Traditions and Diabetes Prevention: A Healthy Path for Native Americans

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***Editor's note:** This article is adapted from the address of the American Diabetes Association (ADA) President, Health Care and Education, given in June 2009 at the Association's 69th Annual Meeting and Scientific Sessions in New Orleans, La. A Web cast of this speech is available for viewing at the ADA Web site (www.diabetes.org). Under "For Health Professionals," click on "Scientific Sessions Webcasts" and use the "Advanced Search" feature to locate this presentation.*

My work in the area of diabetes prevention began in 2006, as an instructor and lifestyle coach for the Special Diabetes Program for Indians (SDPI) Diabetes Prevention Program, with funding awarded to the Winnebago Tribe of Nebraska.

Diabetes is serious. Diabetes is deadly. To see the devastating impact it can have on a population, sadly, one need look no further than to the first nation of people to inhabit North America. Recent data from the Centers for Disease Control and Prevention (CDC) and Indian Health Service (IHS) show that in some American Indian and Alaska Native communities, diabetes prevalence among adults is as high as 60%.[1] One in six American Indian and Alaska Native adults has diagnosed diabetes—more than double the prevalence rate for the general U.S. population.[1]

But it wasn't always this way. Consider this:

That Was Then; This Is Now

Less than 100 years ago, diabetes was virtually unknown in native communities. It was not until after World War II that diabetes cases began to be reported by IHS providers. In fact, a century ago, all chronic diseases, including diabetes, were practically nonexistent in Indian country. As recently as 1955, diabetes was unrecognized as a leading cause of death as evidenced by its absence in a listing of the 10 most frequent causes of death for this population.

However, by 2009, diabetes had jumped to number four on the list. American Indians and Alaska Natives now have the highest diabetes prevalence rates of all racial and ethnic groups in the United States. More than 16% of the members of this population have been diagnosed, compared to 8.7% of non-Hispanic whites. The Pima Indians of Arizona have the highest rates of diabetes in the world, with more than 50% having a diagnosis of type 2 diabetes. Data from the 2003–2004 National Health Interview Survey (NHIS) and the 2004 IHS outpatient database show that male and female American Indians and Alaskan Natives have the highest rates of diabetes for each age-group when compared to rates for non-Hispanic whites and non-Hispanic blacks.[2]

Higher Incidence, More Death, More Disability

The presence of diabetes in Indian country has caused a great deal of pain and hardship. IHS data show that American Indians and Alaska Natives have a higher incidence of long-term complications of diabetes and that these problems develop earlier in life. Cardiovascular disease (CVD) is now the number one cause

of death, and American Indians and Alaska Natives with diabetes are three to four times more likely to develop CVD than those without the disease. In addition, diabetes is the leading cause of new blindness, end-stage renal disease, and lower-extremity amputation. And the mortality rate for American Indians and Alaska Natives is growing faster than for the general U.S. population (62 versus 10%, respectively).[3]

Young Natives Affected at Alarming Rates

Equally alarming is the fact that diabetes is increasingly prevalent among Native American children and young adults. Data from the IHS Diabetes Program show a 160% increase in diagnosed diabetes for Native Americans between the ages of 25 and 34 years between 1990 and 2004.[3] For children < 15 years of age, there was a 77% increase during this time period, and there were 128 and 94% increases, respectively, for those who were 15–19 and 20–24 years of age.

The urgent need for type 2 diabetes prevention in this population can be discerned through this prediction from the CDC: one in two American Indian/Alaska Native children born in 2000 will have type 2 diabetes in their lifetime unless the current trend is halted.[4]

Diabetes in Native Populations: Inevitable or Preventable?

Why are so many Native Americans vulnerable? Are they, as many native people believe, destined to receive a diagnosis of diabetes?

Factors contributing to the high rates of diabetes in American Indians and Alaska Natives include genetic, environmental, and behavioral issues, which may include a genetic predisposition toward insulin resistance, exposure of fetuses to hyperglycemia during pregnancy, sedentary lifestyles, obesity, and the effects of living in environments that are stress-producing, from both a social and physical standpoint.

Impact of environmental changes

Before Europeans arrived in the Americas, more than 500 tribes (totaling ~ 22 million people) inhabited what is now known as the United States. Many archaeologists and scholars claim that native people may have inhabited the Americas for as long as 70,000 years before the arrival of non-natives.

On February 16, 1835, the U.S. Congress passed the Indian Removal Act, initiating the relocation of thousands. By the mid-1870s, reservation life had begun for most native people in the United States. By November 1, 1878, many American Indian children were being relocated to boarding schools and away from the reservations. And on February 8, 1887, the Dawes Act was passed, causing American Indian groups to lose a collective 90 million acres of land, although a majority of the loss had occurred before that time.

Although all of these events were obviously traumatic, many have said that it was the loss of the buffalo herds that was the most devastating to native people. This is because every part of a buffalo's carcass was used by tribal people, throughout the day, every day. Absolutely nothing went to waste.[5] By the mid to late 1800s, the buffalo herds had been destroyed or hunted to near-extinction.

Despite this inexcusable treatment and the dramatic changes to their environment, Native Americans have persevered.

Increase in obesity accompanies push on to reservations

Unfortunately, the policies that created American Indian reservations resulted in drastic lifestyle changes that had a negative impact on health for native people. The prevalence of obesity in native populations is high, thereby increasing their risk for type 2 diabetes. A National Center for Health Statistics report of health characteristics of native populations between 1999 and 2003 showed that native adults were more likely to be obese than their white, black, or Asian counterparts in the United States.[6] For adults who had been diagnosed with diabetes, nearly 70% were obese, and this was an increase of nearly 11% over the previous 9-year period.[6]

Environment versus genetics

In 2006, Schulz et al.[7] reported on their investigation of the impact of environmental influences on the prevalence of obesity and type 2 diabetes in the U.S. Pima Indians compared to their Mexican-dwelling counterparts. Results of the study showed the U.S. Pimas had significantly higher rates of obesity and type 2 diabetes; lower intake of dietary fiber and higher dietary fat intake; and less energy expenditure for work or leisure activities. The researchers concluded that development of type 2 diabetes and obesity are preventable and are caused primarily by behavioral and lifestyle factors.

Traditional Patterns of Physical Activity

An example of the changes that have occurred in native lifestyles during the past 120 years can be observed in the tribal community with which I currently work: the Winnebago tribe of Nebraska. The Winnebagos originally lived in upper Wisconsin and were involved in fur trading. They gradually migrated to southern Wisconsin, then to southern Minnesota, and in 1874, many moved to the Nebraska reservation.

Traditional work activities for the Winnebago tribe and other Northern Plains Indians included farming, husking corn, fishing, canoeing, hunting buffalo, picking berries, and tanning hides. There were also frequent native dances and powwows, which involved strenuous physical activity. It has been estimated that native people expended more than 4,000 calories per day before the start of reservation life. The move to reservations resulted in a tremendous loss of opportunity for caloric expenditure, as well as a loss of pride for a lifestyle of hard work.

Traditional Cuisine

In addition to the changes that occurred in physical activity levels, the movement to the reservations also brought significant changes in dietary intake for the Northern Plains Indians. Foods traditionally eaten in the pre-reservation era included wild game (buffalo, elk, rabbit, snake, and fish), berries, other

fruits, and root vegetables (raw, cooked, and dried), as well as soups made with meat and vegetables, nuts, and teas made from wild peppermint, juniper, rosehips, and wild cherries.

The quantity of food available was dependent on the success of hunting or fishing and seasonal harvesting of available plants. It was truly a situation of feast or famine.

Food distribution was communal, with most preparation done outside by women and children. One or two meals were eaten each day, usually in the morning and evening. Celebrations of births, marriages, or the presence of visitors included sharing and feasting on whatever food was available.

Traditional food consumption patterns contrast sharply with the modern food consumption patterns of many Northern Plains Indians. As is true for Americans of all ethnic backgrounds, American Indians and Native Alaskans now consume a diet that is highly processed. Foods are higher in fat—particularly saturated fat—and higher in sodium, added sugars, and dietary cholesterol. The fiber, vitamin, and mineral content has decreased dramatically.

Changes in food consumption are also influenced by what is available in the marketplace. Because of limited finances, lack of transportation, and other factors, many tribal members have limited access to grocery stores, which offer a wider selection of nutrient-rich foods to promote good health. Convenience stores in small reservation communities often carry a large inventory of sodas, energy drinks, chips, and other snack foods and offer a paucity of high-quality fresh fruits and vegetables. Fresh fish and other low-fat protein sources are often expensive and in short supply.

Other influences on modern dietary intake patterns include access to fast food, the inclusion of fried foods such as frybread (considered by some to be a traditional food and a symbol of intertribal unity and community), and numerous community events, ceremonies, and celebrations that provide access to food for hours or days at a time, and the use of government commodities, which historically have been high in fat and added sugars and low in fiber.

The overarching impact of these factors is one of increased calorie consumption.

Research supports the traditional diet

In addition to the study by Schulz et al.[7] mentioned earlier, several other studies have given leverage to the belief held by many tribes that a modern diet leads to adverse health effects and that returning to a more traditional diet will prevent diabetes and reverse the adverse metabolic consequences of modern eating habits.

Short-term studies in both Australian Aborigines[8] and Pima Indians[9] have shown that return to a traditional diet is associated with improvements in metabolic abnormalities such as glucose intolerance and high cholesterol, triglyceride, and insulin levels. Ravussin et al.[10] showed that obesity and type 2 diabetes were less prevalent among people of Pima heritage living a traditional lifestyle in Mexico than among Pima Indians living in a more affluent environment in Arizona. A long-term study of the Pimas by Williams et al.[11] compared the effects of a self-assessed traditional, mixed, or nontraditional diet in 165 nondiabetic Pima Indians. Results, after adjustments for age, sex, BMI, and total energy intake, showed that those who reported consuming an Anglo-type diet were 2.5 times more likely to develop diabetes, and those consuming a mixed diet were 1.3 times more likely to do so than those consuming the traditional diet.

Examples of tribal programs that are working to improve food consumption patterns include the Northern Plains Buffalo Hunt exchange among tribes, the Bemidji (Minnesota) Wild Rice Gatherers, and the Southwest Native Seeds Project.

The Importance of Spirituality

There is no death, only a change of worlds.

—Chief Seattle, Suquamish[12]

Another important aspect of Native American culture whose existence was challenged but has endured is the importance of spirituality and adherence to ceremonies, rituals, and native beliefs. Some of these are described below. Although similarities exist, it is important to note that some ceremonies, blessings, beliefs, and rituals are unique to particular tribes.

Medicine men and the traditional Indian health system remain of great value to many tribes and incorporate a more holistic approach to healing than is found in modern Western medicine. To many Native Americans, an illness may not be cured even if symptoms have been alleviated by a physician. Traditional medicine concerns itself with cultural beliefs about disease etiology based on folklore, taboos, and tribal religion. As long as the culture remains strong, traditional healers will remain a valuable component of the society.

There are many types of traditional healing practices that vary widely from among tribes. As described by Rhoades and Rhoades,[13] characteristics of traditional Indian medicine include a profound system that is deeply rooted and complex; inclusion of religion and a realm of spirits who are capable of doing either good or harm; possession by traditional healers of special powers to communicate with spirits, heal the sick, and foretell future events; and power that is transcendentally obtained through a trancelike state or through dreams. Power is not believed to be a personal attribute of practitioners, but rather is viewed as a higher power that practitioners can invoke.

Important rituals that are considered intensely private and spiritual include the Sweat Lodge, the Sun Dance ceremony, and the Vision Quest. The Medicine Wheel is a symbolic circle in the Native American community that represents eternity and the life of all beings on the Earth from birth to death to rebirth. It represents unification and fulfillment and is a powerful visual tool.

Tribal Perceptions and Beliefs About Diabetes

Perceptions and beliefs about diabetes vary considerably from one

tribe to another. Recognizing these differences is important for diabetes care providers because individuals' understanding and beliefs about the origins of diabetes will affect how, why, and if they seek treatment. Some examples of various tribal beliefs about what a diagnosis of diabetes means include:

- Navajo: Life is out of balance (physically, emotionally, spiritually, and from the perspective of a kinship network), and diabetes was brought on by outside influences, such as white people.
- Iroquois-speaking Seneca: Diabetes is an attack on Indians with a source that is conscious, malevolent, and calculatedly aggressive.
- Ojibway (Canada): Diabetes is a "white man's sickness" and results from disruption of the tribal way of life and contamination of the environment and food supply by white people.
- Northern Utes: Diabetes is an entity that takes possession of people to do evil and results from witchcraft or a breach of tribal taboos.
- Dakota: Diabetes occurs because of a loss of traditional ways and a change in diet.
- Other Plains tribes: Diabetes is the consequence of the loss of traditional ways, not living a "right life," or breaking a spirit-imposed taboo.
- Southwest American Indian youth (four tribes): More than half believe that diabetes is contagious, and one-third believe that it happens to weak people.[14]

Use of Biomedical Services and Traditional Healing Options

As one might anticipate, the attitudes toward and use of services offered by traditional healers compared to biomedical health care providers varies from tribe to tribe. Novins et al.[15] studied 2,595 randomly selected American Indians who were 15–57 years of age and living on or near reservations in the Southwest or Northern Plains. Their findings showed that *1*) a higher level of education was associated with a greater use of biomedical services for physical problems; *2*) a greater identification with the American Indian culture was associated with higher usage of traditional medicine; and *3*) a larger percentage of tribes in the Southwest use both traditional healers and biomedical services as healing options, whereas the Northern Plains Indians tend to use biomedical services more frequently for physical problems.

Provision of Health Care for American Indians and Alaska Natives

Recognition of the health care needs of Native Americans improved in the 1950s. The IHS, established in 1955, is a federal agency that functions as part of the U.S. Public Health Service. As the principal health care provider and governmental entity for American Indians and Alaskan Natives, it has as its mission the goal of improving the physical, mental, social, and spiritual health of the native population. Nearly 2 million American Indians and Alaska Natives reside on or near reservations served by the IHS, and > 600,000 receive service in 34 urban programs.[3]

The IHS Division of Diabetes Treatment and Prevention (DDTP) was established in 1979 and is based in Albuquerque, N.M. The approach it has taken to address the epidemic of diabetes in Indian country is one of both clinical and public health and encompasses diabetes surveillance, enhancement and measurement of clinical diabetes care, and promotion of a diabetes network for rapid translation of research into clinical practice. Community-based prevention has been a more recent emphasis. The IHS DDTP includes a national office, which administers 19 model diabetes programs; 12 control officers; and 399 grant programs, which are known as the Special Diabetes Program for Indians (SDPI).[3]

The SDPI was allocated annual federal funding of $150 million for the years from 1997 to 2001. This includes a competitive grant program for community-directed programs and demonstration projects.

To date, 333 community-directed programs have received grants. These programs set their own priorities and objectives and include local evaluation, as well as a required national collective evaluation and a best-practices approach.

The demonstration projects involve fixed interventions of two types: Diabetes Prevention and Healthy Heart. The basic requirements of the Diabetes Prevention demonstration project, which I have been involved with as a lifestyle coach and program instructor for the Winnebagos, include recruitment and screening to identify people with pre-diabetes, provision of a 16-session diabetes prevention curriculum in group education sessions, provision of individual coaching and community activities, and measurement of outcomes such as weight loss, lifestyle change, and type 2 diabetes prevention. Outcomes data gathered thus far are promising. People are losing weight; measures of BMI, blood glucose, blood pressure, and lipids are declining; the incidence of smoking is declining; and levels of physical activity are increasing.

SDPI Programs

We do not inherit the Earth from our ancestors . . . we borrow it from our children.

—Ancient Indian proverb[12]

Wisdom is gained by listening to your elders. They have walked a longer path than you.

—Anonymous[12]

Wisdom is gained by realizing that education is never-ending. Even death is a final lesson.

—Anonymous[12]

Funding for the SDPI has made numerous programs possible in Native American communities that have made a significant difference in the health and overall quality of life for many tribal members. As reported in the IHS DDTP SDPI evaluation of 2005,[16] community advocacy activities to prevent diabetes have included promotion of traditional foods and community gardening, campaigns to increase diabetes awareness and knowledge, and the use of traditional methods,

such as storytelling and Talking Circles.

Storytelling is a highly valued native tradition that is used to teach younger generations about tribal ways and beliefs and to help maintain a tribal history and native languages.

Talking Circles are an ancient practice still used by many tribes to construct collective decision-making. In the context of diabetes education, Talking Circles are used to teach culture and traditions for health education and promotion. The circle is an ancient symbol that represents eternity and life. Often, Talking Circles include the use of a Talking Feather or Talking Stick, which ensures participants' right to speak without interruption.

Research conducted by Struthers et al.[16] used Talking Circles as a method of providing education and emotional support to participants and their families coping with diabetes and to offer a forum for community action to address the diabetes epidemic in tribal communities.

The SDPI also offers weight management programs for adults and children. In 2002, 66% of the SDPI grant programs reported having weight management programs for adults, compared to a limited presence of 28% before the grant.[3] Equally important, programs available for primary prevention and weight management for children and youth and for physical activity services have increased dramatically from 1997 to 2005. Through education, tribal communities are increasingly cognizant of the importance of programs that promote healthy lifestyle change and are engaging in them.

Lessons Learned: Considerations for Health Care Teams Working in Native Communities

The more you know, the more you will trust and the less you will fear.

—Ojibway adage[12]

Let us put our minds together and see what life will make for our children.

—Sitting Bull,
Hunkpapa Sioux[12]

Listen, or your tongue will keep you deaf.

—Native American proverb[12]

If you are fortunate enough to work in a Native American community, I offer these suggestions to enhance your involvement. Although American Indian and Alaska Native tribes share some similarities, they also differ in their historical experiences and cultures. Many factors enter into the influences that affect lifestyle choices in a community. Always remember to listen, and never judge. In addition:

- Learn about the culture and traditions specific to the tribal community where you work.
- Demonstrate courtesy and respect. Listen, listen, listen.
- Ask permission to inquire about patients' home and family.
- Appreciate nonverbal communication. Give people time to respond to your questions.
- Inquire about patients' understanding of diabetes.
- Determine patients' preferred learning styles.
- Use colorful, visual teaching aids and hands-on teaching methods.
- Discuss patients' use of complementary and alternative medicine therapies.
- Consider patients' family demands and dynamics. Encourage family members' involvement.
- Involve lay health educators.
- Engage the support of community and tribal leaders.

Finally, Some Notes of Thanks

May the warm winds of heaven blow softly upon your house. May the Great Spirit bless all who enter there. May your moccasins make happy tracks in many snows, and may the rainbow always touch your shoulder.

—Cherokee blessing[12]

- To the Winnebago people and my staff partners at our Ho-Chunk Hope Diabetes Prevention Program: thank you for welcoming me into your community with kindness and sharing priceless gifts about native culture and traditions.
- To the IHS staff and consultants Kelly Acton, MD, MPH, FACP, Tammy Brown, MPH, RD, BC-ADM, CDE, Lorraine Valdez, MPA, BSN, and Brenda Broussard, MPH, MBA, RD, CDE: thank you for generously sharing information for this presentation.
- To my fellow prinicipal officers George Huntley, CPA, Paul Robertson, MD, Ed Stinson, and ADA Chief Executive Officer Larry Hausner: thank you for the privilege of serving with you during 2009.
- To the past ADA Presidents, Health Care and Education: thank you for your leadership at ADA and within the greater diabetes community.
- To the ADA staff, board of directors, committees, and many other volunteers: thank you for the time and talents that you continue to give on behalf of people with and at risk for diabetes.
- To my family, friends, and colleagues: thank you for your many years of love and support, which have enabled me to give to the cause that will stop diabetes.

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