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A Stream Is Always Giving Life: Communities Reclaim Native Science and Traditional Ways to Prevent Diabetes and Promote Health

*Dawn Satterfield, Lemyra DeBruyn, Carolee Dodge Francis,
and Aiko Allen*

TYPE 2 DIABETES ACROSS THE COUNTRY—A STARTLING STORY

The story of diabetes began in ancient times and is unfolding into a modern-day global dilemma. *The Egyptian Papers of the Dead* (about 1500 BC) documented a rare condition, now known as type 2 diabetes mellitus, that tended to occur among well-fed aristocratic peoples.¹ From 1959 to 2010, the United States witnessed an exponential increase in type 2 diabetes. Less than 1 percent of the population had been diagnosed with diabetes in the 1950s, whereas in 2010 the rate of diagnosed diabetes was 8.3 percent. Today approximately 26 million Americans over the age of twenty now live with diabetes, according to the Centers for Disease Control and Prevention (CDC), including seven million who have not yet been diagnosed with the disease.² In 2011, the CDC projected that if current trends continue, as many as one in three US adults could have diabetes by 2050.³

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In stark contrast to ancient times, the heaviest burden of diabetes and its complications is now shouldered by people who live in areas of economic depression⁴ with earning potential further limited by lower educational levels.⁵

When Congress responded to the diabetes epidemic in Indian Country through the Balanced Budget Amendment of 1997, tribal leaders guided federal agencies to honor traditional knowledge about health and the call for self-determination. Because diabetes had been rare only decades before, the need for enduring stories to teach American Indian youth about traditional ways of health and preventing type 2 diabetes echoed throughout listening sessions with tribal leaders and representatives. Today, tribal communities from coast to coast are working tirelessly toward a vision of wellness that includes preventing diabetes and its complications among their people, shored by federal funding of the Special Diabetes Programs for Indians (SDPI) and by scientific and administrative support from the Indian Health Service (IHS).

This article describes a number of dynamic, tribally driven efforts that draw on traditional ecological knowledge (TEK), a natural science grounded in lifetimes of intimate daily observation, habitation, and experience.⁶ Often marginalized or ignored by non-Indian providers, TEK can be described as a part of the “cultural capital” of American Indians/Alaska Natives. Cultural capital is a term coined by Bourdieu to describe a people’s symbolic and informational resources.⁷ It embraces resources such as values such as generosity, gratitude, teaching of young, and balance, knowing how to approach and speak with other members properly, and traditional knowledge. These resources can be instrumental in matters of personal health and community health action. When cultural capital is repressed or not acknowledged, Thomas Abel contends, health disparities in the group tend to rise.⁸

“If you don’t share it, it will spoil. Like water that stays, it will become stale. But a stream is always giving life,” an elder said, speaking about generosity and traditional knowledge as the joint tribal and federal agency efforts began. The river of stories is rife with diversity and exchange, inspiring innovations and adaptations in communities that are restoring the peoples’ health.

DIABETES AMONG AMERICAN INDIANS AND ALASKA NATIVES

Prior to the 1950s, diabetes was rare among American Indians and Alaska Native people.⁹ Many elders remember a time when there was no word for diabetes in their language because the disease was almost unknown. As diabetes became more common among American Indians, names were delineated by some tribes to describe diabetes. For example, a word pronounced *SKOO yah wahzonkah*, which links words for “sick” and “sweet,” can be found in a Dakota dictionary published in 1976.¹⁰

The incidence and prevalence of diabetes among tribes varies geographically, but health indicators note an increasing trend in most communities. In 1940, only twenty-one cases of diabetes were reported among the Akimel O'odham people (Pima) living in the Sonoran Desert on the Gila River.¹¹ In 2006, 38 percent of adults twenty years of age or older had type 2 diabetes.¹² Until 1943 diabetes was undocumented among American Indian adults in the Plains.¹³ However, by 2000, the rate of diagnosed diabetes for these tribes was almost four times the rate for non-Hispanic whites.¹⁴ No cases of diabetes were reported among the Navajo until the 1960s, whereas in 2001, one in 359 Navajo youth aged fifteen to nineteen years had diabetes and one in 2,542 developed diabetes annually.¹⁵ Across the country, American Indian and Alaska Native adults are twice as likely to have diagnosed diabetes as non-Hispanic whites (16.1 percent vs. 7.1 percent).¹⁶

TYPE 2 DIABETES IN YOUTH

The alarming phenomenon of type 2 diabetes in youth has emerged as a serious concern for populations around the world. From 1994 to 2004, the age-adjusted rates of diagnosed diabetes doubled for American Indian and Alaska Native people under thirty-five years of age, from 8.5 per one thousand population in 1994 to 17.1 per one thousand in 2004.¹⁷ In the CDC- and NIH-led SEARCH study, in which 5.5 million youth are under surveillance to identify the incidence (new onset) and prevalence (existing cases) of diabetes, type 2 diabetes among children less than ten years old was found to be rare, although children with type 1 diabetes, in which insulin is required for survival, may be diagnosed at very early ages.¹⁸ Children who develop type 2 diabetes are typically overweight and have a family history of the disease. Most are American Indian, African American, Asian, or Hispanic/Latino.¹⁹ The sad truth is that, for young people who develop type 2 diabetes, there are more years during which their organs are exposed to high glucose levels, which increases their risk for complications while they are still young adults, including ESRD.²⁰

WEB OF CAUSATION IN TYPE 2 DIABETES: THICK AND DEEP

Obesity²¹ and physical inactivity²² are powerful predictors for type 2 diabetes. Whereas in 1996 no states had obesity prevalence rates greater than 20 percent, by 2010 *every* state reported an obesity prevalence rate greater than 20 percent.²³ As childhood obesity has increased, so has the increase in diagnosed cases of type 2 diabetes in youth. In 2008 approximately 17 percent of children and adolescents ages 2–19 years were obese.²⁴ Obesity is also a serious

problem among American Indian/Alaska Native children; almost 21 percent of children ages 2 to 4 years are obese.²⁵

Diabetes during pregnancy is also an important risk factor for both obesity and diabetes. The intrauterine environment of a mother with diabetes during pregnancy, either gestational diabetes or preexisting uncontrolled diabetes, can predispose her offspring to develop type 2 diabetes later in life, thus creating a “vicious cycle of diabetes” over generations.²⁶

WEB OF CAUSATION: SOCIAL DETERMINANTS OF HEALTH

In discussing factors that influence increasing rates of type 2 diabetes, however, one must consider context and history. For diseases such as diabetes, attention to the social history is as important as learning the natural history.²⁷ The field of epidemiology employs the “web of causation” metaphor to remind students about the multiple diverse causal pathways to disease, which are intersected by specific biological risk factors. Nancy Krieger notes the limitations of the “web” metaphor to illustrate the varying strength, or “thickness,” of those risk factors that play a larger role in causality and that become of greater significance as they interact dynamically with other nonbiological risk factors.²⁸ In recent times these factors are referred to as the social determinants of health.²⁹ Howard Koh described social determinants as a “complex constellation of many dimensions,” adding that assessment must begin to advance beyond the influence of biology “so that we can begin to measure what is ultimate, not just what is important.”³⁰

Efforts are beginning to connect social determinants of health with type 2 diabetes. For example, *Addressing Child Hunger and Obesity in Indian Country*, a report submitted by the United States Department of Agriculture to Congress, cites 2010 US Census Bureau data showing that approximately 24 percent of American Indians live below the poverty line.³¹ This report linked type 2 diabetes to economic determinants such as poverty, unemployment, low education levels, and geographic isolation.³² Poverty is also a key factor in food insecurity, a common situation found on many reservations where “food deserts” are prevalent. As defined in the 2008 Farm Bill, a food desert is “an area in the United States with limited access to affordable and nutritious food, particularly such an area composed of predominantly lower-income neighborhoods and communities” (Title VI, Sec. 7527).³³

Adverse childhood events (ACE), such as alcoholism in parents or grandparents or physical or sexual abuse, are also social determinants that contribute to poor outcomes. The association between the experience of ACEs and obesity in youth has been documented, as well as the link between ACEs and

learning/behavioral problems in urban youth.³⁴ Adverse childhood events have also been linked to obesity³⁵ and poor health outcomes³⁶ in adults.

Felicia Hodge and Karobi Nandy learned that perceptions of wellness by American Indian adults varied depending on an individual's experience of adverse childhood events.³⁷ These authors found a positive association between personal state of wellness and cultural connectivity (for example, speaking tribal language, participation in traditional practices, and feeling of connectedness to community). Cultural factors that are protective of health, such as identity attitudes, enculturation, spiritual coping, and traditional health practice, are described by Karena L. Walters and Jane M. Simoni as cultural buffers that can serve as potential mediators or moderators of stressful and traumatic life events.³⁸ Cultural values and attitudes are important resources embedded in cultural capital that may be used by individuals and groups to promote health and disease prevention.

WEB OF CAUSATION: PERCEPTIONS ABOUT DIABETES

Diabetes is still viewed by many Native people as a "new" disease, another in a string of threats introduced by the dominant culture.³⁹ For example, diabetes is referred to by some as a "white man's sickness"⁴⁰ requiring "white man's medicine."⁴¹ These perceptions align with universal indigenous healing concepts of the dichotomous origins of illness either as natural or disharmonizing internal forces and personal choices, or unnatural, external forces imposed from the outside.⁴² Diabetes is considered to be an "unnatural" disorder,⁴³ with its etiology and mounting burden rooted in the hegemony of colonization.⁴⁴ In interviews with Navajo people with diabetes, Kathleen Huttlinger and colleagues noted the difficulty people had integrating the concept of living with diabetes into their daily lives while maintaining an integral belief in the importance of harmony and balance.⁴⁵

Women elders from several Plains tribes also attributed diabetes and related conditions, in part, to external forces beyond their control, such as being relocated to reservations, the loss of land and culture caused by flooding when dams were built, oppression, returning war veterans introducing cigarettes and alcohol to young tribal members, and recent societal influences. They described internal factors that contribute to health problems such as diabetes, including personal choices, less regard for values including gratitude and respect, and mothers not maintaining healthy ways of feeding children.⁴⁶

Several elders described the grief of students forced to be away from home to attend boarding schools. Compounding the isolation from their families, students were trained in habits that were at odds with their cultural values.

Several elders noted the scarcity of food and one lamented, “they taught us to be stingy.” The elders linked such traits with food insecurity, and some linked this with current obesity and related health problems. The elders highlighted their tribe’s traditional values of teaching young people generosity, fortitude, and gratitude for the Creator’s gifts, including land and foods to harvest. The gift of water, “*mni*,” was noted by several Lakota and Dakota elders, who added, “water is life.” The land, *makece*, is also central to health. Though reduced and damaged, “the land is always good,” said a Dakota elder.⁴⁷

WEB OF CAUSATION: THE LINK BETWEEN LAND AND HEALTH

The disruption of Native peoples’ relationships with their homelands in the context of health and diabetes outcomes⁴⁸ is a social determinant of health that has received little attention.⁴⁹ Michael Bird, former president of the American Public Health Association, contends that the losses experienced by indigenous peoples through forced dispossession of the lands, cultures, and languages are at the root of health disparities.⁵⁰ This perspective can be appreciated by looking at relatively recent history of a number of tribal lands.

Until the 1940s and 1950s, most Native Americans farmed, hunted, or fished on their own land.⁵¹ A low-fat, high-fiber, high-carbohydrate diet based on traditional foods was combined with a physically demanding life.⁵² After World War II, the country’s industries and technology grew and increasing numbers of women entered the workforce, spurring a general shift from home baking to commercially produced wheat products.⁵³ In the decades immediately following World War II, many American Indians were relocated to urban settings.⁵⁴ One hundred and nine tribes and bands lost their federal recognition.⁵⁵

The government distributed surplus foods (commodities) to Native families living on allotted reservation lands with high unemployment and poverty. These were intended to substitute for loss of land and of traditional food sources such as bison until agricultural production was sustained.⁵⁶ For many, these foods became staples of survival, requiring resourceful cooking to stay hunger, as in the case of fry bread from lard and flour.⁵⁷

For many tribal nations, the amount of fertile land for growing and hunting traditional foods continued to shrink as industrial development escalated, reducing both the access to local foods and curtailing the physical activity associated with hunting, gathering, and growing foods.⁵⁸ For example, the Akimel O’odham, known as the river people, farmed productive farmland for centuries in south central Arizona using a sophisticated irrigation system that channeled water from the Gila River. By the 1950s this farmland was said to be “reduced to dirt and wind” after the river water was diverted by the construction of the

Coolidge Dam and upstream use by ranchers.⁵⁹ Losses included traditional foods such as the protein-rich, drought-hardy tepary beans and prickly pear cactus.⁶⁰

Two studies among Akimel O’odham that were reported in 1990⁶¹ and in 2001⁶² suggest that those who consumed a traditional diet were less likely to develop type 2 diabetes than those with an Anglo or mixed diet. A study contrasting diabetes prevalence among Akimel O’odham people living in Arizona and those residing in the Sierra Madres in Mexico documented that the diabetes rate among the people living in Arizona (about 38 percent) was 5.5 times higher than that among the people living in Mexico (6.9 percent), where they continue to farm and grow most of their own food.⁶³

The reduction of land for gathering and harvesting, and the resulting change from a traditional to a more western diet, has occurred on other reservations as well.⁶⁴ For example, the home of the Three Affiliated Tribes of the Mandan, Hitatsa, and Arikara and the rich bottomlands of the Fort Berthold Reservation were flooded as the Corps of Engineers made way for the Garrison Dam in the late 1940s.⁶⁵ Prime agricultural lands and homes were covered on the Standing Rock Nation with the building of the Oahe Reservoir, also requiring that a quarter of the population move from their homes to higher ground.⁶⁶

Kibbe Conti, an Oglala Lakota and a dietitian, notes that such loss of land bases, plants, animal herds, fish/shellfish, and traditional water systems across the country has devastated traditional American Indian food systems.⁶⁷ To regain or restore some of these traditional foods, many tribes are advocating for food sovereignty, the right of peoples to define their own policies and strategies for sustainable production, distribution, and consumption of food, with respect for their own cultures and systems of management of natural resources and rural areas, as defined by the International Indian Treaty Council.⁶⁸ Such principles are seen as a precondition for ensuring food security and for accessing adequate safe and nutritious food essential to maintaining a healthy and active life.

The connections to the land are perceived to be spiritual and physical, embracing belongingness, gratitude and reciprocity, and generativity.⁶⁹ Native scholar Vine Deloria commented that “American Indians hold their lands—places—as having the highest possible meaning, and all their statements are made with this reference point in mind.”⁷⁰ Ron LaFrance, an Iroquois traditionalist, added, “As Native American peoples, we come from land-based cultures. Our identities and well-being are intricately linked to our lands . . . In our culture, even today, to work with the land, with our Mother Earth, is among the most honorable of activities.”⁷¹

WORDS HAVE POWER

At the heart of the oral tradition shared by American Indian and Alaska Natives is a deep belief in the power of words to affect people and empower visions for the future.^{72,73} Because of respect for the power of both words and silence, language is considered sacred and is to be used in ways that count for good. Words are to be taken seriously and to be remembered. An economical, lean, and often tentative narrative manner is common to many Native North American speakers, notes N. Scott Momaday, stating that this is perhaps because the risk of loss is constant and language is never to be taken for granted:⁷⁴

A song, or a prayer, or a story, is always but one generation removed from extinction. By the same token the storyteller . . . who takes it upon himself to speak assumes the responsibility of speaking well, of making his words count.⁷⁵

The oral tradition narrative is still the main way in which human cultural knowledge is conveyed today, notes Simon Ortiz, who adds:

Story speaks for you. Story speaks for me. Simply put, story speaks for us. There is no other way to say it. That's a basic and primary and essential concept. Story has its own power, and the language of story is that power. We are within it, and we are empowered by it. We exist because of it. We don't exist without that power. As human beings, we as personal and social cultural entities are conscious beings because of story, no other reason.⁷⁶

Stories can help people to find meaning in their suffering as they organize their experiences and connect them to healing.⁷⁷ Stories are indirect and non-threatening, capable of imparting a memorable lesson that can enable the listener to adapt to new conditions in an acceptable, even playful, way.⁷⁸

Stories also provide an inviting platform for exchange of ideas. For example, post-intervention analysis from pilots of the "Strong in Body and Spirit" curriculum demonstrated that, when a story was read at the beginning of a program session, participants almost immediately began to share fears and concerns and seek solutions to living with diabetes.⁷⁹ "It was as though the walls of guilt, fear, anger, and denial came down and people had new hope," wrote Carter and colleagues.⁸⁰ Traditional tribal healers may use stories in songs and prayers as well, highlighting the positive effect of medicines chosen for a person.⁸¹ The central place of stories is highlighted by Leslie Marmon Silko, "Don't be fooled—stories aren't just for entertainment. They are all we have . . . to fight off illness and death. You don't have anything if you don't have the stories."⁸²

Storytellers often bring to life clever characters or tricksters such as Coyote, Rabbit, and Raven to weave messages of survival, transformation, natural reason, and liberation into the plot, safely allowing listeners to learn while

laughing at antics that mirror their own vulnerabilities.⁸³ Trickster tales are value-laden sources of cultural capital in many indigenous communities that have been marginalized. Tricksters are typically spirited, undefeated characters who adapt to change.⁸⁴

TRADITIONAL ECOLOGICAL KNOWLEDGE

Storytelling that honors traditional values can represent a powerful communication strategy called internalization. Internalization influences the adoption of health actions because they are consistent with existing personal and cultural values.⁸⁵ Today in American Indian and Alaska Native communities across the continent, stories are told that honor the lives of community members who work for their families and communities to prevent or care for diabetes. In this context, stories are a form of cultural capital that can be tapped to empower people by reconnecting them to their traditions.

The collection and documentation of indigenous knowledge and technologies, referred to as “memory banking” by Virginia Nazarea, is often reinforced by stories that have survived.⁸⁶ The knowledge learned and gained becomes integrated into the group’s cultural capital, providing important guidelines for dealing with change and/or helping to resolve problems. Traditional knowledge is described by the Alaska Native Science Commission as: (1) practical common sense based on teachings and experience passed on from generation to generation; (2) “knowing the country,” including knowledge of the environment and interrelationships; (3) holistic, rooted in the spiritual health, culture, and language of the people; (4) an authority system setting out the rules that govern the use of resources, including respect and sharing; (5) a way of life that uses the head and the heart together with the spirit to help the people to survive; and (6) a resource that gives credibility to the people.⁸⁷

Nazarea suggests that TEK may be one of the most significant reservoirs of adaptive ability, and the survival of the world’s peoples may depend on its preservation.⁸⁸ Hunn asserts that TEK is “a blueprint for a way of life that has survived,” but cautions that this knowledge, which is a form of cultural capital, is fragile because it is local knowledge and often not valued by Western systems.⁸⁹ In the context of health promotion and disease prevention, some observers assume that local knowledge as a resource has been made obsolete by overreliance on biomedical science, especially in identifying causes and treatments of illnesses. This is particularly a problem with diabetes. For example, Jennie Joe and Robert Young⁹⁰ cite the observations of medical anthropologists M. L. Urdaneta and R. Krehbiel that an obstruction to understanding diabetes

has been the narrow focus of many researchers, although the disease “fails to yield to the fine, precise, dissecting lens of modern medical science.”⁹¹

Respecting and protecting traditional ecological knowledge may be one of the most effective ways to prevent the tidal wave of diabetes across the globe. This “long view”⁹² on diabetes prevention seeks to promote health for future generations by focusing on children, creating enduring stories, and reclaiming traditional ways of health, including foods and activities. Built on consultation with tribal leaders who encouraged federal agencies to honor traditional ecological knowledge, a “river of hope” provides a context for the description of several programs that have drawn keen interest in Indian Country and beyond.⁹³

A “RIVER OF HOPE” FLOWS TO ADDRESS DIABETES

Today, the dynamic, dedicated efforts across the continent to identify ways to prevent diabetes in American Indian and Alaska Native communities flows like a rich and vibrant river. This river of hope reflects appreciation for water, underscored by the common understanding, “water is life.” The approaches to diabetes prevention implemented are unique in that they depend on the history and culture of each diverse tribe, yet united in solidarity around a common goal: to curtail the current of diabetes in the “hard work of hope.”⁹⁴

Figure 1 presents a “River of Hope” timeline that highlights some of the landmarks witnessed by the CDC Native Diabetes Wellness Program (NDWP). Many of the landmarks depicted are grounded in tribal leaders’ guidance in the years following the Balanced Budget Amendment passed by Congress in 1997. These include the 2001 Diabetes Prevention Program Research Group (DPP) outcomes,⁹⁵ the *Eagle Books*, the K–12 Diabetes Education in Tribal Schools (DETS) *Health is Life in Balance* curriculum, and the CDC Traditional Foods program.⁹⁶

RIVER OF HOPE

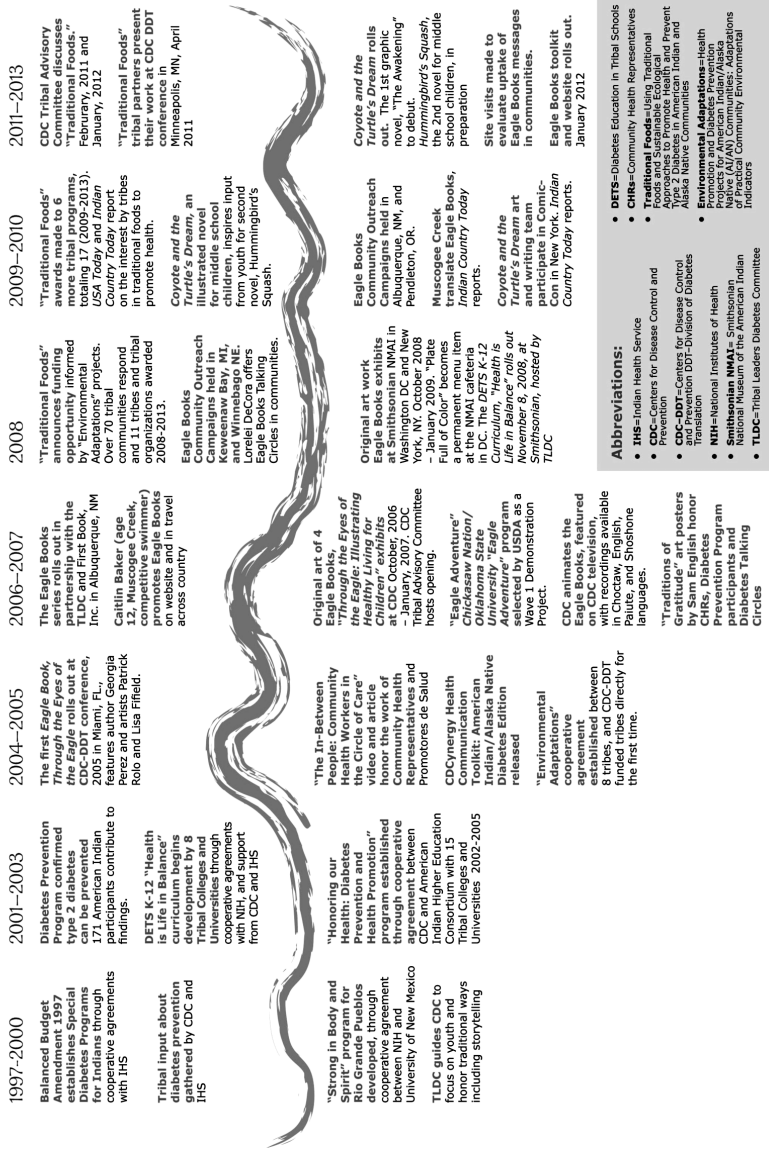
The Balanced Budget Amendment of 1997

The 106th Congress of the United States responded to the request from tribal leaders and their allies to assist them in addressing the epidemic of diabetes in American Indian and Alaska Native communities with legislative action. Over four hundred Special Diabetes Programs for Indians (SDPI) were established with the Balanced Budget Act of 1997, Public Law 105-33. The SDPI framework encourages local ownership of diabetes care improvement, including

A River of Hope

The Course and Flow of the Native Diabetes Wellness Program
 CDC Division of Diabetes Translation
 1998 ~ 2013

"If you don't share it, it will spoil. Like water that stays, it will become stale. But a stream is always giving life."
 - Elder



implementing the national diabetes care standards for American Indian and Alaska Native people served. Many programs draw on traditional methods such as stories and talking circles.⁹⁷

Tribal Leaders Guide Federal Agencies

Listening is said to be the deepest form of respect one human can show another.⁹⁸ It allows us to identify what is in people's hearts.⁹⁹ After the Balanced Budget Amendment authorized the SDPI, federal agencies consulted with the IHS-supported Tribal Leaders Diabetes Committee (TLDC) on how best to establish tribally driven programs designed to target diabetes care and prevention.¹⁰⁰ Listening sessions were set up in eight sites across the country with 421 tribal members from 171 tribes. Common themes include:¹⁰¹

(1) Respect cultural knowledge about ways of health. "Look to the culture. Our cultures are the source of health," was a theme throughout the sessions.

(2) Focus on youth for the health of future generations. Representatives recommended integrating prevention messages throughout schools.

(3) Create enduring stories. "We need stories . . . it's just the last decades where diabetes has run rampant. The stories aren't there."

(4) Make the education "continuously available, something that is there all the time." A prayer and a story written by Georgia Perez as part of the "Strong in Body and Spirit" curriculum were offered as examples of "what works."

(5) Programs should be tribally driven, reflecting the self-determination of tribes.

(6) Respect the diverse histories and cultures of tribes.

Other opportunities for listening included interviews with several women elders from the Northern Plains who provided keen insight on the importance of tribal values for health, including generosity and gratitude for the goodness of gifts: water, land, and children.¹⁰² They emphasized memories about food will be remembered by children as they gathered berries and turnips with their families and tasted healthy foods like beans. Relatives can teach that these foods are good (*washte* in Lakota) and keep traditional, healthy foods available for hungry children (for example, soup on the stove) rather than high-calorie, store-bought snacks.

Through listening sessions and formative research, tribal consultation and guidance by tribal representatives led to NDWP projects to honor traditional ways to promote health and to help prevent type 2 diabetes, including the *Eagle Books* and Traditional Foods projects, with the IHS Division of Diabetes Treatment and Prevention as a key partner. CDC and IHS collaborated with NIH, responding to tribal consultation for a school curriculum, and established cooperative agreements with eight tribal community colleges and

universities to develop the K–12 DETS curriculum *Health is Life in Balance*. The DETS K–4 lesson plans include the *Eagle Books*, thus integrating the two projects (see page 172).

Diabetes Prevention Program Results Announced, 2002

The landmark NIH clinical trial, the DPP, confirmed that type 2 diabetes can often be prevented or delayed with modest weight loss (5–7 percent of body weight) and regular physical activity (one hundred fifty minutes per week). One hundred and seventy-one American Indian participants volunteered with 3,163 other adults to help confirm that an intensive lifestyle intervention could significantly reduce the risk of developing diabetes.¹⁰³ Through their participation in the DPP study, the American Indian participants gave indigenous people around the world a critically important message that type 2 diabetes is not their destiny—it can often be prevented altogether or delayed for years. To honor the participants, Ojibwe artist Sam English painted a poster with the message, “They Changed the World! A Tribute to American Indian Participants of the Diabetes Prevention Program and Other Studies.” A free copy of the poster can be ordered from the NDWP website.¹⁰⁴

Caitlin Baker, a Muscogee Creek youth organizer, gave congressional testimony to the Senate that reinforced the need for diabetes prevention programs:

My peers many times feel that diabetes is inevitable. They tell me that they know they will get it eventually because their parents, grandparents and other family members have diabetes . . . I feel that one major change that needs to be made in the programs is a shift from inevitability to preventability. . . . It is important to use their voice and speak to the leaders of their communities. . . . Youth want to be heard and respected. . . . We are living the crisis of diabetes. We don't want to live with diabetes. Let us work with you to find a way out of the crisis.¹⁰⁵

Native Communities Lead the Way

Even before the DPP results were released, a systematic review of published reports of diabetes prevention efforts revealed that tribal programs had initiated culturally relevant diabetes prevention programs. Ten of the seventeen programs that met the criteria for this review were Native programs.¹⁰⁶ Among interventions established as part of the SDPI were the *Eagle Books* series and the development of the “Honoring Our Health” programs by twenty-two tribal community colleges and universities. The community colleges built curricula that aimed to restore traditional ways of health by means of traditional foods (24 percent), stories and storytelling (17.2 percent), traditional games and activities (17.2 percent), talking circles (13.8 percent), traditional practices

and ceremonies (10.3 percent), and traditional healers (6.9 percent).¹⁰⁷ In 2005, eight tribal programs were directly funded by the CDC Division of Diabetes Translation (DDT) to support their efforts to identify approaches that addressed diabetes prevention through environmental adaptations.¹⁰⁸ Throughout the cycles of “Honoring Our Health” and “Environmental Adaptations” programs there was sustained interest in traditional foods and related physical activity programs as a way to help prevent type 2 diabetes. The lessons learned from both programs led to the focus for the next funding opportunity, which was specifically designed to support tribes in their efforts to reclaim local foods for health in the “Traditional Foods” program (see page 176).

CDC Native Diabetes Wellness Program

In 2004 the CDC National Diabetes Prevention Center that had been established by the Balanced Budget Amendment was reorganized and renamed the Native Diabetes Wellness Program (NDWP) in order to complement the IHS-supported SDPI programs. Ongoing consultation with tribal leaders is carefully attended to, particularly guidance on how to honor traditional ways of health in diabetes prevention and care messages. The CDC strives to recognize its federal trust responsibility to sovereign nations. Key tenets of the approach to collaboration with tribes are the principles of community-based participatory research (CBPR), which invite the direct, equitable participation of those affected in all aspects of research and application of benefits,¹⁰⁹ specifically tribally driven participatory research.^{110,111}

The NDWP receives about 70 percent of its funding from the CDC, with the balance provided from the IHS SDPI. All of the IHS dollars (\$1 million annually of SDPI funds) go directly to fund tribes working on the Traditional Foods Project. The mission, vision, goals, and principles of the NDWP are outlined in figure 2.



Mission

The mission of the **Native Diabetes Wellness Program** is to work with a growing circle of partners to address the health inequities so starkly revealed by the number of people with diabetes in Indian Country. With social justice and respect for Native and Western science as grounding principles, we strive to support community efforts to promote health and prevent type 2 diabetes.

Vision

Indian Country free of the devastation of diabetes.

Goals

1. Support sustainable, evaluable ecological approaches to promote the use of traditional foods, physical activity, social support, and health policy change in communities.
2. Share messages, including stories and art, about survival and traditional ways of health that are remembered, retold, and talked about in homes, schools, and communities.

Principles of Practice

1. Listen.
2. Recognize tribal sovereignty and respect the diversity of tribes.
3. Consult tribal leadership and tribal members.
4. Honor federal responsibility to tribal nations.
5. Respect and incorporate Native science.
6. Share a vision of hope.
7. Honor storytelling and the power of stories.
8. Establish direct relationships with tribal nations.
9. Respect the power of words—keep our word.
10. Seek reciprocity and balance.
11. Be grateful for our work.
12. Reflect critically.
13. Assure that the stories are told by the people.

FIGURE 2: *Native Diabetes Wellness Program Mission, Vision, Goals, and Principles*

The Eagle Books, 2004 to the Present

When tribal leaders provided consultation about type 2 diabetes prevention initiatives in 2001, they advised agencies to focus on youth and respect traditional knowledge about health. Tribal leaders and community representatives expressed the need for educational stories about diabetes because the disease was a relatively new condition. Few stories were available to teach that type 2 diabetes could be prevented. Listening to tribal leaders and representatives led the NDWP to partner with the IHS to develop the *Eagle Books* for young American Indian and Alaska Native children. All four books were completed in 2006. The series features animal characters—a wise eagle, a grateful rabbit, a clever (trickster) coyote—and four young friends who promote the gifts of healthy food and the joy of physical activity (see figure 3).

The stories were written by Georgia Perez, a community health representative for nineteen years in Nambe Pueblo, New Mexico, and were illustrated by Patrick Rolo (Bad River Band of Ojibwe, Wisconsin) and Lisa A. Fifield (Oneida Tribe of Wisconsin, Black Bear Clan). The books embrace the joy of being physically active, eating healthy foods, learning from elders about health, and preventing type 2 diabetes. Three million copies of the *Eagle Books* have been distributed to schools, parents, and health programs serving children who are four to nine years old. The goals of the *Eagle Books* are to

- communicate messages about traditional ways of health that are remembered, retold, and talked about in homes, schools, and communities;
- encourage children to turn to their elders to learn about health;
- illustrate joy and gratitude for gifts of food and water;
- highlight the leadership and wisdom of Native communities.



FIGURE 3. The four original *Eagle Books* for children ages 4 through 9 years: 1) *Through the Eyes of the Eagle*; 2) *Knees Lifted High*; 3) *Plate Full of Color*; and 4) *Tricky Treats*.

American Indian and Alaska Native communities around the country use the *Eagle Books* to relay key messages such as “follow tradition,” “eat healthy foods,” “be active,” and “make wise choices.” In 2008, the original watercolors used to illustrate the books were exhibited at the Smithsonian’s National Museum of the American Indian in Washington, DC, and in New York City. A museum exhibit, “Through the Eyes of the Eagle: Illustrating Healthy Living for Children,” is traveling to Native and non-Native museums through 2014.

Concurrent with the 2008 exhibit, the CDC conducted the first *Eagle Books* community outreach campaign in collaboration with the Keweenaw Bay Indian Community, where over 1,000 students participated in storytelling, display learning, and health fairs during the week. Over 86 percent of all students surveyed said that they learned about staying healthy. Of 109 first and second graders, 83 percent revealed that they plan to exercise more, and 90 percent said they planned to “eat healthy foods.” Results from a survey of 265 third to sixth graders who participated showed that 73 percent plan to exercise more, and 74 percent plan to eat healthy foods.

The Chickasaw Nation Get Fresh!/Oklahoma State University Eagle Adventure program reinforces traditional ways of health including language and dance. The USDA selected the program as a SNAP-Ed Wave 1 Demonstration Project.¹¹² The Eagle Adventure play is based on formative research that identified entertainment education as an important strategy for reaching families. Excerpts from the *Eagle Books* were used to develop the playscript, intended to alter social expectations of diabetes prevention positively. The play has been performed as a staged reading in a variety of settings such as boys and girls clubs, schools, fairs, 4-H club meetings, and Head Start gatherings.¹¹³

The Muscogee (Creek) Nation hosted the *Eagle Books* art exhibit at the Creek Capital House Museum in 2010. Their outreach efforts included translating the stories into the Creek language, with their own interpretations.¹¹⁴ The exhibit at the Arizona State Museum in 2011 engaged community members in traditional walks, learning about traditional footwear, and sharing traditional seeds and local foods.¹¹⁵

In January 2012 the NDWP launched a “green” *Eagle Books* toolkit website to aid communities to plan local events. The website includes *Eagle Books* materials and information about the new middle school novels, as well as videos about the development of the *Eagle Books* and the toolkit, found at the website address <http://www.cdc.gov/diabetes/pubs/eagle/index.html>.

A video titled *The Story of the Eagle Books* narrates the vision for the books and features author Georgia Perez as well as tribal leaders, including the Honorable Mr. Buford Rolin, chair of the Tribal Leaders Diabetes Committee. The *Fly with the Eagle* video shares a conversation between health activists

Lorelei DeCora (Ho-Chunk, Winnebago Tribe of Nebraska and also facilitator for diabetes talking circles), and Caitlin Baker (Muscogee Creek). In the video Lorelei laughs as she describes how her grandson, after reading the stories, told his family that some of the foods served for lunch at school weren't healthy. He enlisted his family to talk with lunch program personnel at his school, "because I'm only in kindergarten." Lorelei speaks of the power of children influenced by positive messages about health:

One aspect of Native communities is all powerful—that's our children. No one can get Indian communities to change faster. When children learn from "Through the Eyes of the Eagle" and all four books they are going to change their families. That's what is powerful about the *Eagle Books*.

The people hold the answers, whatever our traditional beliefs are as a people, because each nation has their own, the actual solution to building that diabetes-free future comes from our traditions. And then we merge it with the science of diabetes and how to prevent it, and if we can do that together we'll be effective to the people we're reaching because we embrace who they are.¹¹⁶

Young readers of the original four stories demonstrate understanding and apply the health messages, as is evidenced by a qualitative case study completed in 2013 by the CDC Native Diabetes Wellness Program. The study engaged eight American Indian communities and involved 188 teachers, parents, community health representatives, librarians, and children. Key observations include:

- Children are change agents; they are advocates for type 2 diabetes prevention.
- Parents shop for healthier foods and snacks, influenced by their children.
- Children know the difference between healthy and unhealthy foods, and like to tell others.
- *Eagle Books* are being used for language preservation and health literacy by tribal programs (the books are not copyrighted and the NDWP has artwork-only templates available to tribal programs for language-specific text).
- The Special Diabetes Programs for Indians, national youth health programs, and other supporting efforts are integral to communication of the *Eagle Books* health messages.
- The stories are appealing to non-Native as well as Native children.

The concept of children as teachers was observed consistently across the country. A school librarian commented, "Let the kids teach the elders, and they won't even know they're learning. The kids won't even know they're being teachers." A parent of a Head Start student said, "My child learned a lot from the books and then turned on me about my habits. 'Oh, mom, that's not good!' It made me conscious of what I am buying. She brought

the book to me. I said, ‘Why are they trying to teach you when you are so little?’ She said, ‘To be healthy!’” A team member of a children’s outreach program built on the health messages of the *Eagle Books* said, “Please keep the high-quality hard copy materials coming. It sends a message from CDC that “our children are worth it, their health is worth it.”

The first two in a trilogy of novels for middle school youth, *Coyote and the Turtle’s Dream* (figure 4) and *Hummingbird’s Squash* (figure 5), build on the rich storytelling traditions of the original *Eagle Books* children series. Now about twelve years old, the children and the animal characters in the original stories return, with an expanded cast that includes family members, teachers, store owners, other residents of a small reservation town—and an elderly box turtle. Broadening the dialogue found in the original books about healthy ways that help to prevent type 2 diabetes, the trilogy introduces the character of Arianna, a young girl living with type 1 diabetes, and takes readers on Hummingbird’s science experiment adventures as the children also learn about bullying. *Trickster of Two Rabbit Mountain*, the last novel in the trilogy, follows the youth and new friends into a woodlands world of mystery and learning. Native youth and tribal leaders reviewed the books prior to publication and their comments are featured on the book covers and inside pages. Additionally, four graphic novels spin off from the first book. The trilogy of youth novels as well as the graphic novels reinforce the health messages for readers and fans of the original stories. Author Terry Lofton and artist Patrick Rolo have incorporated the “5 E’s” modeled by the tribal school educators who developed the DETS curriculum (engagement, exploration, explanation, elaboration, and evaluation).¹¹⁷ The trilogy aligns with the DETS curriculum lessons for grades 5–8 and is supplemented by educator/community guides for each book.

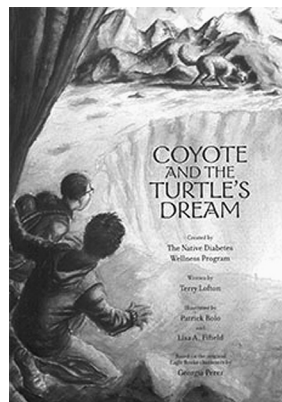


FIGURE 4: *Coyote and the Turtle’s Dream*, the first novel of the trilogy for middle school readers.



FIGURE 5: *Hummingbird’s Squash*, the 2nd youth novel in the trilogy. The final youth novel, to be released in 2014, will be entitled, “*Trickster of Two Rabbit Mountain*.”

K–12 Diabetes Education in Tribal School Curriculum, 2001 to the Present

In 2001, the congressionally authorized Diabetes Mellitus Interagency Coordinating Committee, the NIH National Institute of Diabetes and Digestive and Kidney Diseases, the CDC Native Diabetes Wellness Program, and the IHS Division of Diabetes Treatment and Prevention launched an unprecedented interagency agreement to fund and support eight tribal community colleges and universities (TCUs) to create a culturally based K–12 school curriculum, Diabetes Education in Tribal Schools (DETS), *Health is Life in Balance*.¹¹⁸ The eight TCUs which developed the curriculum were Cankdeska Cikana Community College (Fort Totten, ND), Fort Peck Community College (Poplar, MT), Haskell Indian Nations University (Lawrence, KS), Keweenaw Bay Ojibwa Community College (Baraga, MI), Leech Lake Tribal College (Cass Lake, MN), Northwest Indian College (Bellingham, WA), Stone Child College (Box Elder, MT), and Southwestern Indian Polytechnic Institute (Albuquerque, NM).

All the partners worked with school sites throughout the country to test the K–12 DETS *Health is Life in Balance* curriculum in three evaluation phases. During the last phase of the evaluation, sister sites outside the eight TCU areas were included in order to test the efficacy of the curriculum. In addition to providing funding, the NDWP assisted with the DETS evaluation format and scientific oversight for the project. The *Eagle Books* are included as part of the K–4 lesson plans. The curriculum was introduced in November 2008 at the Smithsonian National Museum of the American Indian in Washington, DC, coinciding with the museum's exhibition of the original watercolor art.

Available through the Indian Health Service Division of Diabetes Treatment and Prevention online catalog, the DETS *Health is Life in Balance* curriculum presents diabetes science framed in the contexts and experience of American Indian and Alaska Native peoples.¹¹⁹ The curriculum was designed to meet national science education standards and can serve as a supplement for science, social science, and health education lessons across all grade levels.

Traditional Foods Program, 2008 to 2014

In 2008, the CDC NDWP announced, “Using Traditional Foods and Sustainable Ecological Approaches to Promote Health and Prevent Diabetes in American Indian and Alaska Native Communities” (Traditional Foods Program). The NDWP established cooperative agreements with seventeen American Indian and Alaska Native tribes and tribal organizations to support efforts to restore and enhance access to locally grown and gathered traditional foods, such as tepary beans, seaweed, and squash, and to encourage the continuation or reintroduction of traditional physical activities such as stickball (figure 6).



FIGURE 6: Seventeen partners of CDC “Traditional Foods” program (2008–2014).

The initial goals of the Traditional Foods Program were to:

- (1) Support sustainable, evaluable ecological approaches that help communities reclaim traditional foods and physical activity in their communities;
- (2) Encourage local practices that increase access to traditional, local foods and related physical activity;
- (3) Revive and create stories of healthy traditional ways shared in homes, schools, and communities; and
- (4) Engage community members to: follow program progress, participate in health promotion activities, explore diabetes in context with history, and share stories of hope for preventing diabetes and its complications.

The innovative approaches initiated by the Traditional Foods grantees and a growing number of other communities have attracted media coverage in *Indian Country Today*¹²⁰ and *USA Today*,¹²¹ numerous tribal newspapers, and local radio and TV stations. Tribal leaders recognized the momentum of the efforts in forums featuring the voices of the grantees, such as digital stories and consultation sessions, and recommended sustaining the programs beyond five years. In 2012 CDC released a funding opportunity for the original programs to continue for a sixth year, to end in 2014.

Paula Allen, coordinator of the “Food is Good Medicine” program of the United Indian Health Services (UIHS) based at the Potawat Health Village in Arcata, California, emphasized, “We need to be eating food that represents our values.”¹²² Key values are sharing, responsibility, and gratitude, Allen observed at a 2012 meeting of Traditional Foods partners. The “Food

is Medicine” program is one of several drawn to the medicine wheel nutrition model described by Conti, who commented that, “Every native tribe has a story about what happened to their food system. We’re not going to completely rebuild the traditional food system. But there is wisdom there we can apply.”¹²³

Through this grant opportunity and the relationships established, the NDWP has learned that the process of tribal consultation and listening is critical, in contrast to approaches formulated outside of the context of Native communities. Messages shared with CDC leadership include: (1) public health approaches that respect traditional ecological knowledge and tribal sovereignty to promote healthier environments resonate in indigenous communities; and (2) people come together under a banner of support for local, traditional ways, rooted in shared values of responsibility, generosity, and gratitude.

The partners meet twice a year at the site of one of the programs at their tribal leadership’s invitation. At the 2012 meeting, the grantees discussed the projects’ impact in tribes across the country. “Traditional foods have become a way to talk about health in our communities,” a partner observed.

Sharing of information and lessons learned across programs is valued by grantees and by NDWP. The Traditional Foods grantees present their programs, supported by photos and stories. Program coordinators often say, “We got this idea from [name of another program].” For example, the Southeast Alaska Regional Health Consortium (SEARHC) Traditional Foods and Wisdom Program reported helping 86 percent of Alaska Native households in Wrangell, Alaska, gather, prepare, and store traditional foods as a way to reconnect with their culture’s healthy past. Staff from the SEARHC program taught other partners how to make digital documentaries during the meeting held in Tulsa, Oklahoma, and showed a compelling digital story titled “Our Food, Our Lives.”¹²⁴

The Eastern Band of Cherokee Indians’ diabetes prevention program, “Cherokee Choices,” was invited to the American Public Health Association 2012 annual meeting to show their digital story, “Iya,” which is the Cherokee word for pumpkin. Set in the mountains of Western North Carolina, “Iya” shows how traditional foods and culturally relevant activities can restore the balance of health and wellness in communities.¹²⁵ “Healthy Roots for Healthy Futures,” a project of Cherokee Choices, engages community members, specifically youth, in traditional gardening, school health, and food systems and policy changes, which was recognized by the national program, “Let’s Move in Indian Country.”¹²⁶ Diverse partners including the Cooperative Extension, Blue Ridge Parkway Foundation, Tribal Geographic Information System, Historic Preservation Office, CDC REACH program, and the CDC Traditional Foods program are revitalizing walking trails which incorporate mapped Cherokee ancestral paths.¹²⁷ The Cherokee Nation’s “Healthy Nation,

Healthy Foods” project in eastern Oklahoma instituted a new food vendor policy that requires all Cherokee Nation concession stands to sell only healthy or traditional foods, an innovation of interest to a number of other programs. Cora Flute commented about their project in context with a public service announcement, “Our Cultures Are Our Source of Health,” released in 2013: “Traditional foods are a part of our past that has sustained us and kept us healthy. Community and family gardens were *essentials* in access to fresh healthy foods and physical activity was part of staying healthy.”¹²⁸

Language and story are central themes of the Traditional Foods Project, typically fostering intergenerational knowledge by engaging elders, as well as youth, in restoring the local food system. In North and South Dakota on the Standing Rock Nation’s reservation, Aubrey Skye, the Coordinator of the Standing Rock Native Gardens project, noted, “Everything we do through this project has a Lakota name and provides a natural way for elders to teach the children our language. Everything we do also has a season, which is represented in the language.” Standing Rock is reclaiming tribal traditions of companion gardening, hunting, and gathering. With the program’s involvement with strong partners, indigenous foods, including squash, melons, and beans from local farms, as well as *timpshila* (prairie turnips) harvested from the land, are made available through summer and winter farmers’ markets. The program works with the tribe’s USDA Nutrition for the Elderly program. In 2012, 100 percent of vouchers issued to tribal elders to buy locally grown foods were redeemed, generating over \$10,000 in sales.¹²⁹ These revenues encourage the participation of local farmers, including cultivating local produce for a new “Farm to School” project.

In another example, The Ramah Band of Navajo Indians (known as Tłochiní Diné) has developed “Empowering Ramah Navajos to Eat Healthy Using Traditional Foods” (the ERNEH Project). ERNEH established an “honor walk” to remember ancestors who took part in the Long Walk of the Navajo, logging over 750 miles over the course of ten months through group walks and individual walking schedules. The original projection for ERNEH’s vegetable garden was 160 square feet of gardens in the community. However, an unanticipated response of contributions to the organic compost pile, including the Tribal Council’s decision in 2010 to donate all tribal office shredded paper and coffee grounds, has generated over 27,365 square feet of gardens in the community, the size of several high school football fields (see figure 7).

Guided from the start by tribal consultation, the program’s central theme of respecting cultural knowledge and values about food, health, and stories resonates with tribes and open doors to dialogue about health. Partner meetings hosted by partner nations provide a community-inclusive setting for sharing traditional foods innovations and cultural insights. Dynamic exchange of knowledge across programs demonstrates the engagement and generosity



FIGURE 7. Composting shredded paper and other donated organic material to cultivate gardens of the “Empowering Ramah Navajo by Using Traditional Foods” program.

of partners, trust built in CDC, and shared goals for the health of the people. Five Traditional Foods programs participated in filming and set design for the 2013 CDC-TV public service announcement, “Our Cultures Are Our Source of Health.” “The message is that even in the twenty-first century with the problems we face today, traditional ways have health benefits for now and for future generations,” Aubrey Skye said, as he took a break from the filming.

Promising Outcomes

The SDPI programs report encouraging outcomes for the people they serve, aggregated on a national level including: average blood sugar levels decreased from 9 to 8% between 1996 to 2011, translating to a potential 40% reduction in risks for heart, kidney, and eye diseases; and reduced low-density cholesterol levels 20% between 1998 and 2011, significantly modifying the risk for development of complications including cardiovascular events.^{130,131} These remarkable achievements likely reflect the ongoing commitment of national and local tribal leaders, community advocates, the IHS, other federal agencies, and multiple nonprofit partners.

Improved glucose and blood pressure control among people with diabetes fostered by the SDPI programs has likely also contributed to recent reduction in rates of ESRD due to diabetes among American Indian and Alaska Native adults aged forty years or older. Researchers have noted that although the actual number of new ESRD cases is higher in recent years because of increasing numbers of people with diabetes, the age-adjusted incidence of diabetes-related ESRD among American Indians and Alaska Natives actually decreased 20 percent from 48.3 per 100,000 to 38.5 per 100,000 between 1999 and 2005.¹³² The researchers note that “Recent trends in ESRD-DM and

ESRD-HT incidence [ESRD due to diabetes or hypertension] either stopped increasing or increased at a slower rate in all racial/ethnic groups. Native Americans were the only group with a significant decline in ESRD-DM incidence despite the increasing diabetes prevalence in this population, suggesting that diabetes management has improved and the prevalence of other risk factors has decreased.”¹³³

Tribally driven diabetes programs such as the SDPI and Traditional Foods programs are often complemented by educational materials, including the *Eagle Books* and the DETS K–12 *Health is Life in Balance* curriculum. For example, the award-winning Healthy O’odham People Program (HOPP) of the Tohono O’odham Nation in Arizona, funded in part by the SDPI, uses the DETS curriculum and the *Eagle Books*. Program workers report the influence the children have on their parents and teachers for eating healthy foods. The Winnebago Nation of Nebraska introduces the *Eagle Books* at orientation to Head Start beginning at age three and four years. Head Start programs reinforce the messages throughout the preschool years, including recognition of “sometimes” and “everyday” foods.¹³⁴

A WIDENING RIVER OF HOPE IN THE STORY OF DIABETES

“Communities of memory” are rare ones in which members share a sense of belonging, common identity, history, and shared goals and values, with understanding of the intrinsic meaning of these things. American Indian and Alaska Native nations are “communities of memory” in the deepest possible sense of the phrase. While newer societies have brought many gains and conveniences, they often lack the moral authority, the moral and kinship ties, and the connection to meaning found in tribal communities.¹³⁵

Communities of memory function as “units of identity,” well positioned to serve as the “units of solution” described by Guy Steuart.¹³⁶ As tribal leaders have advised from the beginning of efforts to address diabetes in Indian country, the solutions to the rising current of diabetes lie within the cultural capital—the knowledge, experience, and values—of each tribe.

Generosity, a value often expressed by indigenous peoples, reinforces the belief that solidarity is an act of common struggle¹³⁷ in “the hard work of hope”¹³⁸ to address a threat to peoples’ welfare. Federal agencies, historical participants in the subjugation of tribes, have joined the fight for a common goal, a shared struggle, to prevent type 2 diabetes and its complications.¹³⁹ When federal staff seek and honor tribal consultation, conduct listening sessions, and forge direct partnerships with tribes, strong tribally driven programs such as the SDPI and Traditional Foods programs can be built.

Materials and stories¹⁴⁰ can complement the dedicated efforts of tribal workers striving to promote health, including tribal leaders, program coordinators, clinical staff, community health representatives, Head Start, K–12 schools, college educators, wildlife managers, land use planners, and cultural museum directors.

The effect of traditional knowledge is additive across cultures, serving as a monument to our common humanity.¹⁴¹ Federal partners, cognizant of their federal trust responsibility, can be part of the work needed to promote health among people in this country and beyond. It is not that hard to unite the sciences of traditional knowledge and biomedicine. Federal diabetes programs have shown a willingness, or institutional reflexivity, to replace orientations that favor the western, reductionist view with principles of participatory action and respect for cultural capital, including traditional knowledge held by tribes¹⁴² and other indigenous people, including Pacific Islanders.¹⁴³ This is the most valid approach to ensure a program's success, as Bourdieu contends.¹⁴⁴

As allies, tribes, and federal partners position themselves to sustain the “downstream” work, where medical systems must triage the devastating complications of diabetes. Yet, they are also laboring “upstream” to address root causes in culturally-relevant ways that strive to promote lifelong health for future generations.¹⁴⁵ The first step in charting an upstream course, as tribal leaders advised in 2000, is to value traditional knowledge about health and survival and honor the self-determination of tribes.

NOTES

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention/the Agency for Toxic Substances and Disease Registry.

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