little difference in heart disease prevalence among whites (6.9%), blacks (6.2%), or Hispanics (6.2%).¹⁷ According to the SHS, in all three centers, fatal CHD rates were significantly higher in men than women. Rates for fatal stroke were lower than those for fatal CHD but did not differ

significantly between centers or gender. Incidence rates for nonfatal CVD were similar for nonfatal CHD in Arizona and SD/ND women, with rates for Oklahoma women being somewhat lower. In addition, rates among elderly American Indians for sudden cardiac death (SCD) are increasing. SCD is defined as the unexpected natural death from a cardiac cause a short time after onset of symptoms in a person without any previous condition that would seem fatal.¹⁸ SCD accounted for 60.5 percent of all cardiac deaths among elderly American Indians; and there was an increase in SCD rates among elderly American Indian women between 1997 and 1998.¹⁹

Cancer

Definition of Cancer. *Cancer* is a term used for diseases in which abnormal cells divide without control and are able to invade other tissues. Cancer cells can spread to other body parts through the blood and lymph systems. There are more than one hundred different types of cancer. Most cancers are named for the organ or type of cell in which they start, for example, lung, breast, or cervical cancers are named for the organs affected by the cancer. Based upon the literature, for the purposes of this study the following cancers will be addressed: lung cancer, which is cancer that forms in tissues of the lung, usually in the cells lining air passages, and colorectal cancer, which is cancer that forms in the tissues of the colon and/or the rectum.

Risk Factors for Lung Cancer. Risk factors will be discussed for each of the two highlighted cancers. There are several risk factors for lung cancer:

- Tobacco smoke: Tobacco smoke causes most cases of lung cancer and is the most important risk factor for lung cancer. Harmful substances in smoke damage lung cells. Thus, smoking cigarettes, pipes, or cigars can cause lung cancer, and secondhand smoke can cause lung cancer in nonsmokers. The more a person is exposed to smoke, the greater the risk of lung cancer.
- Air pollution: The risk from air pollution is higher for smokers.
- Radon: Radon is a radioactive gas that one cannot see, smell, or taste. It forms in soil and rocks; thus people who work in mines may be exposed to radon. In some parts of the country, radon is found in houses. Radon damages lung cells, and people exposed to radon are at an increased risk of lung cancer. The risk of lung cancer from radon is even higher for smokers.
- Asbestos and other substances: Exposure to asbestos, arsenic, chromium, nickel, soot, tar, and other substances can cause lung cancer. The risk is highest for those with years of exposure. The risk of lung cancer from these substances is even higher for smokers.
- Family history of lung cancer: People with a father, mother, brother, or sister who had lung cancer may be at a slightly increased risk of the disease.
- Personal history of lung cancer: People who have had lung cancer are at an increased risk of developing a second lung tumor.
- Age more than sixty-five: Most people are older than sixty-five years when diagnosed with lung cancer.

Risk Factors for Colorectal Cancer. Some risk factors for colorectal cancer include:

- Age more than fifty: Colorectal cancer is more likely to occur as people get older. More than 90 percent of people with this disease are diagnosed after age fifty. The average age at diagnosis is seventy-two.
- Colorectal polyps: Polyps are growths on the inner wall of the colon or rectum. They are common in people over age fifty. Most polyps are benign (not cancer), but some polyps (adenomas) can become cancer. Finding and removing polyps may reduce the risk of colorectal cancer.
- Family history of colorectal cancer: Close relatives (parents, brothers, sisters, or children) of a person with a history of colorectal cancer are somewhat more likely to develop this disease, especially if the relative had the cancer at a young age. If many close relatives have a history of colorectal cancer, the risk is even greater.
- Diet: Diets high in fat (especially animal fat) and low in calcium foliate and fiber may increase the risk of colorectal cancer.
- Cigarette smoking: A person who smokes cigarettes may be at increased risk of developing polyps and colorectal cancer.²⁰

Lung cancer is the most common type of cancer death for elderly American Indians in eight of the nine IHS areas.²¹ This may be due to the fact that smoking among elderly American Indians is the highest (40%) of the five racial and ethnic groups. The prevalence of cigarette smoking is higher for all American Indian tribes (41.7% for men and 38.1% for women), except Arizona women, in comparison to general population rates (men 23.6% and women 16.7%).²² In addition, the poor diet of elderly American Indians may also increase their risk for developing lung or colorectal cancers. Historically, American Indians consumed a diet that was high in complex carbohydrates and fiber and low in fat. Today, their diet is replaced by food high in refined carbohydrates and fat and includes a low consumption of fruits and vegetables. In addition, a proliferation of fast food restaurants and convenience stores selling foods that are high in fat and sugar near reservations has significantly added to the poor nutritional habits of elderly American Indians, thus increasing their risk for these types of cancer.²³

Cancer Incidence. During the past twenty years, considerable progress has been made in the early detection and treatment of cancer.²⁴ Despite these advances, cancer incidence and mortality rates among American Indians have not improved as they have in the general population. Cancer is the second leading cause of death among elderly American Indians, and they have the poorest survival rate from all cancers than any other racial group. Cultural values and belief systems, lifestyle and behavior differences (for example, habitual smoking and poor diet), and socioeconomic factors are likely contributors to the differences in cancer rates and survival among American Indians and other ethnic groups.²⁵ The National Cancer Institute (NCI) of the National Institutes of Health is the leading reporter of cancer statistics in the United States, and they use cancer incidence rates (report of new cancer cases) to report cancer statistics. Thus, this literature will follow these statistical standards and report on cancer incidence. Table 2 illustrates incidence

rates for both lung and colorectal cancers. More American Indians died of cancer in 2005 (48.7 per 100,000 men and 10.4 per 100,000 women) as compared to the national statistics (44 per 100,000 men and 62.8 per 100,000 women). Conversely, fewer American Indians died of colorectal cancer (20.5 per 100,000 men and 14.2 per 100,000 women) as compared to the nation (22.7 per 100,000 men and 15.9 per 100,000 women).²⁶

Table 2
Incidence of Lung and Colorectal Cancers in the
United States—2005 (per 100,000 people)

Race/Ethnicity	Incidence Male	Incidence Female
Lung Cancer		
All	79.4	52.6
White	79.3	54.9
Black	107.6	54.6
Asian/Pacific Islander	53.9	28.0
American Indian/Alaska Native	54.3	39.7
Hispanic	44.2	25.7
Colorectal Cancer		
All	59.2	43.8
White	58.9	43.2
Black	71.2	54.5
Asian/Pacific Islander	48.0	35.4
American Indian/Alaska Native	46.0	41.2
Hispanic	47.3	32.8

Source: L. Reis et al., *SEER Cancer Statistics Review, 1975–2005*, NIH Publication No. 94-2789 (Bethesda, MD: NCI, 2008), http://seer.cancer.gov/csr/1975_2005/ (accessed 21 July 2009).

The types of cancer experienced by elderly American Indians on or near a reservation vary significantly by geographic region. For example, it has been shown that overall cancer and mortality rates are higher in the Northern Plains regions. The cancers attributed to these large rates include lung and colorectal cancer.²⁷ Such delineation helps the prospective researcher, policy maker, and medical provider identify the cancer that requires a greater priority, and this can help focus treatment and prevention efforts.

Issues Related to Collection of Cancer Data for Elderly American Indians. There are several issues related to the collection of cancer data for elderly American Indians. For example, there are 217 Native languages spoken today, and most, if not all, indigenous languages do not include a word for “cancer”; this may lead to undiagnosed, undocumented, and untreated cancer among elderly American Indians.²⁸ Currently no single national database accurately presents comprehensive cancer data for American Indians. Consequently,

there are multiple errors and limitations within American Indian cancer data. This typically results in undercounting the number of cancer cases and deaths.²⁹ It has been shown that cancer rates that were previously reported to be lower in elderly American Indians have increased during the past twenty years.³⁰ For example, one study found that cancer mortality increased by 5 percent in American Indians from 1996 to 2001 compared with 1990 to 1995.³¹ Misclassification of American Indians in national databases is another problem that hinders collection of data. The Centers for Disease Control and Prevention (CDC) has documented that there is a 40 to 50 percent misclassification of American Indians as either white or Hispanic.³² Misclassification is primarily due to the use of Spanish surnames to determine race; personal observation by data collectors to determine race; lack of an American Indian response category on forms; inconsistent definitions of the term *American Indian*; and federal recognition of tribal nations in addition to state recognition (that is, a nonfederally recognized tribal member may not identify as American Indian).³³ Without correcting the issues that surround educating elderly American Indians regarding types and risk factors for cancer, creating a comprehensive cancer database, and correcting the misclassification of American Indians, we will continue to have poor estimates of cancer rates among American Indian elderly populations.

Diabetes

Definition. Diabetes mellitus, also known as diabetes, is a group of metabolic diseases characterized by high blood sugar (glucose) levels that result from defects in insulin secretion, action, or both. There are two main types of diabetes: insulin-requiring Type 1 diabetes and adult-onset Type 2 diabetes. Over time, diabetes can lead to blindness, kidney failure, and nerve damage. These types of problems are the result of damage to small vessels, referred to as microvascular disease. Diabetes is also an important factor in accelerating the hardening and narrowing of the arteries (atherosclerosis), leading to strokes, CHD, and other large blood vessel diseases. This literature review will focus on Type 2 diabetes, which is the most common form of diabetes and the sixth leading cause of death in the United States.³⁴

Risk Factors for Diabetes. Obesity, defined as >95 percent BMI for adults, is the number-one risk factor for Type 2 diabetes. Greater weight means a higher risk of insulin resistance, because fat interferes with the body's ability to use insulin.³⁵ Among American Indian elderly, diabetes is a major cause of morbidity (such as kidney failure, blindness, CVD, and lower-extremity amputation), disability, decreased quality of life, and premature mortality. Many American Indian elderly living on or near reservations show that one major risk factor for diabetes is obesity; however, the magnitude of the obesity problem among American Indian elderly is not well understood or documented.³⁶ This may be because rates of obesity vary greatly among geographic areas and are due to differences in risk-factor prevalence in various tribal groups.³⁷

There have been studies to try to document the rates of obesity among American Indian elderly populations. One earlier study found the prevalence

of obesity (those between 85% to 95% BMI for age and sex) among elderly adult American Indians to be 45.5 percent for men ages fifty-five to sixty-four and 45.6 percent for women ages fifty-five to sixty-four, which was higher than the US rates of 33.1 percent and 36.2 percent, respectively. The prevalence for obesity was reported as 16.5 percent for men ages fifty-five to sixty-four years and 18.8 percent for women ages fifty-five to sixty-four years, which was higher than the US rates of 13.0 percent and 11.5 percent, respectively.³⁸ A more recent study of the prevalence of obesity among the elderly American Indians living on or near reservations in the Pascua Yaqui Indian tribe, a Southwest Indian tribe in Tucson, Arizona, found that 65 percent of the men aged fifty-five to sixty-four years and 92.9 percent of the women aged fifty-five to sixty-four years had diabetes (based on fasting serum glucose testing).³⁹ Longitudinal studies of the Pima Indians have also documented a highly significant association between BMI and diabetes for elderly rural American Indians. A study focusing on rates of diabetes among Pima Indians by gender and age found that elderly men ages fifty-five to sixty-four had a prevalence of 70 percent and women of the same age had a prevalence of more than 80 percent.⁴⁰ In addition, another found that diabetes was less likely to occur in those with a BMI of <25 even if they had a family history of diabetes.⁴¹ These data suggest that health professionals should strongly recommend that elderly American Indians maintain a BMI of <25 to reduce their risk of developing diabetes to the lowest possible level.

Being overweight is not the only risk for Type 2 diabetes. Other risk factors include:

- Having a family history of diabetes: People who have family members who have been diagnosed with Type 2 diabetes are at a greater risk for developing it.
- Being age forty-five or over: Scientists theorize that as the pancreas ages its ability to pump insulin decreases, thus, this increases the elderly American Indians' risk for developing diabetes.
- Having high blood pressure and high cholesterol (for example, having HDL cholesterol of less than 35 mg/dL or triglyceride level of greater than 250 mg/dL): These two issues damage the heart vessels and contribute to metabolic syndrome, a cluster of symptoms including obesity, a high-fat diet, and lack of exercise. Having metabolic syndrome increases one's risk for diabetes.
- Being of American Indian, African American, or Hispanic American descent: These individuals are all the more at risk for Type 2 diabetes. In addition, American Indians are at higher risk for developing retinopathy (eye disease) than whites.
- Sedentary lifestyle: Inactivity and being overweight go hand in hand toward a diagnosis of Type 2 diabetes. Muscle cells have more insulin receptors than fat cells, so a person can decrease insulin resistance by exercising.⁴²

Diabetes Prevalence. Diabetes is a serious problem for American Indian populations living on or near reservations; they suffer from some of the highest rates of diabetes in the world.⁴³ In some American Indian communities,

more than half of the adult population has diabetes, and the prevalence is increasing.⁴⁴ Between 1990 and 1997, the number of American Indians diagnosed with diabetes who were served by the IHS and Tribal Health Offices increased from 43,262 to 64,474 individuals. This was a 29 percent increase in prevalence of American Indians with diabetes. The increase in prevalence between 1990 and 1997 varied by region and ranged from 16 percent in the Northern Plains region to 76 percent in the Alaska region.⁴⁵ In 2007, 16.3 percent of American Indian and Alaska Native adults were diagnosed with diabetes (compared with 8.7% of non-Hispanic whites, 10.4% of Hispanics, and 14.7% of blacks).⁴⁶

American Indians also experience high rates of kidney disease, especially among the elderly. American Indians have a 3.5 times higher rate of diabetes-related kidney failure as compared with the general US population. Similar to those who do not live on or near a reservation, for elderly American Indians living on or near a reservation the frequency of diabetes and its complications increases with age. Diabetes prevalence for American Indians living on or near a reservation during the years 1990 to 1997 was highest among individuals aged forty-five to sixty-four years (49%) and those aged over sixty-five years (24%).⁴⁷ Although the prevalence of diabetes increased with age among men and women, the percent increase among men rose through age sixty-four years and ranged from 23 percent to 43 percent.⁴⁸ The SHS also documented diabetes to be the most common disease in the oldest age groups, with rates as high as 74 percent among women ages sixty-five to seventy-four years living in Arizona.⁴⁹

INDIAN HEALTH SERVICES BEST PRACTICES AND RECOMMENDATIONS FOR APPROPRIATE HEALTH CARE: CARDIOVASCULAR DISEASE, CANCER, AND DIABETES

The IHS and tribal leaders are working to address the health disparities of elderly American Indians through the Health Promotion and Disease Prevention program, which focuses on chronic diseases such as CVD, cancer, and diabetes. Although there are several programs that enhance appropriate health care for elderly American Indians, this literature review will focus on IHS-recommended programs, which include tribally run programs, and those that IHS has identified as best practices.

Best Practices and Recommendations for Care—CVD. CVD has become a major source of disability, increasing hospitalizations and both inpatient and outpatient procedures, which has resulted in a significant increase in expenditures for federal programs like the IHS and the Tribal Contract Health Service. As a result, the IHS and tribes have recognized a need for aggressive treatment and prevention activities. To that end, the IHS has developed the Native American Cardiology Program (NACP) to help ameliorate these problems.⁵⁰ Prior to the initiation of the NACP, cardiology services were available from private cardiology groups, which are generally located at great distances from the patients' homes and reservation-based clinics. The care was not comprehensive and often consisted of a single visit, typically lacking

continuity of care, cultural sensitivity, and a vision of coordinated prevention activities. These services obtained from multiple providers were generally poorly coordinated and lacked a systematic approach to the development of prevention activities as well as a lack of incentive to control medical costs. The IHS recommends the NACP because it is tribally run and is a collaborative program that supports more than thirty hospitals and clinics in Arizona, Nevada, Utah, and parts of New Mexico and California. They provide cultural and linguistic appropriate care, including community-based prevention and treatment of CVD and training for rural health practitioners.

Another program recommended by the IHS that has proven to be successful with elderly American Indians includes the WISEWOMAN program (Well-Integrated Screening and Evaluation for Women Across the Nation), which provides low-income, underinsured, and uninsured women aged forty to sixty-four years with chronic disease risk-factor screening, lifestyle intervention, and referral services in an effort to prevent CVD. The CDC funds fifteen WISEWOMAN projects, which operate on the local level in state and tribal organizations. Projects provide standard preventive services, including blood pressure and cholesterol testing, and programs to help women develop a healthier diet, increase physical activity, and quit using tobacco. WISEWOMAN funds two tribally run programs working with Alaska Native women as well as programs serving American Indian women in Nebraska, Nevada, and South Dakota. Continual support programs such as these will help to ameliorate the rates of CVD among elderly American Indians and the costs associated with it.

Best Practices and Recommendations for Care—Cancer. In the area of cancer prevention and treatment for elderly American Indians, the IHS recommends the use of the primary care setting (for example, outside of the hospital) and the use of ambulatory care clinics to be used as medical homes (a place in the American Indian community to be responsible for providing comprehensive cancer prevention and treatment). An illustration of best practices using the medical home model to prevent cancer is through the Indian Health Council, a consortium of nine tribes that provides medical services to Native Americans living on nine reservations in North San Diego County. With the use of a comprehensive team of American Indian providers (for example, doctors, nurses, social workers, and case managers), the clinics associated with this Indian Health Council have increased colorectal cancer screening. The team made significant improvements in screening for such conditions as alcohol misuse and colorectal cancer. Screening for the former rose to 60 percent in August 2008, from less than 24 percent in March 2007.⁵¹

Another recommended resource for prevention and treatment of cancers among elderly American Indians are NCI-funded programs such as the Cancer Information Service and cancer centers. These centers are useful because they are in a unique position to offer American Indians educational and informational resources that can facilitate the fulfillment of needs determined by American Indians and help build programs that address their concerns. Most importantly, centers can offer the long-term commitment needed to develop true partnership and collaborative endeavors that are

based on mutual respect and trust. For example, the University of Wisconsin Comprehensive Cancer Center's team of more than two hundred physicians, researchers, and professional staff successfully serves American Indians from Wisconsin and Illinois through community partnership and outreach, education, clinical research, and services in an effort to prevent illness, detect earlier, treat effectively, and improve the quality of life of American Indian cancer patients and survivors.⁵²

Best Practices and Recommendations for Care—Diabetes. Currently, the IHS Division of Diabetes Treatment and Prevention (DDTP) provides services to elderly American Indians who have or are at risk for diabetes and live on or near the reservations. However, due to lack of funds for its programs the DDTP is unable to provide quality health services for its elderly patients to the level that the American Diabetes Association (ADA) recommends (the ADA recommends \$13,000 per year per patient for diabetes care, and the DDTP provides \$2,133 per year per patient).⁵³ Nonetheless, other tribal health programs have proved effective for elderly American Indians. For example, the Ponca Tribe of Nebraska Diabetes Program provides quality health care services to American Indians through a comprehensive diabetes prevention program, self-care management plan, educational information, and direct care services that include traditional lifestyles, education, and case management. The program also includes diabetes screening, nutrition assessment and counseling, diabetes education, orthopedic shoes, dialysis, eye exams, glucose testing and supplies, and all diabetic prescriptions. Again, the comprehensive approach implemented by Native practitioners helps to make the program a success among its members.

CONCLUSION

Improving the health of elderly American Indian communities and providing individualized health care throughout Indian country, reservations, or near reservations are vital and challenging goals. The American Indian population is diverse, geographically dispersed, and economically disadvantaged. Evidence has shown that the overall health and well-being of American Indians has improved dramatically due to increased medical care and expansive public health efforts. However, major health disparities still exist, especially for elderly American Indians, and place these individuals at high risk for CVD, diabetes, and various cancers. The purpose of this literature review was to bring a better understanding of the diseases that greatly affect elderly American Indians living on or near a reservation and is a first step in closing the disparities gap. The literature review also gave IHS recommendations and best practices in the treatment of CVD, diabetes, and cancer. Based on this literature review, those programs that are most effective tend to be run tribally and/or have American Indian practitioners, use a comprehensive health program model, and include cultural and linguistically appropriate teachings and practices in educating and providing services to their elderly American Indian populations.

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