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Authors

White, Louellyn
Stauss, Joseph "Jay"
Nelson, Claudia E.

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Healthy Families on American Indian Reservations: A Summary of Six Years of Research by Tribal College Faculty, Staff, and Students

LOUELLYN WHITE, JOSEPH “JAY” H. STAUSS, AND
CLAUDIA E. NELSON

INTRODUCTION

This article provides a review and summary of six years of research on food assistance and nutrition issues on Indian reservations across America that was carried out by tribal college faculty, staff, and students. An assessment of the impacts and implications of this unique research program on the tribal colleges and communities involved is also included. The American Indian Studies (AIS) program at the University of Arizona, which provided administration and technical assistance for the research, is one of five small-grants research centers created by the Economic Research Service (ERS) within the United States Department of Agriculture (USDA). Between 1998 and 2004, AIS provided funding to tribal colleges throughout Indian Country for thirteen projects. Research topics varied widely and included, for example, the impacts of food assistance policy and programmatic requirement changes on those utilizing federal, state, local, and tribal food assistance programs; the availability of healthy and nutritious foods at trading posts and convenience

Louellyn White (Akwasasne Mohawk) is a PhD candidate in the American Indian Studies Program at the University of Arizona and is currently employed at the university's Native Peoples Technical Assistance Office (NPTAO). Joseph “Jay” H. Stauss (Jamestown S’Klallam) received his PhD in sociology from Washington State University. With his leadership, the University of Arizona created the first PhD in American Indian Studies in the nation. Claudia E. Nelson received her BS in business administration and an MA in American Indian Studies from the University of Arizona and is currently the director of the NPTAO.

stores on reservation lands; and the documentation of the loss of traditional foods in Native peoples' diets and the feasibility and attendant potential cultural, social, and health impacts of reintroducing those traditional foods into modern and socially complex tribal communities. The authors argue that the overall body of research developed through this small-grants program is unique, important, and groundbreaking when compared to previously available literature for several reasons, including research project design and implementation by tribal college faculty and staff, the utilization of tribal college students in the research process, and the unique and critical roles tribal colleges play in their communities.

The USDA spent \$51 billion in 2001, which is more than one-half of its budget, on food and nutrition assistance programs aimed at improving the nutrition, well-being, and food security for needy Americans. The ERS conducts and funds research and evaluations of these programs—such as the Food Stamp Program, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and child nutrition programs—focusing on the benefits of improved diets and food choices, factors that influence diet and nutrition, and program outcomes.¹

The ERS has more than four decades of experience in providing basic data and cutting-edge economic analysis integral to forming agricultural policy in the United States. ERS research complements the USDA's major strategic goals: a competitive agricultural system, safe food supply, healthy and well-nourished population, harmony between agriculture and the environment, and an enhanced quality of life for rural America.

In 1998, the ERS developed five new small-grants research centers to stimulate new and innovative research on food assistance and nutrition issues and to broaden the participation of scholars in this kind of research. Small grants of a one-year duration ranging from \$20,000 to \$42,000 were funded by the ERS and administered through centers that focus on a specific subgroup of food assistance and nutrition recipients. Selected research themes of the small-grants program include food insecurity and hunger; food assistance, the Food Stamp Program, the National School Lunch Program, and the WIC program nutrition education evaluation; obesity; nutrition and health status; food spending by food assistance participants; the role of private-sector organizations; and the needs of vulnerable populations.

SMALL-GRANTS RESEARCH CENTERS

The University of Arizona's AIS program and its Native Peoples Technical Assistance Office (NPTAO) work with scholars at tribal colleges to support research on the unique issues and problems of Native Americans with respect to food assistance. The program maintains close ties to tribal colleges that were given land-grant status by Congress in 1994. Its Small Grants Program focuses on the relationship between food assistance programs on reservations and family poverty. The Institute for Research on Poverty (IRP) at the University of Wisconsin focuses its research on the effects of food assistance programs on food security, income security, and other indicators of well-being

among low-income individuals and families. The Harris School of Public Policy Studies (HSPPS) at the University of Chicago focuses its research on the interactions between food assistance and other welfare programs, the linkages between the macroeconomy and food assistance, and the level of participation and costs of food assistance programs. The Department of Nutrition at the University of California at Davis focuses on the impact of food assistance programs on nutritional risk indicators, food purchasing practices, and food insecurity. The Southern Rural Development Center (SRDC) at Mississippi State University conducts research on the problems of the rural poor in the South and the effects of welfare reform on this population.

BACKGROUND

According to US Senator John McCain, chairman of the Senate Indian Affairs Committee:

The federal government has continually renege on its trust and moral obligations to meet the educational, health care, and housing needs of Indians. . . . It is time to meaningfully reform American Indian Alaska Native health policy to act in concert with other needed educational and housing reforms to eliminate the egregious disparities in health suffered by Indian people.²

The most recent reform of the welfare system, although a radical change across the United States, was particularly devastating for American Indians who were already at the bottom of every social and economic indicator used to measure success in America. The 2000 census counted nearly 2.4 million American Indian, Eskimos, and Aleuts. Conservative estimates place the Indian population at 4.3 million by 2050. Nearly one-half of this population lives west of the Mississippi River. It is a young population (39 percent under twenty years of age) and nearly two-thirds are married-couple families.

While discussing the significant gains reservation populations have made in the past decade, Taylor and Kalt summarized the current socioeconomic picture:

Real per capita (individual) income of Indians living in Indian country was less than half the U.S. level; real median household income of Indian families was little more than half the U.S. level; Indian unemployment was more than twice the U.S. rate; Indian family poverty was three times the U.S. rate; the share of Indian homes lacking complete plumbing was substantially higher than the U.S. overall level; and the proportion of Indian adults who were college graduates was half the proportion for the U.S. as a whole.³

Economic and health problems continue to confront tribal groups across the country. Native Americans, relative to white Americans, face disadvantages

at each stage of their life spans with persistent disparities in infant mortality, life expectancy, and mortality from a variety of conditions, including chronic disease.⁴ The 2000 census reported that poverty rates for American Indians were the highest of any ethnic group at 25.7 percent, which is more than twice the rate of the rest of the US population.⁵ From 1996 through 1998, the Indian Health Service found that among American Indians, heart disease was 20 percent greater and suicide rates were 91 percent greater than the rest of the US population. From 1991 through 1997, diabetes prevalence increased by 35 percent in American Indians between 15 and 19 years old. Obesity is a major factor contributing to diabetes and is attributed to a western high-fat diet. In 1996, American Indians were 2.8 times more likely to have diabetes than non-Hispanic whites. This number may be higher due to undiagnosed cases.⁶

Reservation communities face countless social, economic, and health challenges. The research presented here documents and provides insights into these challenges and assesses the relationships among health problems, poverty, nutrition, and food assistance needs. There is an ongoing need for continued research in these areas to raise awareness among the American public and, in particular, governmental policy makers.

The special relationship Indian nations (thus, their members) have had with the federal government has historically heightened tensions between sovereign nations and the states, only making welfare reform more complex for Indian people. The basic assumption of the welfare reform movement, that welfare recipients (once off the dole) will end their cycle of dependency and move into the workforce (thus becoming model US citizens), is fraught with faulty thinking, ignorance of the special history and political/legal status of American Indians, and a lack of research information on the impacts of this kind of reform on Indian families on reservations. Indian nations, just as states are now doing, are designing, implementing, and evaluating programs to assist tribal members and families through these changes. It is imperative that research is carried out that addresses the impacts on family poverty and, in particular, policy changes specific to this unique population. Food assistance programs are a major part of the public assistance available to American Indians, and there is a particular need to stimulate research in this area.

THE AMERICAN INDIAN STUDIES SMALL-GRANTS CENTERS

AIS at the University of Arizona is more than a quarter century old and has a distinguished record of scholarly and community development accomplishments. Staff and faculty are currently involved with more than a dozen major educational and community-based economic development projects with Indian nations. The centrality of AIS and related Indian programs to the historical land-grant mission of the University of Arizona cannot be overstated. The state of Arizona contains twenty-one federally recognized reservations with a combined population of nearly a quarter of a million people. Tribal land comprises approximately twenty-five million acres, more than a quarter of the total acreage of Arizona. Arizona is the heart of Indian Country, home to five of the ten most populated reservations in the United States. In this

region, it is virtually impossible to ignore the influence and contributions of indigenous peoples in all aspects of contemporary life.

Since 1998, the authors have been awarded an annual grant from the USDA ERS to facilitate research on the impact of food assistance programs on American Indian reservations. From the outset, our program has focused on developing collaborations with tribal colleges throughout Indian Country. Center staff solicits proposals, administers the selection of projects, and provides technical and research assistance only upon request, allowing the researchers at tribal colleges the opportunity to gain experience in the academic research endeavor. The research projects are designed and implemented by tribal college faculty, staff, and students, and the tribal college teams are given full autonomy in the execution of their projects.

The projects provide a unique opportunity for institutional capacity building, either within the tribal college or in partnerships between 1862 and 1994 land-grant institutions. Projects that provide research-training opportunities for tribal college students or in which tribal college courses are developed in health and nutrition are especially encouraged.

Between 1998 and 2004, thirteen diverse research projects involving twenty separate small-grant awards were funded to tribal communities nationwide. The participants included Chief Dull Knife College, Diné College, Fort Belknap Community College, Fort Peck Tribal Community College, Little Priest Tribal College, Keweenaw Bay Ojibwa Community College, Oglala Lakota College, Si Tanka University, and Tohono O'odham Community College.

RESEARCH SUMMARIES

Chief Dull Knife College

In collaboration with Brigham Young University, Chief Dull Knife College in Lame Deer, Montana, identified ways in which tribal, community, and other agencies might serve Cheyenne families struggling to adapt to new food assistance program requirements and documented the impact of recent food assistance changes on nutritional and socioeconomic well-being. The Northern Cheyenne Reservation is located in southeastern Montana on 447,000 acres of land. Funded from 1998 to 2001, Chief Dull Knife College implemented three consecutive studies.⁷

Although respondents in the first study found food stamps to be important and appreciated having commodities available, the changes in food assistance requirements created hardships. Those problems revolved around following new food stamp guidelines that require paperwork and meeting eligibility requirements. Income guidelines prevented respondents from being eligible if their already low income is not low enough to meet requirements. There are few jobs available and unemployment is high. A lack of transportation to necessary appointments and work and child care needs have contributed to the difficulties in obtaining food stamps. In this isolated rural area, 90 percent of people found transportation to be a problem and some reported that they

had to spend money on gas rather than food. There are few stores available on the reservation, which means less access to fresh fruits and vegetables and higher prices. Residents that could benefit from food stamps are having a difficult time obtaining them and have sought out commodities and emergency food sources at greater rates. Many reported using food banks, obtaining food from family and friends, pawning items, and making extra money by selling beadwork to buy food. One respondent reported, "I bead and sell my beadwork to buy flour, oil, and hamburger," yet "I got cut from food stamps because of this." Respondents also report "begging for flour from other people just to feed my grandkids." These grandkids "go to the summer feeding program, but they still come home hungry," and the grandparents say that "sometimes I don't eat." Additionally, when access to food is present, the high prices often prevent obtaining sufficient amounts to feed their families. The result is that 15 percent of respondents report having to go without meals or reported themselves as hungry.⁸

In the second study, 55 percent of respondents reported that they did not always have enough money to buy food. Therefore, many households are not meeting their food needs. Food security was found to decline with age, and 70 percent of respondents experience food insecurity and 34 percent experience food insecurity with hunger. The first study indicated the significance of stress in the experiences of food program clients; the second qualitative study showed that 73 percent of the 474 participants were found to be at medium to high risk for diabetes. Older respondents were found to be more vulnerable to food insecurity and nutritional risk, and younger respondents were likely to experience diabetes risk and personal stress. The best predictors for diabetes risk include being female and having higher levels of education, high stress, larger numbers of children at home, and higher nutritional risk levels. A rise in diabetes rates was found to correlate with declining access to food stamps and increasing poverty rates.

The third study of seasonal workers and young families found that 36 percent did not have enough money for food and 73 percent reported that their food sometimes or often did not last, and they did not have money to buy more. Seventy percent reported that they had food insecurities. Seasonal workers who cannot find year-round jobs may initially receive financial benefits but can be disqualified from government assistance when unemployed and may not be eligible for unemployment. Similar to other participants in previous studies, seasonal workers and young families tend to rely on their families for support, thus stretching resources very thin. Because of an unsteady income, this group is also the most likely to experience poor nutrition and health problems because of inadequate amounts and quality of foods available.

It can be concluded that the Food Stamp Program and the Commodity Supplemental Food Program are not functioning well for the Northern Cheyenne. There is enormous difficulty in gaining access to service, meeting requirements, and dealing with excessive paperwork, and many families are just not meeting their food needs. Once a self-sufficient hunting and gathering people, the Northern Cheyenne still occasionally supplement their diets

with traditional foods and continue to rely on their families to help with food needs. Suggestions for improvements are meant to help with transportation and child care, improve communication between food assistance providers and community members, identify community needs, reduce the application process, and provide adequate food supplies that are more nutritious. Assistance with food preparation could also be helpful.

Diné College

Diné College (originally Navajo Community College) in Shiprock, New Mexico, in collaboration with the University of New Mexico, conducted a food inventory at rural trading posts and convenience stores across three states: New Mexico, Arizona, and Utah. Its project involved college students in data collection.⁹ On the Navajo (Diné) Reservation, which has 175,000 tribal members and a 56 percent poverty rate, it found that there were a limited number of healthy foods available, and, if they were available, they were expensive and in poor condition. Junk food was among the top items sold in the convenience stores and trading posts, but storeowners said they would make healthy foods available if there was a demand. There has been an increase in the dependency on processed foods rather than the traditional Navajo foods of corn, squash, sheep, and wild plants. The consumption of these packaged foods has led to increases in obesity and diabetes.

Little Priest Tribal College

High rates of obesity and diabetes have prompted researchers at Little Priest Tribal College, Winnebago, Nebraska, to study the commodity food preparation habits of Winnebago tribal members. The Winnebago Reservation is 113,000 acres and is located in Thurston County Nebraska, approximately nineteen miles south of Sioux City, Iowa. The college's study involved interviewing commodity food program managers and conducting case studies of WIC and Head Start Program families.¹⁰ It found that nutrition standards of reservation food service programs were not consistent and not all programs follow the same standards in food preparation or nutrition guidelines. Along with inadequate funding by the USDA Food Distribution Program and the Senior Citizens Program for fresh fruits and vegetables, these issues are thought to lead to obesity and an increase in the risk for diabetes. The researchers recommend better funding by the USDA for fresh foods, consistent nutrition guidelines, nutrition education, and support for using bison meat rather than beef.

Oglala Lakota College

Oglala Lakota College, located on the Pine Ridge Reservation in Kyle, South Dakota, conducted a survey of college students. The college's study found that parents provided the sole source of nutritional information, less than 10 percent of respondents used USDA programs, and respondents were unaware

of healthy living guidelines.¹¹ The life expectancy of those living on the Pine Ridge Reservation is the lowest in the United States. There is a 90 percent unemployment rate, and the reservation is located in the poorest county in the nation.¹² Residents of Pine Ridge are in need of basic nutrition information to address these concerns. Economic management of family resources is needed, and community outreach efforts are needed to increase understanding of the USDA food pyramid.

Si Tanka University

Another research project among the Lakota took place on the Cheyenne River Reservation. Si Tanka University (formerly known as Cheyenne River Community College) located in Eagle Butte, South Dakota, conducted a study that examined attitudes toward household nutritional choices, knowledge of diabetes and its prevention, and motivations for dietary change.¹³ The random sample of 216 households indicated an insufficient intake of essential vitamins. Approximately half of the participants failed to achieve their daily calcium intake, and failed to eat sufficient quantities of fruits and vegetables. Only 34 percent met the USDA food pyramid standard for fruit consumption and that was primarily with fruit juice. Respondents reported eating a great deal of high-fat foods and sweetened beverages, engaged in little exercise, and rarely consumed traditional foods such as wild game, wild plums, and dried corn. In this community of 5,092 tribal members, in which almost 40 percent of the children ages six to eleven are obese, nutrition and weight control programs that address barriers to eating healthy foods are needed. The study found that barriers to eating healthy foods include higher cost and unpopularity. Respondents also reported that exercise is time consuming and sometimes prohibited by medical reasons. Cooking and food-preservation classes that include parents and children can also help to promote healthy lifestyles.

Tohono O'odham Community College

The place where diabetes rates are the highest in the world is located on the Tohono O'odham Reservation (formerly known as Papago). Situated in the Sonoran desert, sixty miles west of Tucson, Arizona, the reservation encompasses approximately 4,600 square miles. Fourteen thousand of the tribe's twenty thousand members live on the reservation, and more than 50 percent of Tohono O'odham adults suffer from Type II (adult onset) diabetes. The Tohono O'odham Community College (TOCC) in Sells, Arizona, is investigating unique ways of addressing this problem. For this research, TOCC collaborated with Tohono O'odham Community Action (TOCA), an independent grassroots organization dedicated to working toward building a sustainable community. Three consecutive studies were funded from 2000 to 2002.¹⁴

Several themes emerged from conducting interviews as part of the first research project in 2000. Although food assistance programs are viewed in a positive light, there is also a sense that these programs have contributed to the

decline in the traditional food system resulting in 100 percent food dependency (a stark change from 100 percent food self-sufficiency). Decreasing this dependency through economic development and/or the stimulation of food systems is needed to help the community achieve greater self-sufficiency. A desire for community-specific nutritional educational resources was found, as was a need for increased access to traditional foods. An important point is that when the Tohono O'odham receive a small per capita dividend (\$2,000) every two years, many recipients become ineligible for food assistance. This small dividend is not sufficient for long-term planning and, once spent, people return to receiving food assistance.

Building upon the first study, the second research project surveyed community members about traditional food production and consumption and the attitudes of federal food aid recipients toward traditional foods. Results of the study showed a high demand for traditional foods (more than 95 percent would like to eat traditional foods often or sometimes) and educational programs on how to cook, harvest, and produce traditional foods such as saguaro fruit, cholla buds, and tepary beans. Interestingly, 76 percent of food stamp recipients would purchase traditional foods with food stamps if they were readily available. Respondents would also like traditional foods included with commodity packages. Obstacles to consuming traditional foods include preparation time and lack of availability. The results of this study point to the need for infrastructure development through educational programs, technical assistance, financial support, and equipment cooperatives. Developing markets for traditional foods is also necessary. Making traditional foods available is not sufficient enough. There is a need to increase community knowledge about traditional food production, processing, and preparation.

According to the researchers at TOCC, addressing the diabetes epidemic within the Tohono O'odham community requires health incentives and economic and cultural incentives that motivate people to make better choices. The third research project pointed to the need to increase community knowledge about the effectiveness of traditional foods at preventing and managing diabetes. Food assistance and nutrition programs in Native American communities have encouraged dependency in what was previously a self-sufficient sustainable system of traditional foods. On the Tohono O'odham Reservation, where almost 42 percent of households live below poverty level, new economic programs can help individuals, families, and communities create greater self-sufficiency and develop a strong food system infrastructure. Traditional foods and culturally appropriate nutrition education could also lead to diabetes prevention. Although the local Indian Health Service Hospital has agreed to purchase traditional foods for patient meals, additional federal investment is needed. The reservation is five million acres, and many residents live in extreme isolation and rely on local stores for food needs. Other markets for traditional foods include schools, senior centers, local grocery stores, and other markets extending beyond the reservation including gift shops, upscale grocery stores, and restaurants in nearby Tucson.

Drawing from these research studies, TOCC and TOCA make several recommendations for federal action in supporting diabetes prevention. They

suggest that any action must encourage self-sufficiency through new innovative and effective programs that consider unique cultural aspects of various Native communities. Also, they recommend that food distribution programs purchase local traditional foods of nutritional value, a community-based diabetes prevention and treatment program be created, nonprofit organizations be allowed to compete for federal grants, and Congress allocate funds in order to waive the matching requirements for the WIC Farmers Market Nutrition Program. Other recommendations include developing a competitive grants program for Native American community foods projects and mandating and appropriating funds to Indian Health Service hospitals to purchase traditional foods.

Keweenaw Bay Ojibwa Community College

Located at the southern shore of Lake Superior, Keweenaw Bay Ojibwa Community College, in Baraga, Michigan, surveyed elders and local food service providers to assess food consumed and served on the L'Anse Indian Reservation. The enrollment of the tribe is 3,459 members, with nine hundred living on the 54,000-acre reservation. The college's research project examined ways to incorporate traditional nutrition practices of the Ojibwa within nutrition education.¹⁵ Similar to the Tohono O'odham and the Navajo, traditional foods would be utilized if available, but traditional foods are difficult for elders to access because of their physical limitations. They have to rely on others and often end up eating packaged foods. The college is developing a nutrition education program to encourage tribal members to make healthy choices and to encourage youth to study nutrition in higher education.

Fort Belknap College

As this tribal college research shows, Native American populations have gravitated toward fast food and processed goods along with the general population and have moved away from traditional diets. Fort Belknap College, in Harlem, Montana, documented and demonstrated the preparation of traditional foods and described the history and impact of federal food programs on the traditional diets of reservation residents. The college's study conducted surveys and interviews with adults.¹⁶ There are approximately 2,129 Assiniboine (the northernmost group of Yankton Sioux) and 3,309 Gros Ventre (the northernmost group of Arapaho) with 50 percent of enrolled members living on the reservation. In this community, 45 percent of tribal members live below the poverty level. Even so, tribal elders may not be eligible for food programs because of USDA regulations on income limits. Some elders who receive small benefits through social security, for example, may exceed limits and are ineligible for assistance.

Similar to other tribes, the Assiniboine and Gros Ventre have moved from traditional foods such as buffalo, wild turnip, and June berries to store-bought goods. Established in 1855 and encompassing 737,714 acres, the reservation is located in north central Montana, close to the Canadian border. There is

little hunting of wild game despite increases in deer, elk, and antelope populations. This, however, is partially due to the fact that traditional hunting sites are located off the reservation. The Bureau of Indian Affairs (BIA) made repeated attempts to make tribes into farmers despite traditional beliefs against farming among the Gros Ventre and Assiniboine. Tribes have also received commodity rations through treaty provisions for more than one hundred years. These factors have greatly affected the dietary intake among reservation residents. Efforts at bringing back traditional foods have been met with some success. Reintroduction of bison occurred in the early 1970s; some bison are used for ceremonies, and there is hope to develop the bison enterprise as an alternative to beef. There still remains a need for elders and younger generations to share traditional methods of food preparation by teaching traditional practices.

Fort Peck Community College

Fort Peck Community College, located in Poplar, Montana, is home to the Fort Peck Assiniboine and Sioux tribes. The reservation is located in the corner of northeast Montana and encompasses approximately 3,200 square miles with the Missouri River as the southern boundary. There are approximately six thousand tribal members living on or near the reservation. Consistent with other American Indian reservations, Fort Peck also has high rates of diabetes. This study contends that in 1999 there were 824 adult diabetics on the Fort Peck Indian Reservation.¹⁷ By 2004, more than one thousand adults had Type I or Type II diabetes. Most of those adults are Type II diabetics. Poverty and food insecurity are also prevalent on the reservation. The Fort Peck Community College Wellness Center found that 87 percent of the adults it surveyed had cut the size of their meals or skipped meals because they could not afford to buy food and 82 percent cut the size of their children's meals. Another 90 percent of those children skipped a meal because there was not enough money for food.

The Fort Peck Community College's Nutrition Project and Wellness Center provides a nutrition resource center aimed at increasing awareness and providing opportunities to practice healthy lifestyles in order to prevent and treat diabetes-related health problems. Researchers at Fort Peck Community College have focused on diabetes prevention through after-school educational programs based on nutrition, health, and fitness. Students in kindergarten through eighth grade participate in learning about nutrition, food selection, label reading, nutritional habits, and exercise. This research project also aimed to increase awareness of nutrition and healthy lifestyles through health fairs. Participants learned how to make better food choices and engaged in exercise activities. Healthy cooking presentations were also held for community members and included the use and preparation of USDA commodity foods. Finally, this research project recruited families and attempted to improve their nutritional and physical health habits with the use of the college's wellness center, and other families participated in shopping trips designed to compare costs of nutritious versus junk foods. Initially choosing junk foods, these families

learned the importance of meal planning, label reading, and budgeting through participation in the project's educational programs.

IMPACTS AND IMPLICATIONS FOR 1994 LAND-GRANT INSTITUTIONS

After a hard-fought two-year campaign, the twenty-nine tribal colleges that comprised the American Indian Higher Education Consortium (AIHEC) received land-grant status in October of 1994. Later that year, the National Association of State Universities and Land Grant Colleges admitted AIHEC as a member of its Council of Presidents, which elevated its status as a member of the nation's oldest higher education association. The benefits of land-grant status are significant. In addition to earlier tribal college funding legislation, including the Indian Education Act of 1972, the Elementary and Secondary Education Reauthorization Act of 1994 authorized a \$23 million endowment for the tribal colleges that now receive a continuous annuity from the fund. Additionally, AIHEC members are the beneficiaries of a \$1.7 million grant program for agriculture and natural resource program development and \$50,000 per year, per college, to assist with higher education programs in agriculture and natural resources. Finally, legislation provided \$5 million to 1862 land-grant institutions in states that also have tribal colleges, under a mandate that partnerships be formed in establishing joint agricultural extension programs focused on the needs of the Native American institutions *as identified by the tribal colleges*. By 2000, as tribal college program capacities strengthened, that funding was redirected to the tribal colleges.

In 2006, there are now thirty-three members of the AIHEC consortium, indicating a growing trend in the interest in and intent of establishing additional tribal colleges in Native communities across the nation. This trend is recognized as a significant and positive movement by tribal nations in asserting sovereignty and taking the lead in the education of Native youth. However, with this growth in the number of tribal colleges, the original funding amount available to support each institution has remained fixed, placing the burden on each institution to seek additional sources of revenue to support ongoing activities. The AIS Small Grants Research Program has been a significant factor in helping to offset at least some of this financial strain. Funding from our program has supplemented tribal college faculty salaries; provided funding for operations to support additional course offerings in nutrition research, education, and traditional foods; and provided stipends for student research assistantships, where research opportunities engaging tribal college students, faculty, and staff would not exist otherwise.

The threefold mission of all land-grant institutions is to engage in teaching, research, and service through extension education. However, we found that although tribal colleges are well prepared for academics and outreach, the AIS Small Grants Research Program provided a first opportunity for some of the tribal colleges to participate in an organized, scholarly research endeavor. One of the first projects funded was the "Assessment of Food Concerns, Nutrition Knowledge, and Food Security of Oglala Lakota College Students on the Pine Ridge Reservation." We were impressed by the

design of this project because it incorporated a fundamental component of the AIS Small Grants Research Program's mission to assist in the development of tribal college research capacities in both faculty and students. Further, the project placed a great value on this research opportunity by emphasizing that the students involved in the project are the future leaders of the Oglala Lakota Nation. Today, the college's Agriculture and Natural Resources Department incorporates research training as a fundamental component in its mission.

Diné College on the Navajo Reservation was the first tribal college established in the country (1969) and set the precedent for tribally controlled community colleges. Today, Diné College has eight community campuses across its 26,000-square-mile reservation. Each community campus has developed its programs' strengths and priorities based on the needs of the communities each serves combined with the special characteristics of its faculty. The Shiprock campus is widely respected for its strengths in scientific research involving faculty and students and was a natural choice for the AIS Small Grants Research Program. In "The Variety, Affordability, and Availability of Healthful Foods at Convenience Stores and Trading Posts on the Navajo Reservation" study, three Diné College students were trained to develop an inventory of the different sources for purchasing food and to conduct surveys to determine the variety of foods available at trading posts and convenience stores. An element of the research focused on the fact that a shift in dietary patterns from reliance on traditional foods including corn, squash, wild plants, and berries throughout the past fifty years to increasing dependence on refined, processed, and nutrient-poor foods has resulted in the rapidly increasing rates of obesity and diabetes now seen in Navajo people. Since this research project was completed in 1999, the Shiprock campus has established the Southwest Diabetes Prevention Center. The goals of the program are to eradicate diabetes through a multidisciplinary collaborative partnership that includes elements of preventative research in its overall design. To that end, Diné College has implemented an intensive ten-week model Summer Research Enhancement Program that allows Diné College students to gain skills and develop interest in diabetes prevention research. Some of the student internship sites include campuses of tribal colleges that also have participated in the AIS Small Grants Research Program. These include Little Priest Tribal College, Fort Peck Community College Wellness Center, and Chief Dull Knife College.

Chief Dull Knife College participated in the small grants program for four successive funding cycles. It produced, arguably, the most extensive and well-developed body of research and policy analysis in our entire collection. Each year's research built upon and complemented the previous year's findings. The project was greatly enhanced by its collaboration with faculty from Brigham Young University. The co-principal investigator from Brigham Young had spent more than fifteen years on the Northern Cheyenne Reservation, first as a consultant to the tribal college and later serving as a member of the faculty. This depth of knowledge of and experience with the complex social, political, and economic issues particular to the Northern Cheyenne proved invaluable in shaping the course of the research. The project might have continued indefinitely were it not for the fact that the AIS program felt the

need to shift its attention to allow other projects the opportunity for development. The project stands as a model for other programs to emulate in that it implemented major elements suggested by the AIS Small Grants Research Program, including collaboration with a research university and inclusion of tribal college students in the research process. The participating students were invited to present their findings at the annual conference held at ERS headquarters in Washington, DC. Chief Dull Knife College faculty also met with federal, state, and local policy makers throughout the life of the project to make their findings known to a wider constituency.

Tohono O'odham Community College is one of the newest members of the AIHEC system. Our partnership with TOCC began in 2000, and the college participated in the small grants program for three consecutive years. Funding for the project was utilized to create a course offering in Tohono O'odham Food Systems and provided incentive for the college's first collaboration with TOCA. The results of a food systems survey conducted during the course of the research was utilized by TOCA to obtain a major grant from the Ford Foundation. After a two-year hiatus, TOCC and TOCA are participating in the small grants program again. Their research project this year is a community-based health intervention program. Ten Tohono O'odham households have been selected to participate in a community-based clinical trial to examine the nutritional impacts of including Tohono O'odham traditional foods in their diets. The results of this study are anticipated to have relevant implications for other Native communities interested in the potential health effects and contributions to cultural revitalization from the return to traditional foods as dietary staples.

SUMMARY

Almost all tribal colleges report poverty as a major factor in food insecurity, nutritional deficiencies, and hunger. This research shows that the lack of knowledge regarding healthy eating habits, high prices of healthy foods, and the inaccessibility of traditional foods are also contributing factors. Among the Northern Cheyenne, poverty and the high prices of food prevent families from receiving sufficient nutrition, which in turn leads to diabetes. These studies found that a decline in food stamp use was attributed to difficulties in filling out excessive paperwork and ineligibility. The elderly and children are at a greater risk. Diné College found that healthy foods are either unavailable or are expensive and in poor condition among the Navajo. There is also little demand for healthy food at convenience stores and trading posts. Stores would make them available if there were such demands. Little Priest Tribal College found that among the Winnebago, inadequate funding and inconsistencies in nutrition guidelines and standards lead to obesity and diabetes. Respondents on the Pine Ridge Reservation are also unaware of nutrition guidelines, thus prompting a need for community outreach efforts. Si Tanka University found that there is an insufficient intake of essential vitamins and a reliance on the consumption of high-fat foods on the Cheyenne River Reservation. Similar to Diné College's findings, healthy foods are seen as unpopular. In sharp contrast, the Tohono O'odham, who have the highest rates of diabetes among

American Indian tribes, have a high demand for healthy traditional foods. TOCC found that basic nutritional knowledge of these traditional foods is needed. Traditional foods have health benefits that could help decrease diabetes and obesity rates. This research also points to the economic possibilities of developing markets for traditional foods. Keweenaw Bay Ojibwa Community College also found that respondents would utilize traditional foods if available. The Gros Ventre and Assiniboine also have moved away from traditional diets as access to traditional foods such as wild game are limited. Nutrition and healthy lifestyles educational programs at Fort Peck Community College are designed for diabetes prevention and treatment.

Because of its long-standing and far-reaching presence in Indian Country, the University of Arizona's AIS program was a natural choice in the development of a USDA ERS-sponsored research center that would focus on the unique challenges confronted by Native Americans with respect to food assistance programs. From the commencement of the program in 1998, AIS has looked beyond merely facilitating a series of research projects. The program has worked in partnership with tribal colleges across the country to assist in research capacity building; developed new or enhanced college courses in traditional foods, health, and nutrition; and provided guidance in faculty and student professional development. The collection developed through this small grants program is a valuable body of nutrition-related research now available to scholars and policy makers that was not accessible prior to our work with tribal communities. Perhaps more importantly, these materials can inform tribal leaders who are striving to meet the modern challenges imposed by the ravages of generations of ill-informed federal Indian policy effectively.

NOTES

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