

INDIAN HEALTH SERVICE  
SPECIAL DIABETES PROGRAM FOR INDIANS

2007 REPORT TO CONGRESS

ON THE PATH TO A  
HEALTHIER FUTURE





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## A MESSAGE FROM CHARLES W. GRIM, D.D.S., M.H.S.A. FORMER DIRECTOR, INDIAN HEALTH SERVICE



On behalf of the Indian Health Service, I am proud to provide this Report to Congress on the *Special Diabetes Program for Indians*. Over the past 10 years, the Indian Health Service has worked diligently with Tribes, Tribal Leaders, and health care providers to bring diabetes treatment and prevention services to American Indian and Alaska Native communities through the *Special Diabetes Program for Indians*.

The *Special Diabetes Program for Indians* helped the Indian health system make substantial progress toward its goal of raising the health status of American Indians and Alaska Natives to the highest possible level. Communities that did not have diabetes programs prior to the *Special Diabetes Program for Indians* funding now offer comprehensive diabetes treatment and prevention services. Communities that were able to offer diabetes services prior to the funding have enhanced their programs and now serve as teachers and role models to other sites.

The *Special Diabetes Program for Indians* has also translated the latest scientific findings into the care that we provide our patients. As a result, health outcomes in American Indians and Alaska Natives with diabetes, including blood sugar and cholesterol levels and preservation of kidney function, continue to improve year after year. Although the widespread diabetes epidemic in American Indian and Alaska Native communities will take years to stop, these promising outcomes indicate that we are headed in the right direction.

The *Special Diabetes Program for Indians* has not only proven to be effective in helping to address the diabetes epidemic, but also informed efforts by the Indian Health Service in chronic condition management, behavioral health, and health promotion and disease prevention. This has allowed the *Special Diabetes Program for Indians* to reach beyond diabetes and spread quality treatment and prevention practices to other areas of health care. I am proud of what we have accomplished together in these 10 years, and look forward to continuing on the path to a healthier future for American Indians and Alaska Natives.





## A MESSAGE FROM KELLY ACTON, M.D., M.P.H., F.A.C.P. DIRECTOR, INDIAN HEALTH SERVICE DIVISION OF DIABETES TREATMENT AND PREVENTION



On behalf of the Indian Health Service Division of Diabetes Treatment and Prevention, I am pleased to provide the third Report to Congress on the *Special Diabetes Program for Indians*. As with the two previous reports we have submitted, this Report contains the results from our ongoing evaluation of the 399 grant programs that make up the *Special Diabetes Program for Indians*.

We continue to observe improvements in the processes and intermediate outcomes of diabetes care, and have reported those here. For the first time, we provide information on the newest component of this successful Program, the competitive Healthy Heart Demonstration Project and Diabetes Prevention Demonstration Project. Although it is too soon to report outcomes on these projects, we provide a detailed description of what they are doing and the outcomes we expect to measure over the next 2 years. In addition, we discuss the costs associated with diabetes care and prevention, and provide an overview of projections that suggest the *Special Diabetes Program for Indians* has been a good investment in American Indian and Alaska Native communities.

The *Special Diabetes Program for Indians* continues to deliver on its original instruction from Congress. We are providing excellent diabetes care, with improved clinical outcomes to prove it. And we are developing the expertise and experience for the prevention of diabetes in our communities. The *Special Diabetes Program for Indians* has provided the means for an historic event. Together, we are turning the tide of the diabetes epidemic in American Indian and Alaska Native communities. What an exciting time to be working in the field of diabetes in Native communities!



## A MESSAGE FROM BUFORD ROLIN CHAIRMAN, INDIAN HEALTH SERVICE TRIBAL LEADERS DIABETES COMMITTEE



On behalf of the Tribal Leaders Diabetes Committee, it is an honor to share in the presentation of this 2007 Report to Congress on the *Special Diabetes Program for Indians*. For the past 10 years, members of the Tribal Leaders Diabetes Committee have worked closely with the Indian Health Service to provide Tribal consultation on the *Special Diabetes Program for Indians*.

The *Special Diabetes Program for Indians* has been an essential and positive force in American Indian and Alaska Native communities. The Indian Health Service has shown through its public health evaluation activities that the *Special Diabetes Program for Indians* has implemented successful diabetes treatment and prevention activities and has improved diabetes care and outcomes on reservations and in Urban clinics. The Program also has brought Tribes together to work toward a common purpose, sharing information and lessons learned along the way.

Ten years ago, Tribes were given the much-needed opportunity to develop diabetes programs in their own communities. Although there are still many challenges ahead, the *Special Diabetes Program for Indians* has made a difference and is doing an excellent job of addressing diabetes. As you read this Report, you will see that the health of American Indian and Alaska Native communities is improving. It is very encouraging to know that we are making progress.

I invite you to read this report carefully.



## EXECUTIVE SUMMARY

In 1997, Congress established the *Special Diabetes Program for Indians* in recognition of the diabetes epidemic among American Indians and Alaska Natives. Congress envisioned the *Special Diabetes Program for Indians* as a grant program that would provide funding for diabetes treatment and prevention services at Indian Health Service (IHS), Tribal, and Urban Indian health programs. Almost 10 years since its inception, the *Special Diabetes Program for Indians* is now the most comprehensive federally funded diabetes program for American Indians and Alaska Natives, and serves as the foundation for diabetes treatment and prevention efforts in their communities across the United States.

### **The Epidemic of Diabetes in American Indians and Alaska Natives**

Type 2 diabetes has quickly emerged as one of the most serious and devastating health problems of our time. Although the growing epidemic of diabetes threatens populations around the world, the American Indian and Alaska Native population has been hit particularly hard. Four factors—a hereditary predisposition, increasingly sedentary lifestyles, exposure to diabetes while in the womb, and the effect of living in adverse social and physical environments—are the major contributors to the high prevalence of diabetes in American Indian and Alaska Native communities. This interaction among hereditary, behavioral, gestational, and environmental factors has left American Indians and Alaska Natives particularly vulnerable to the disease.

Virtually unknown among American Indians and Alaska Natives 100 years ago, this population now suffers from among the highest rates of diabetes in the world. Diabetes and its complications are major contributors to death and disability in every Tribal community. In some American Indian and

Alaska Native communities, more than half of adults aged 18 and older have diagnosed diabetes, with prevalence rates reaching as high as 60%. Once found mainly in older adults, the disease increasingly affects American Indian and Alaska Native youth, threatening the health, well-being, and quality of life of future generations.

### **Responding to the Diabetes Epidemic: The *Special Diabetes Program for Indians***

The *Special Diabetes Program for Indians* resulted from a bipartisan plan to provide funds for the treatment and prevention of diabetes in American Indians and Alaska Natives. This initiative came in the wake of increasing public concern about the human and economic costs of diabetes in the United States and its growing prevalence in vulnerable populations, particularly American Indians and Alaska Natives.

Now in its tenth year, the *Special Diabetes Program for Indians* is a \$150 million per year grant program that provides funding for diabetes treatment and

prevention services at 399 IHS, Tribal, and Urban Indian health programs. With leadership and guidance from the IHS Division of Diabetes Treatment and Prevention and Tribal Leaders, the *Special Diabetes Program for Indians* grant programs use proven, evidence-based, and community-driven diabetes treatment and prevention strategies that address each stage of the disease.

As directed by Congress, the IHS established three major components of the *Special Diabetes Program for Indians*:

### **Community-Directed Diabetes Programs**

Since 1998, the IHS has provided *Special Diabetes Program for Indians* funds to 333 IHS, Tribal, and Urban Indian health programs in 35 states to **begin or enhance local diabetes treatment and prevention programs**. Each of the communities served by the Community-Directed Diabetes Programs is unique in its diabetes treatment and prevention needs and priorities. As such, the grant programs use these priorities to design and implement interventions that best address the problem of diabetes in local communities.

### **Demonstration Projects**

In 2004, Congress directed the IHS to develop and implement a competitive grant program to **prevent diabetes in high-risk individuals** and to **prevent cardiovascular disease—the most compelling complication of diabetes—in people who already have diabetes**. These Demonstration Projects translate findings from scientific studies in American Indian and Alaska Native communities and their health care systems.

The IHS launched the Diabetes Prevention Demonstration Project and the Healthy Heart Demonstration Project at 66 sites at the end of



Participants at a *SDPI* event take off from the starting line of an organized race.

2004. The **Diabetes Prevention Demonstration Project** (36 grant programs) adapted and is currently implementing the curriculum from the National Institutes of Health Diabetes Prevention Program clinical trial. This landmark study demonstrated that individuals with pre-diabetes could prevent the onset of type 2 diabetes through modest weight loss and lifestyle changes. The **Healthy Heart Demonstration Project** (30 grant programs) is currently implementing an intensive clinical, team-based case management approach to treat risk factors for cardiovascular disease in American Indians and Alaska Natives who have diabetes.

The IHS is conducting a rigorous evaluation of these Demonstration Projects to assess their effectiveness and determine how to disseminate the lessons learned throughout the Indian health system.

### **Strengthening the Diabetes Data Infrastructure**

The IHS has used administrative funding from the *Special Diabetes Program for Indians* to strengthen the diabetes data infrastructure of the Indian health system by **improving diabetes surveillance and evaluation capabilities**. These funds also support the development and implementation of the IHS **Electronic Health Record**, the electronic patient and data management system used in

many Indian health facilities. As a result of these data infrastructure improvements, the Indian health system has been better able to identify and track American Indians and Alaska Natives with diabetes.

### **Program Results: A Decade of Success**

Over the past 10 years, American Indian and Alaska Native communities have used *Special Diabetes Program for Indians* funding to make quality diabetes practices commonplace in local health care facilities.

**Key clinical outcome measures**—such as blood sugar control, blood lipid levels, and kidney function—**have improved** among American Indians and Alaska Natives with diabetes each year since the *Special Diabetes Program for Indians* was created. These improvements not only enhance the quality of life of people with diabetes, but also help the Indian health system achieve cost-effectiveness, realize cost savings, and reduce the cost burden of diabetes for all of society. Highlighted below are important improvements in clinical outcomes since the inception of the *Special Diabetes Program for Indians*.

#### **Improving Blood Sugar Control**

**Outcome:** The mean **blood sugar level (A1C) decreased 13%** from 9.00% in 1996 (before the *Special Diabetes Program for Indians*) to 7.85% in 2006 (after the *Special Diabetes Program for Indians*). This decrease is a major achievement over 10 years.

**Impact:** The scientific research shows that a one-unit decrease in A1C (e.g., a decrease from 9.00% to 8.00%) translates to a 40% reduction in

diabetes-related complications, such as blindness, kidney failure, nerve disease, and amputations.

#### **Improving Blood Lipid Levels**

**Outcome:** The mean **cholesterol level decreased 14%** from 205 mg/dl in 1996 (before the *Special Diabetes Program for Indians*) to 177 mg/dl in 2006 (after the *Special Diabetes Program for Indians*). The mean **LDL cholesterol (i.e., “bad” cholesterol) level decreased 17%** from 118 mg/dl in 1996 to 98 mg/dl in 2006.

**Impact:** These improvements in reducing blood lipids may help reduce the chance of developing cardiovascular complications associated with diabetes, such as heart attacks, stroke, and heart failure.

#### **Improving Kidney Function**

**Outcome:** The **prevalence of protein in the urine** (a measure of kidney function) **decreased 10%** from 29% in 1996 (before the *Special Diabetes Program for Indians*) to 19% in 2006 (after the *Special Diabetes Program for Indians*).

**Impact:** These improvements in reducing the prevalence of protein in the urine may help prevent or slow the progression from diabetes-related kidney disease to kidney failure.

In addition to these successes in clinical outcomes, the *Special Diabetes Program for Indians* helped create diabetes treatment and prevention programs where none existed before, as well as enhance programs that were already in place. These programs employ **successful, proven strategies to address key areas of diabetes treatment and prevention** across the entire life span—including clinical care, type 2 diabetes and youth, nutrition, physical activity, weight management, and behavior change.

Highlighted below are improvements in these key areas since the inception of the *Special Diabetes Program for Indians*.

### Caring for People With Diabetes

The Indian health system has a long history of providing quality care for American Indians and Alaska Natives with diabetes. The grant programs use *Special Diabetes Program for Indians* funding to integrate quality diabetes care practices into their health care facilities by:

- ◆ Developing and implementing important **elements of diabetes care**, including diabetes teams, clinics, and registries:
  - **68%** more grant programs have **diabetes teams** (98% in 2006 compared with only 30% in 1997).
  - **36%** more grant programs have **diabetes clinics** (67% in 2006 compared with only 31% in 1997).
  - **65%** more grant programs have **diabetes registries** (99% in 2006 compared with only 34% in 1997).
- ◆ Using diabetes data tools and surveillance systems to **measure and evaluate diabetes care**.
- ◆ Developing, implementing, and disseminating **diabetes best practices and clinical care guidelines** in collaboration with the IHS Division of Diabetes.

### Type 2 Diabetes and Youth

Interventions aimed at preventing diabetes in people—particularly children and youth—who do not have the disease have the greatest potential to

lower the economic and human cost of diabetes. Since its inception, the *Special Diabetes Program for Indians* has addressed the threat of childhood obesity and diabetes, acting on the best available evidence in response to this public health crisis. This includes:

- ◆ Employing a broad-based public health approach to implement **interventions that promote healthy behaviors** among American Indian and Alaska Native youth, families, and communities:
  - **76%** more grant programs have **type 2 diabetes prevention programs for youth** (82% in 2006 compared with only 6% in 1997).
  - **29%** more grant programs offer **nutrition services for children and youth** (94% in 2006 compared with only 65% in 1997).
  - **69%** more grant programs have **community-based physical activity programs** (82% in 2006 compared with only 13% in 1997).
  - **52%** more grant programs have **safe environments for physical activity** (67% in 2006 compared with only 15% in 1997).
- ◆ Using gestational diabetes programs to help **reduce *in utero* exposure to elevated blood sugar levels**.
- ◆ Implementing public awareness campaigns, promotion programs, and policies to **encourage mothers to breastfeed**.
- ◆ Offering **weight management programs** to children and youth who are obese or have diabetes.





Participants at a Diabetes Regional Meeting in 2006 take part in a walking exercise during a break.

## Nutrition

Good nutrition has far-reaching health benefits by helping to prevent, delay, and manage diabetes and other conditions. Helping people improve their diet depends, however, on access to effective nutrition services and interventions. American Indian and Alaska Native communities use *Special Diabetes Program for Indians* funding to improve nutrition by:

- ◆ Increasing access to **nutrition and diabetes education services**:
  - **57%** more grant programs offer **nutrition services for adults** (96% in 2006 compared with only 39% in 1997).
  - **38%** more grant programs have **access to a registered dietitian** (75% in 2006 compared with only 37% in 1997).
- ◆ Implementing **traditional American Indian and Alaska Native food and nutrition activities**.
- ◆ **Collaborating with local businesses** to increase the availability of healthy foods.
- ◆ Offering **training programs for clinical and community outreach workers** and staff of Tribal food programs.

## Physical Activity

Regular physical activity is critically important for preventing and managing diabetes. Even moderate physical activity can help prevent and control diabetes, cardiovascular disease, high blood pressure, and other chronic conditions. To reclaim healthy traditions of physical activity, American Indian and Alaska Native communities use *Special Diabetes Program for Indians* funding to focus on:

- ◆ Offering **physical activity programs and resources**:
  - **72%** more grant programs offer **community walking and running programs** (92% in 2006 compared with only 20% in 1997).
  - **63%** more grant programs offer **community exercise classes** (79% in 2006 compared with only 16% in 1997).
  - **53%** more grant programs have a **physical activity specialist** (61% in 2006 compared with only 8% in 1997).
- ◆ Incorporating **traditional American Indian and Alaska Native elements** into physical activity programs.
- ◆ Establishing **Tribal wellness policies** to encourage physical activity among Tribal members.
- ◆ Developing **innovative partnerships** with other organizations, the private sector, and the community to encourage physical activity.

## Weight Management

The scientific literature suggests that modest weight loss may be the *most effective strategy* for preventing diabetes and its complications. American Indian and Alaska Native communities use *Special Diabetes Program for Indians* funding to implement weight management activities, such as:

- ◆ Offering **weight management programs**:
  - **65%** more grant programs offer **adult weight management programs** (84% in 2006 compared with only 19% in 1997).
  - **64%** more grant programs offer **weight management programs for children and youth** (72% in 2006 compared with only 8% in 1997).
- ◆ Using **innovative weight management tools and activities**, such as lifestyle and behavior change interventions, family and traditional nutrition programs, group support programs, and individual diet programs.
- ◆ Establishing **partnerships with schools, work sites, businesses, and the community** to offer weight management activities.

## Behavior

The *Special Diabetes Program for Indians* has acted on the clear association between behavior and diabetes by addressing the psychosocial factors needed to help people change their behavior patterns. American Indian and Alaska Native communities use *Special Diabetes Program for Indians* funding to effect behavior change by:

- ◆ Offering **culturally appropriate, community-directed diabetes services** that complement and support clinical diabetes programs:
  - **71%** more grant programs offer **organized diabetes education activities** (96% in 2006 compared with only 25% in 1997).
  - **56%** more grant programs offer **culturally appropriate diabetes education programs** (92% in 2006 compared with only 36% in 1997).
  - **55%** more grant programs work with **social service programs** (89% in 2006 compared with only 34% in 1997).
- ◆ Using **evidence-based, patient-centered approaches** to encourage people to make and maintain healthy lifestyle changes.
- ◆ Creating **healthy environments** through partnerships with schools, work sites, and the community.
- ◆ Screening for **depression** and offering a **variety of therapies** to help patients cope with stress and depression.



The Nike Training Program teaches exercise and stretching as part of a physical activity and weight management program.

## The Future Direction of Diabetes Care in the Indian Health System

As the results summarized above illustrate, the *Special Diabetes Program for Indians* has succeeded in implementing an innovative, nationwide intervention to address the growing epidemic of diabetes. The scope of the Program is unprecedented. Guided by both the scientific literature and community-driven priorities, the *Special Diabetes Program for Indians* has helped the grant programs, Tribal Leaders, and IHS collectively build one of the most comprehensive diabetes treatment and prevention programs in the United States.

To continue building on the success of the *Special Diabetes Program for Indians*, the Indian health system will follow an action plan that is based not only on guidance from Tribal Leaders, Tribal

members, and grant programs, but also on proven scientific findings. This plan will leverage the experience and expertise gained during the past 10 years to achieve excellence in diabetes treatment and prevention in American Indian and Alaska Native adults, children, and youth to apply the findings from the Demonstration Projects and build on the Program's success in using effective, evidence-based diabetes strategies.

The *Special Diabetes Program for Indians* has helped improve the health of American Indians and Alaska Natives and the quality of life in many American Indian and Alaska Native communities. The successes achieved thus far, however, represent only the beginning of what can be achieved when Tribal, government, and organizational partners work together toward a shared goal. Work remains, but the belief among American Indian and Alaska Native communities is strong that they are on the path to a diabetes-free future.



## ABBREVIATIONS

<b>BMI</b>	Body mass index
<b>CDC</b>	Centers for Disease Control and Prevention
<b>Division of Diabetes</b>	Division of Diabetes Treatment and Prevention
<b>HDL</b>	High-density lipoprotein
<b>IFG</b>	Impaired fasting glucose
<b>IGT</b>	Impaired glucose tolerance
<b>IHS</b>	Indian Health Service
<b>LDL</b>	Low-density lipoprotein
<b>MNT</b>	Medical nutrition therapy
<b>NIH</b>	National Institutes of Health

## BUFORD ROLIN AND THE *SPECIAL DIABETES PROGRAM FOR INDIANS*

“It’s been wonderful to see the progress we have made in diabetes treatment and prevention with the resources from the *Special Diabetes Program for Indians*,” says Buford Rolin, Chairman of the Indian Health Service (IHS) Tribal Leaders Diabetes Committee. “We are teaching our families how important it is to take health promotion and disease prevention under their wing to address the diabetes epidemic.”

Buford Rolin is no stranger to the *Special Diabetes Program for Indians*. As Chairman of the Poarch Band of Creek Indians in Atmore, Alabama, Buford has been a member of the Tribal Leaders Diabetes Committee since its inception in 1998, representing the Nashville Area IHS. A leader in American Indian and Alaska Native health affairs, he also serves as the Vice-Chairman of the Board of Directors of the National Indian Health Board.

Buford is also no stranger to diabetes. “My mother had diabetes,” says Buford. “I remember being 12 years old and watching her give herself insulin injections. Now, I have diabetes, and I know that by taking care of myself, I can live a long, healthy life.”



In 1997, Buford was one of a handful of Tribal Leaders asked to participate in the initial meetings on how to distribute the *Special Diabetes Program for Indians* grant funds. The group requested—and the IHS Director approved—the formation of the Tribal Leaders Diabetes Committee that has been in place for the past 10 years.

Diabetes is not just an issue for the Tribal Leaders Diabetes Committee. “Other Tribal Leaders have to step forward and take action,” Buford says. “The good news is that many Tribal Leaders recognize how important it is to address this serious issue and have embraced it.”

“Diabetes prevention depends on each of us changing our lifestyles now,” says Buford. “Our families need to sit down to eat healthy meals, to get regular exercise, and to practice healthy lifestyles. That’s the only way we will live to see a diabetes-free future.”



# CHAPTER 1

## THE *SPECIAL DIABETES PROGRAM FOR INDIANS*: LAYING THE FOUNDATION FOR A HEALTHIER TOMORROW

### SUMMARY

#### Issue

American Indians and Alaska Natives suffer from the highest rates of diabetes in the United States. Addressing this serious disease and its consequences for Tribal communities is an important health priority for our nation.

#### Action

In response to the growing diabetes epidemic among American Indians and Alaska Natives, Congress established the *Special Diabetes Program for Indians* in 1997. The *Special Diabetes Program for Indians* is a grant program that provides funding for diabetes treatment and prevention services at Indian Health Service, Tribal, and Urban Indian health programs. Now in its tenth year, the *Special Diabetes Program for Indians* is the most comprehensive federally funded diabetes program for American Indians and Alaska Natives.

Diabetes has quickly emerged as one of the most serious and devastating health problems of our time. American Indians and Alaska Natives carry the heaviest burden, suffering from among the *highest rates of diabetes in the world*. Virtually unknown in Tribal communities 100 years ago, diabetes and its complications are now major contributors to death and disability in every Tribal community. The disease increasingly affects American Indian and Alaska Native youth, threatening the health, well-being, and quality of life of future generations.

In 1997, Congress established the *Special Diabetes Program for Indians* in recognition of the diabetes epidemic among American Indians and Alaska Natives. Congress envisioned the *Special Diabetes Program for Indians* as a program that would provide funding for diabetes treatment and prevention services at Indian Health Service (IHS), Tribal, and Urban Indian health programs. Almost 10 years since its inception, the *Special Diabetes Program for Indians* is now the most comprehensive federally funded diabetes program for American Indians and Alaska Natives, and serves as the foundation for diabetes treatment and prevention efforts for their communities across the United States.

## Structure of the *Special Diabetes Program for Indians*

The *Special Diabetes Program for Indians* currently includes a total of 399 grant programs. Grant programs are located in each of the twelve IHS Areas and they serve nearly all of the federally recognized Tribes.

As directed by Congress, the IHS established three major components of the *Special Diabetes Program for Indians*. Together, these components form the foundation of the Indian health system's response to the diabetes epidemic in American Indian and Alaska Native communities. The IHS Division of Diabetes Treatment and Prevention oversees all three of these components, providing leadership, direction, and administrative and technical support.

### Community-Directed Diabetes Programs

Since 1998, the IHS has provided *Special Diabetes Program for Indians* funds to 333 IHS, Tribal, and Urban Indian health programs in 35 states to **begin or enhance diabetes treatment and prevention programs** (see Appendix 3). These grant programs make up the Community-Directed Diabetes Program. Each of the grant programs is unique in its diabetes treatment and prevention needs and local priorities. The *Special Diabetes Program for Indians* allows the grant programs to design and carry out interventions that will best address the problem of diabetes in individual communities. Depending on community needs, these programs incorporate a wide range of proven diabetes treatment and prevention strategies, such as patient education, quality diabetes care services, as well as physical activity, nutrition, and weight loss activities.



“What I’ve seen is that, in partnership with the Indian Health Service, we work together to provide the best quality and quantity of health care relevant to diabetes. We’ve had listening sessions and consultation sessions on what is the best practice for Indian Country.”

Alvin Windy Boy  
Chippewa-Cree Tribe

### Demonstration Projects

In 2004, Congress directed the IHS to develop and implement a competitive grant program to **prevent diabetes in high-risk individuals** and to **prevent cardiovascular disease—the most compelling complication of diabetes—in people who already have diabetes**. The IHS did not design these projects to conduct new scientific research. Instead, the IHS was tasked with translating findings from scientific studies in American Indian and Alaska Native communities and their health care systems. These projects, called the Diabetes Prevention Demonstration Project and the Healthy Heart Demonstration Project, were implemented in 66 American Indian and Alaska Native communities at the end of 2004 (see Chapter 10).

### Strengthening the Diabetes Data Infrastructure

The IHS has used administrative funding from the *Special Diabetes Program for Indians* to strengthen the diabetes data infrastructure of the Indian health system by **improving diabetes surveillance and evaluation capabilities**. These funds also support the development and implementation of the IHS **Electronic Health Record**, the electronic patient and data management system used in many Indian health facilities. This infrastructure has enabled the IHS and *Special Diabetes Program for Indians* grant programs to



**expand beyond diabetes** and address obesity and other chronic conditions closely associated with diabetes.

### Legislative History: Congressional Response to Diabetes in Tribal Communities

The *Special Diabetes Program for Indians* resulted from a bipartisan plan to provide funds for the treatment and prevention of diabetes in American Indians and Alaska Natives. This initiative came in the wake of increasing public concern about

the human and economic costs of diabetes in the United States and its growing prevalence in vulnerable populations, particularly American Indians and Alaska Natives.

Congress established the initial *Special Diabetes Program for Indians* through the Balanced Budget Act of 1997 and augmented support for the Program through the Consolidated Appropriations Act of 2001 and Public Law 107-360 in 2004 (Table 1.1). As a result, the *Special Diabetes Program for Indians* now operates with a budget of \$150 million per year.

**Table 1.1. *Special Diabetes Program for Indians* Legislative Background**

Public Law	Annual Funding	Statutory Authority
Balanced Budget Act of 1997 (Public Law 105-33, Section 4922)	\$30 million per year (1998–2002)	<ul style="list-style-type: none"> <li>Establish the original <i>Special Diabetes Program for Indians</i> grant programs for the “prevention and treatment of diabetes” in American Indians and Alaska Natives, called the <b>Community-Directed Diabetes Programs</b>.</li> <li>Conduct a comprehensive evaluation of the Program.</li> </ul>
Consolidated Appropriations Act of 2001 (Public Law 106-554, Section 931)	Added \$70 million per year (2001–2002) \$100 million for 2003	<ul style="list-style-type: none"> <li>Continue ongoing diabetes treatment and prevention activities in Tribal communities, through the <b>Community-Directed Diabetes Programs</b>.</li> <li>Implement a <b>best practices approach</b> to diabetes treatment and prevention.</li> <li>Build upon what the grant programs have learned.</li> </ul>
Public Law 107-360, Section 1	\$150 million per year (2004–2008)	<ul style="list-style-type: none"> <li>Continue ongoing diabetes treatment and prevention activities in Tribal communities through the <b>Community-Directed Diabetes Programs</b>.</li> <li>Strengthen the <b>IHS diabetes data infrastructure</b>.</li> <li>Develop and implement competitive <b>Demonstration Projects</b> for: (1) the primary prevention of diabetes in American Indians and Alaska Natives at risk for developing diabetes; and (2) cardiovascular disease risk reduction in American Indians and Alaska Natives with diabetes.</li> </ul>

## A Shared Vision for a Diabetes-Free Future

Over the past 10 years, the *Special Diabetes Program for Indians* has demonstrated the positive public health impact that is possible when Tribal and Congressional initiatives are focused on a common outcome. Tribes and the IHS worked collaboratively to implement the statute of the *Special Diabetes Program for Indians* through a process that included formal Tribal consultation, developing funding distribution formulas, and establishing grant application and administrative procedures.

### Honoring the Government-to-Government Relationship: Tribal Consultation

Tribal consultation is an integral part of federal program development because of the unique government-to-government relationship between the Federal Government and Tribes. This relationship was established in Article I, Section 8 of the United States Constitution and reaffirmed in numerous treaties, laws, and Supreme Court decisions.

In 1997, the IHS used a formal Tribal consultation process at the local, regional, and national levels to obtain input and recommendations from Tribal Leaders and Urban Indian health program leaders on the new *Special Diabetes Program for Indians*. The IHS Director established the Indian Health Diabetes Workgroup to review the recommendations from local and regional Tribal consultations and to determine a mechanism for distributing the funds. The Workgroup consisted of Tribal Leaders from the National Indian Health Board and the Tribal Self-Governance Advisory Committee,



“My father fights diabetes daily. His fight motivates me. I am also motivated by people I see in our health care facility. Sometimes, they feel hopeless. I want them to know there is hope! We must help them understand that they can control diabetes, rather than be controlled by it. We are in a war against diabetes, and yes, it can be won!”

Judy Goforth Parker  
Tribal Leader  
Chickasaw Nation of Oklahoma

and representatives from Urban Indian health programs, the Association of American Indian Physicians, and the IHS.

After reviewing the recommendations from the local and regional Tribal consultations, the Workgroup recommended that the new diabetes funds be distributed in a manner that followed guiding principles, including:

- ◆ Local sites should retain decision-making authority in designing effective diabetes programs to address the specific, unique, and individual needs of their communities.
- ◆ A cap of 1% of the diabetes funds should be placed on administrative expenses.
- ◆ Funds should be allocated for the purpose of improving data collection and accuracy.

Based on these guiding principles, the Workgroup developed a distribution formula that accounts for disease burden, user population, and Tribal size. The IHS then developed a Request for Application for the *Special Diabetes Program for Indians* Community-Directed Diabetes Program, which



“Like all of us, I have been affected personally by diabetes. It has touched many family members and loved ones. I cannot stand to lose another person to diabetes! The epidemic must be stopped! For me, to sit back and do nothing is not an option. We all must put forth our strongest effort to stop this disease.”

Sally Smith  
Chairman  
National Indian Health Board

was released in February 1998. IHS, Tribal, and Urban Indian health programs could use this Request for Application to apply for funds in support of local diabetes treatment and prevention programs and directly related data collection. The IHS used the consensus-developed distribution formula to allocate grant funds to programs deemed eligible to receive federal funds.

### **Tribal Leaders Diabetes Committee**

This successful Tribal consultation process resulted in the IHS Director’s creation of the Tribal Leaders Diabetes Committee in 1998. By creating this Committee, the Director sought to foster an ongoing dialogue between the IHS and Tribal leadership on matters related to diabetes, chronic conditions, and other health issues in American Indian and Alaska Native communities. The Tribal Leaders Diabetes Committee has been an important outcome of the *Special Diabetes Program for Indians* and demonstrates the true spirit of ongoing partnership between Tribal and IHS leaders. In 2004, the Tribal Leaders Diabetes Committee and the Tribal consultation process played an integral role in developing the funds distribution

process for the competitive *Special Diabetes Program for Indians* Demonstration Projects. The IHS used recommendations from the Tribal Leaders Diabetes Committee, as well as local and regional Tribal consultations, to develop the basis of the Demonstration Projects:

- ◆ The IHS set aside \$27.4 million of *Special Diabetes Program for Indians* funding per year from fiscal year 2004 to fiscal year 2008 for the Demonstration Projects.
- ◆ Only previous *Special Diabetes Program for Indians* grant programs could compete for funding and had to provide evidence of their capacity to implement planned project activities successfully.
- ◆ The IHS selected a diverse group of grant programs representing IHS, Tribal, and Urban Indian health programs; large and small programs; and geographically diverse locations.
- ◆ The IHS established the *Special Diabetes Program for Indians* Demonstration Projects Coordinating Center in Denver, Colorado, to coordinate project activities, provide technical assistance to the grant programs, and conduct a comprehensive evaluation of the Demonstration Projects.

### **Leadership and Strategy**

Implementing and administering the *Special Diabetes Program for Indians* presented the IHS with a considerable logistical challenge. In its entire history, the IHS had never been faced with creating and managing such a large grant program. In response to this challenge, the IHS Division of Diabetes has facilitated mobilization of

an extensive network—including Tribal Leaders, government agencies, private organizations, scientific experts, health care professionals, and Tribal community members—to undertake one of the most strategic and concerted diabetes treatment and prevention efforts to date. Over the course of the *Special Diabetes Program for Indians*, the IHS Division of Diabetes and its network have demonstrated the ability to design, manage, and measure a complex, long-term project to address this chronic condition.

## On the Path to a Healthier Future

As directed by Congress, the IHS developed and implemented the *Special Diabetes Program for Indians* for the treatment and prevention of diabetes and its complications in American Indians and Alaska Natives. Through a collaborative, in-depth Tribal consultation process that involved the IHS, Tribal organizations, and Urban Indian health programs, nearly 400 grant programs for American



“Great Creator, we stand on Mother Earth under the sky. You’ve made creation to be in balance so that we can stand erect and be healthy. In your own way, you created human life—from the tip of our toes to the top of our head—with our soul, mind, and heart, to be strong. We want individuals to remember your powerful ways—that health can be in their every step, in their every thought. With diabetes as prevalent as it is, we want to remember where our roots are, where we are, and where we want to be in health.”

Jerry Freddie  
Tribal Leader  
Navajo Nation

Indians and Alaska Natives have been established across the United States.

In response to Congressional direction, the IHS conducted a comprehensive evaluation of the *Special Diabetes Programs for Indians* Community-Directed Diabetes Programs. These data have been presented in two interim reports to Congress. In 2000, the IHS submitted the “January 2000 Interim Report to Congress on the *Special Diabetes Program for Indians*,” which included descriptions of the Community-Directed Diabetes Programs and their activities. The IHS used well-established public health evaluation methods (see Appendix 2) to document the accomplishments of the Community-Directed Diabetes Programs. These accomplishments, which were presented in the “December 2004 Interim Report to Congress on the *Special Diabetes Program for Indians*,” included:

- ◆ Improving the health care provided to American Indians and Alaska Natives with diabetes.
- ◆ Increasing diabetes prevention efforts.
- ◆ Providing American Indians and Alaska Natives with services and education to help them lead healthier lives.

This is the third report to Congress on the *Special Diabetes Program for Indians*. The first part of this Report explores diabetes in American Indians and Alaska Natives, essential elements of diabetes care, and the costs associated with diabetes. The

second part of this Report focuses on the highly successful strategies employed by the *Special Diabetes Program for Indians* to address diabetes in key areas of diabetes treatment and prevention. These key areas, such as diabetes and youth, behavior, and weight management, are critical to achieving healthier communities across the entire life span.

The final part of this Report highlights the early outcomes of the *Special Diabetes Program for Indians* Demonstration Projects, published here for the first time. This section also presents the IHS’s plan to continue building on nearly a decade of measurable success for the *Special Diabetes Program for Indians*. This plan offers a sustainable strategy for spreading the lessons learned and the system of coordinated care gained through the *Special Diabetes Program for Indians* to meet the continued challenges of diabetes in American Indian and Alaska Native communities.

The stories, data, and information woven throughout this Report clearly show how the *Special Diabetes Program for Indians* has relieved suffering and improved the quality of life in many American Indian and Alaska Native communities. The success achieved thus far, however, represents only the beginning of what can be achieved when Tribal, governmental, and organizational partners work together toward a shared goal. Work remains, but the belief among American Indian and Alaska Native communities is strong that they are on the path to a diabetes-free future.

## GAMBLER FAMILY: FIGHTING DIABETES FOR ALL GENERATIONS



Charles and Dorothy Gambler, a Northern Arapaho Wyoming couple in their seventies, know firsthand the devastating impact of diabetes on American Indians and Alaska Natives. The Gamblers lost two adult sons to diabetes and Charles's mother died of the disease. At the age of 66, Dorothy learned she had diabetes.

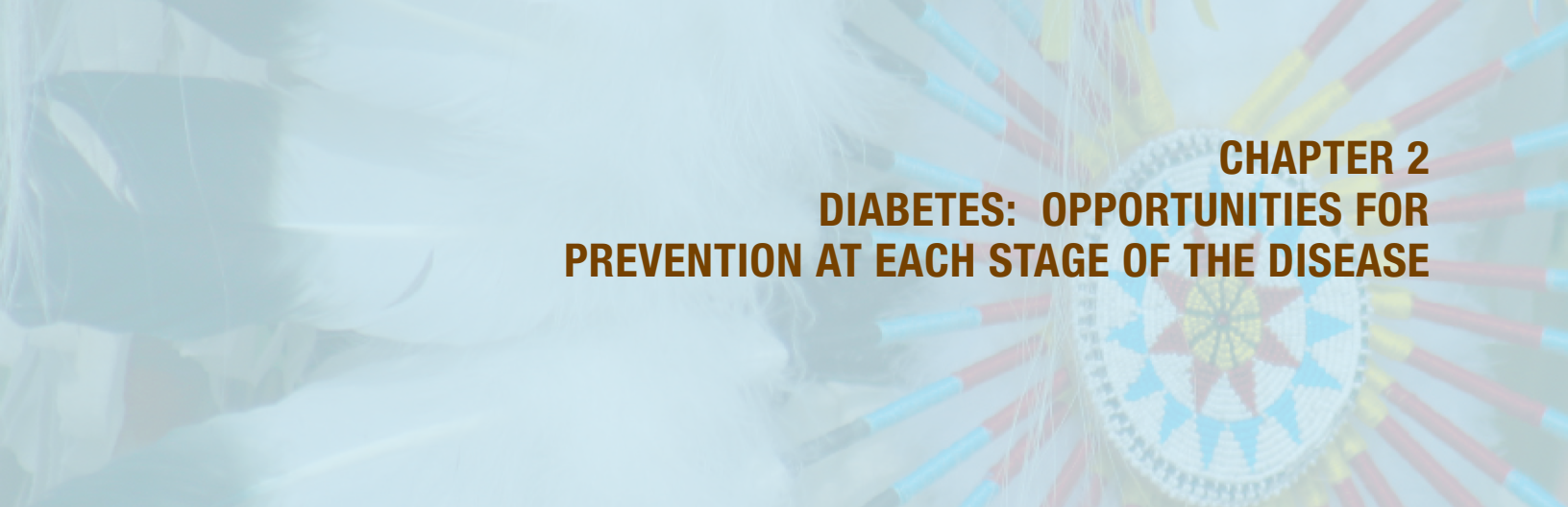
Dorothy's blood sugar reading when she was diagnosed was extremely high, and she was put on insulin right away to bring her blood sugar levels down. After attending diabetes education classes at the Arapaho Clinic and practicing diabetes self-management behaviors, Dorothy got her blood sugar under control within a few months. She was able to stop taking insulin and then was able to stop taking her diabetes pills. Now, Dorothy manages her blood sugar through diet and exercise, and she has no diabetes complications.

Charles has pre-diabetes and is determined to take steps *now* to prevent the onset of diabetes.

He has attended diabetes education classes with Dorothy. He eats less, and the couple walks together every day.

Charles and Dorothy have made staying healthy their number one priority. As spiritual leaders, they play a major role in the life of their community on the Wind River Reservation, passing on their language and traditions to Tribal members. They provide counseling to couples having marital problems, and when community members call them, they pray together over the telephone.

Every day, the Gamblers pray for their 11 children, 35 grandchildren, 28 great-grandchildren, and one great-great grandchild, as well as for all Arapaho families. Praying in two languages, they pray for preventing diabetes and for the health, happiness, and longevity of their family.



## CHAPTER 2

# DIABETES: OPPORTUNITIES FOR PREVENTION AT EACH STAGE OF THE DISEASE

### SUMMARY

#### Issue

Diabetes is a chronic condition that is not reversible, but it can be prevented and it can be managed and controlled. The health conditions leading up to diabetes, however, are reversible, offering many opportunities for the Indian health system to intervene and prevent the disease and its complications in American Indians and Alaska Natives.

#### Action

Woven into *Special Diabetes Program for Indians* activities and services are proven diabetes treatment and prevention strategies—such as patient education programs, quality diabetes care services, as well as physical activity, nutrition, and weight management activities—that address each stage of the disease.

Diabetes has affected the quality of life of entire American Indian and Alaska Native communities, leaving illness, pain, disability, and death in its wake. For a disease that is capable of causing so much harm, its roots are complex. A single event does not precipitate diabetes, and it does not develop overnight. Instead, diabetes develops and progresses over time and through several stages. The good news is that there are many opportunities to prevent diabetes and its complications at each stage of the disease, offering hope for a healthy life no matter where a person is in the continuum of diabetes.

#### What Is Diabetes?

Diabetes is a chronic, potentially debilitating, and often fatal disease that can develop with few symptoms. Type 2 diabetes is the most common form of diabetes. In type 2 diabetes (hereafter referred to as “diabetes” in this Report), the body cannot produce enough insulin or cannot use the insulin that it produces. Insulin is a hormone produced in the pancreas that helps carry sugar from the bloodstream into the cells, so the cells can convert sugar into energy or store it for future use.

If the body cannot produce enough insulin or cannot use the insulin that it produces, sugar levels build up in the blood instead of going into the cells. As a result, the cells begin to starve for energy. Over time, high blood sugar levels can cause eye, kidney, nerve, or heart damage. This damage is referred to as “diabetes complications.”

## Types of Diabetes

The three main types of diabetes are type 1 diabetes, type 2 diabetes, and gestational diabetes.

### Type 1 Diabetes

Type 1 diabetes, formerly called juvenile diabetes or insulin-dependent diabetes, usually is diagnosed first in children, teenagers, or young adults. In this form of diabetes, the insulin-producing cells (beta cells) of the pancreas no longer make insulin because the body's immune system has attacked and destroyed them. Treatment for type 1 diabetes includes taking insulin shots or using an insulin pump every day, testing blood sugar levels several times a day, making wise food choices, exercising regularly, and controlling blood pressure and cholesterol.

### Type 2 Diabetes

Type 2 diabetes, formerly called adult-onset or noninsulin-dependent diabetes, is the most common form of diabetes. People can develop type 2 diabetes at any age, even during childhood. For many people, this form of diabetes begins with insulin resistance, a condition in which fat, muscle, and liver cells do not use insulin properly. At first, the pancreas keeps up with the added demand by producing more insulin. Over time, however, it loses the ability to secrete enough insulin in response to meals. Being overweight and inactive increases the chances of developing type 2 diabetes. Treatment includes taking oral diabetes medications and/or insulin shots, testing blood sugar levels, making wise food choices, exercising regularly, taking aspirin daily, and controlling blood pressure and cholesterol.

### Gestational Diabetes

Gestational diabetes is diabetes that occurs during pregnancy. Diabetes that is present before a woman becomes pregnant or is diagnosed during the first trimester of pregnancy is called *pregestational diabetes*. The exact cause of gestational diabetes remains unknown, but hormones produced by the placenta block the action of insulin in the mother's body, leading to insulin resistance in the mother. Although gestational diabetes usually goes away after the baby is born, a woman who has had gestational diabetes is more likely to develop type 2 diabetes later in life. The fetus of a gestational diabetes pregnancy is at increased risk for growth abnormalities, birth injuries, and perinatal death. In addition, children of women with gestational diabetes have an increased risk of developing type 2 diabetes, with more than 70% developing the disease by the time they reach early adulthood.<sup>1</sup> The good news is there are opportunities at all stages of a woman's reproductive cycle for prevention, intervention, and education regarding diabetes risk and treatment.<sup>2</sup>

(Source: National Institute for Diabetes and Digestive and Kidney Diseases, National Institutes of Health. <http://diabetes.niddk.nih.gov/dm/pubs/riskfortype2/index.htm>)



## The Natural Progression of Diabetes


Understanding the natural progression of diabetes is important for patients, family members, communities, and health care systems. This understanding can guide:

- ◆ Patients and their families in making lifestyle choices that can prevent or delay diabetes and its complications.

- ◆ Primary care providers in developing effective, individualized treatment regimens.
- ◆ Local community programs and health care systems in their diabetes treatment and prevention efforts.

Diabetes is not reversible, but the health conditions leading up to it are. Figure 2.1 illustrates the natural progression of diabetes, described in detail below.

**Figure 2.1. Progression of diabetes and opportunities for prevention**

<b>PROGRESSION OF DIABETES</b> 			
<b>At risk for diabetes</b>	<b>Pre-Diabetes</b>	<b>Diabetes</b>	<b>Diabetes with complications</b>
May begin at conception	Reversible condition; progression can be prevented	Not reversible, but complications can be delayed or prevented	Not reversible, but disability can be prevented
<b>Opportunities for Prevention</b>			
Offer preconception counseling for women with pre-existing diabetes	Provide education on diabetes prevention to youth and adults	Provide self-management education	Provide intensified self-management education
Provide prenatal care to prevent low birth weight or very large babies	Provide quality diabetes prevention services	Provide quality diabetes care and routine follow-up	Provide quality diabetes care and intensive follow-up
Promote breastfeeding	Use oral medications as indicated	Use oral medications and insulin as needed	Careful, frequent monitoring
Encourage healthy lifestyles	Encourage healthy lifestyles	Encourage healthy lifestyles	Encourage healthy lifestyles
Promote smoking cessation	Promote smoking cessation	Promote smoking cessation	Provide aggressive treatment to prevent further progression

### At Risk for Diabetes

The human body uses sugar in the blood to fuel its cells and provide energy for activities. Several risk factors affect the body's ability to use blood sugar, putting people at risk for developing health problems that can lead to diabetes.

One risk factor is having a *hereditary predisposition* for diabetes. Many racial and ethnic groups, including American Indians and Alaska Natives, bear a greater hereditary burden for developing diabetes, as a family history of diabetes is one of the strongest risk factors for diabetes. Being *overweight or obese* also places people at high risk for developing diabetes because extra fat tissue affects the way insulin works in the body. Lifestyle factors that can lead to overweight or obesity, such as a high-fat, high-calorie diet and lack of physical activity, increase a person's risk for diabetes. In addition, *socioeconomic and environmental factors*—including lack of income or access to

affordable healthy foods and living in an unsafe, highly stressful environment that does not afford opportunities for physical activity—can contribute to increased risk for diabetes. Recent research with Pima Indians in the United States and Mexico has shown that even in populations for which there is a hereditary predisposition to diabetes, the development of diabetes was mostly determined by environmental factors.<sup>3</sup>

Another important, but often under-recognized, risk factor for diabetes is a person's *exposure to diabetes while in the womb*. Diabetes during pregnancy exposes the fetus to high blood sugar levels at sensitive developmental periods, causing vulnerability to early onset diabetes, overweight and obesity, and birth defects and complications. In fact, more than 70% of people with prenatal exposure to diabetes develop the disease by early adulthood. Furthermore, exposure to diabetes in the womb accounts for approximately 40% of diabetes in children and youth aged 5–19 years.<sup>4</sup>



James Antone, aged 14, of Maricopa, Arizona, was diagnosed with type 2 diabetes at the age of 7. James's parents also have diabetes and are currently undergoing dialysis. "We hope that the tools and education James receives from *D-Group*, a support group for kids with type 2 diabetes, will help prevent the complications we have suffered—and that he will never need dialysis," say James's parents.

### Pre-Diabetes

Over time, if the body cannot produce enough insulin or cannot adequately use the insulin that it produces, a person develops *pre-diabetes*. Health care providers sometimes call this condition impaired fasting glucose (IFG) or impaired glucose tolerance (IGT). People with pre-diabetes have blood sugar levels that are higher than normal, but not yet in the diabetic range. These individuals are at *very high risk* for developing diabetes and are likely to develop the disease within 10 years. Recent research also suggests that pre-diabetes can cause long-term damage to the body, especially to the heart and circulatory system.

Pre-diabetes usually has few, if any, symptoms. This lack of symptoms is a major deterrent to diabetes prevention efforts because a person can have pre-diabetes for several years without

knowing they have it. Diabetes prevention efforts are particularly important at this stage because pre-diabetes is a *reversible* condition.

The Diabetes Prevention Program, a landmark clinical trial sponsored by the National Institutes of Health (NIH) first published in February 2002, demonstrated that type 2 diabetes can be delayed or prevented in people with pre-diabetes. In the NIH Diabetes Prevention Program, diabetes incidence was reduced substantially—58% in those who lost 5–7% of their body weight as a result of lifestyle intervention and 31% in those taking the drug metformin, as compared with the placebo group. Importantly, the study participants were representative of the racial and ethnic diversity of the United States and of the groups at highest risk for diabetes, including American Indians and Alaska Natives.<sup>5</sup>

Applying the results of the NIH Diabetes Prevention Program and addressing pre-diabetes has become even more urgent as the number of people with pre-diabetes continues to increase to epidemic proportions. The United States Department of Health and Human Services estimates that 40% of United States adults between the ages of 40 and 74—or 41 million people—had pre-diabetes in 2000. New data suggest that at least 54 million United States adults had pre-diabetes in 2002.<sup>6</sup>

## Diabetes

Diabetes is diagnosed when blood sugar levels surpass blood sugar levels associated with pre-diabetes. Unlike pre-diabetes, once a person has diabetes, the condition is not reversible. Diabetes can, however, be controlled, and the risk for diabetes-related complications can be reduced by keeping blood sugar levels within the normal range.

People with diabetes must manage their condition every day. Diabetes management requires

“I want to give my children memories of a healthy mother and to live a long time,” says Victoria Dawahoya, a Pima mother of three children. Victoria has diabetes as do her parents, aunts, and uncles. Diagnosed with gestational diabetes during her second pregnancy—and type 2 diabetes 3 years later—Victoria has changed her lifestyle to ensure a healthy future.



lifestyle changes such as eating healthy foods in the right amounts and getting regular physical activity, maintaining a healthy weight, taking medication or using insulin, and checking blood sugar levels several times a day. It also requires periodic medical visits to check blood sugar, blood pressure, and lipid levels, as well as annual eye, kidney, and foot exams.

## Diabetes Complications

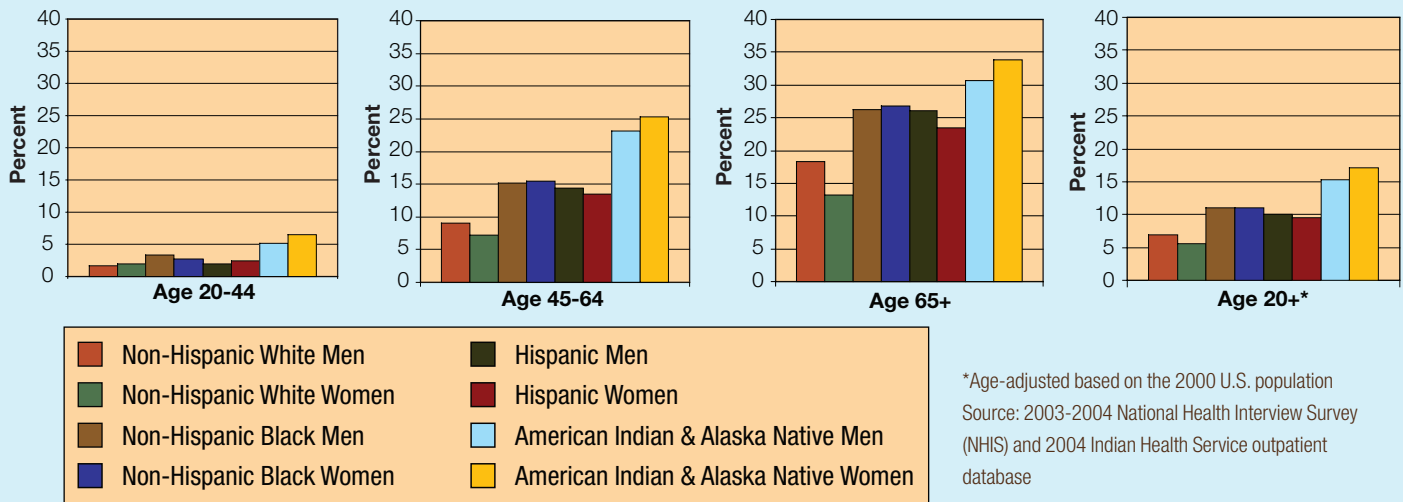
Long-term high blood sugar levels place people with diabetes at risk for developing complications that can affect physical and mental health, causing:

- ◆ Heart attacks and heart failure
- ◆ Stroke
- ◆ Kidney disease and kidney failure
- ◆ Impaired vision and blindness
- ◆ Foot ulcers and amputations
- ◆ Nerve damage
- ◆ Depression

Although these complications often are disabling and life-threatening, medical and lifestyle interventions can reduce the risk for complications.

**Figure 2.2. Prevalence of diagnosed diabetes in adults by age, race/ethnicity, and gender in the United States, 2004**

American Indians and Alaska Natives have the highest rates of diabetes among all United States racial and ethnic groups.



### Diabetes: Who Suffers?

An estimated 20.8 million Americans have diabetes, representing 7.0% of the population.<sup>7</sup> Only two-thirds of those affected have been diagnosed and are being actively treated. Although diabetes occurs in people of all ages and races, some groups have a higher risk than others for developing diabetes. Diabetes is more common in American Indians and Alaska Natives, African Americans, Hispanics and Latinos, and Asian Americans and Pacific Islanders than in non-Hispanic whites. Prevalence rates also are much higher in people over the age of 65 than in younger people.

American Indians and Alaska Natives bear the heaviest burden of diabetes in the United States, suffering from the disease in epidemic proportions. The current diabetes statistics for American Indians and Alaska Natives are sobering. As illustrated in Figure 2.2, American Indians and Alaska Natives have the highest age-adjusted rates of diagnosed diabetes, 16.3%, among all United States racial and ethnic groups. In some communities, the prevalence rate is as high as 60%.

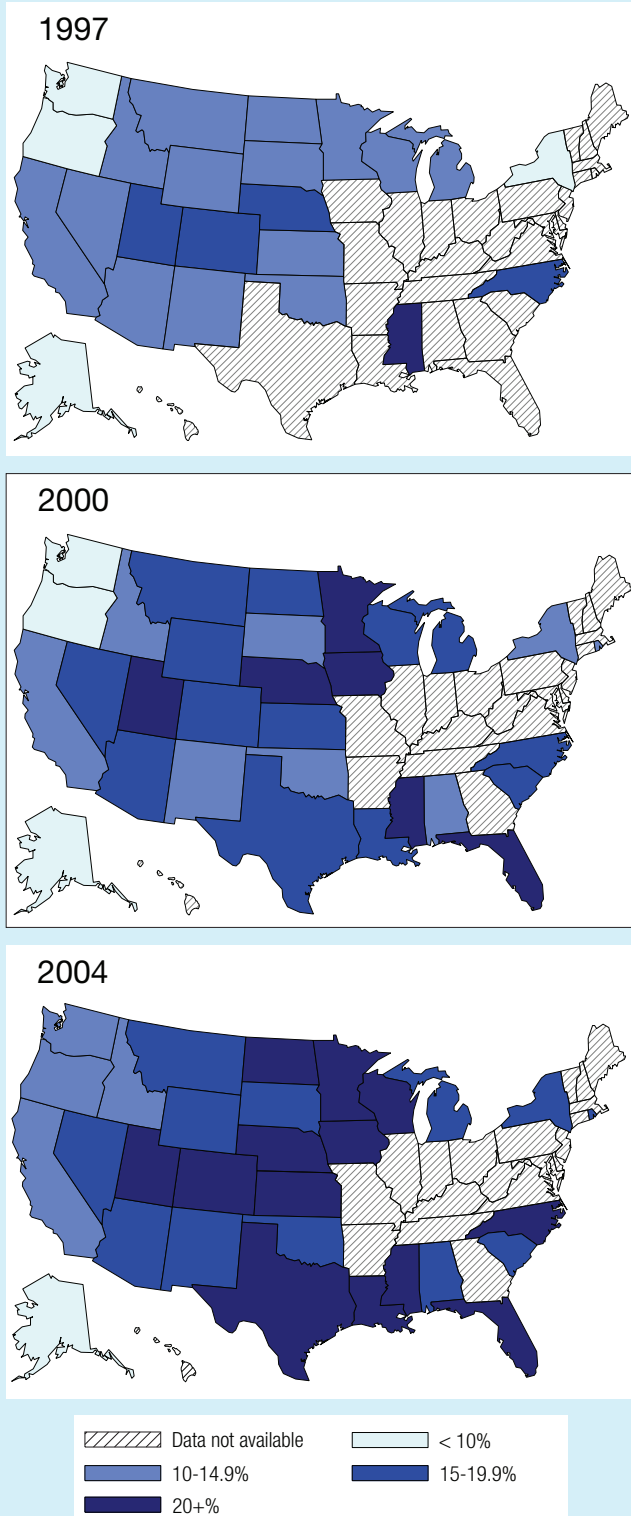
Not only are these diabetes prevalence rates high, they are also increasing. Figure 2.3 illustrates the increase in diagnosed diabetes prevalence in American Indians and Alaska Natives from 1997 (when Congress established the *Special Diabetes Program for Indians*) to 2004.

Because American Indians and Alaska Natives have higher rates of diabetes, they also suffer from higher rates of long-term diabetes-related complications. Furthermore, American Indians and Alaska Natives develop these complications sooner because they develop diabetes earlier in their lives compared to the general United States population.

Diabetes often forces people to confront the very real possibility of a premature death. Unfortunately, in many American Indian and Alaska Native communities, this possibility is the stark reality. In fact, American Indians and Alaska Natives die from diabetes-related causes at a rate **more than three times higher** than the general United States population. Between 1973 and 2000, American Indian and Alaska Native mortality related to diabetes rose by a disturbing 64% (Figure 2.4).

**Figure 2.3. Prevalence of diagnosed diabetes in American Indians and Alaska Natives by state, 1997 to 2004**

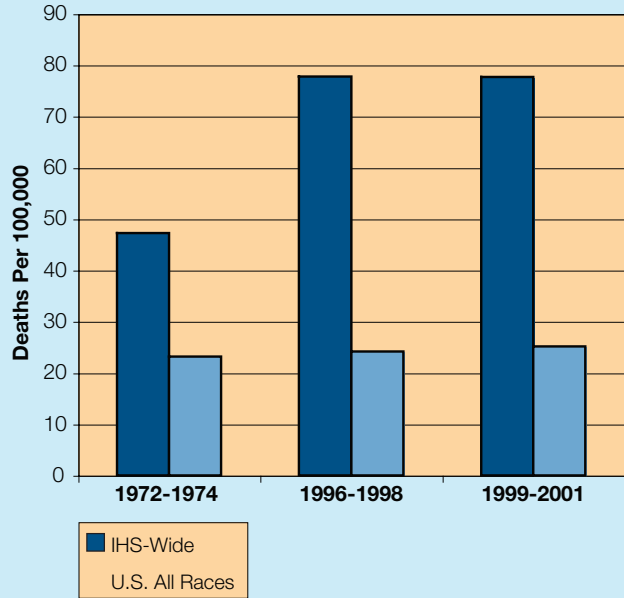
The rates of diagnosed diabetes in American Indians and Alaska Natives increased in many states in the United States from 1997 to 2004.



Source: Indian Health Service Division of Program Statistics

**Figure 2.4. Diabetes mortality rates\* for American Indians and Alaska Natives versus all races in the United States, 1972 to 2001**

American Indians and Alaska Natives have a significantly higher rate of death related to diabetes compared to all races in the United States.



\*Age-adjusted based on the 2000 U.S. population

Source: Indian Health Service Division of Program Statistics and National Center for Health Statistics. Includes American Indians and Alaska Natives in the Service Area for the Indian Health Service (1972-1974, 1996-1998, 1999-2001). U.S. All Races data are for 1973, 1997, 2000.

## Many Opportunities for Preventing Diabetes and Its Complications

Although diabetes and its complications can reduce the quality of life for people with diabetes and their families, the precursors of diabetes are *reversible* conditions (Figure 2.1). Many treatment and prevention activities can significantly reduce the threat of debilitating diabetes complications.

The *Special Diabetes Program for Indians* served as a call to action for American Indian and Alaska Native communities to treat and prevent diabetes and its complications. The *Special Diabetes Program for Indians* grant programs have implemented proven treatment and prevention strategies that are now commonplace in American Indian and Alaska Native communities. Some of these activities include:<sup>8</sup>

### Physical Activity, Nutrition, and Weight Loss Activities

Physical activity, improved nutrition, and weight loss help the body respond better to insulin, helping people avoid developing diabetes. In fact, the NIH Diabetes Prevention Program showed that healthy lifestyle changes and weight loss could prevent or delay the onset of diabetes in people with pre-diabetes. The study confirmed that people who lost weight by following a low-fat, low-calorie diet and who increased physical activity reduced their risk of developing type 2 diabetes by 58% following the implementation of these lifestyle changes. Many study participants experienced a return to normal blood sugar levels.<sup>9</sup>



“When I was 17 and pregnant with my first child, I was told I might have gestational diabetes. That was my first introduction to diabetes. I learned I would be susceptible to diabetes later in life, so I began to eat healthier during all of my pregnancies. I realized how important it is to remain active and eat healthy—for me and future generations.”

Doreen Lacy  
Yupik Eskimo

### Smoking Cessation Programs

Smoking increases a person’s risk for developing pre-diabetes. Quitting smoking reduces the risk for developing not only diabetes, but also respiratory problems, lung cancer, and cardiovascular disease.

### Medication Use

Blood sugar control is fundamental to the management of diabetes, but it is not always controlled with behaviors and lifestyle factors alone. Medications play a very important role in controlling not only blood sugar, but also blood pressure and lipid levels. Medications also are important in reducing the risk factors for diabetes-related complications. Treatment with several medications is frequently required to achieve blood sugar, blood pressure, and lipid treatment goals.

### Patient Education

Diabetes self-management education involves providing people who have diabetes with the information and self-care skills they need to manage their diabetes, improve their health, and effectively cope with living with a chronic condition. Several studies have found that diabetes self-management education is associated with improved diabetes knowledge, self-care behavior, and clinical outcomes.<sup>10</sup>

Health care professionals with specialized diabetes training provide this education, which is an integral part of diabetes care for all individuals with diabetes who want to achieve successful health outcomes. People with newly diagnosed diabetes need comprehensive self-management education to help them initiate effective self-care. These individuals also need ongoing diabetes self-management education to help them self-manage their diabetes over the long term.

### Providing Quality Diabetes Care

People with diabetes achieve better health outcomes when they receive care from a group of health care professionals who work together as a team, called a “diabetes team.” This team-based approach ensures that all aspects of a patient’s health care are integrated and involves the patient and their family in creating an individualized diabetes management plan. Other components of quality diabetes care include the use of diabetes patient registries by providers to track patients and their care, flow sheets to plan patient visits, and special diabetes clinics.

When Marilyn Huggins (Miccosukee) from Florida found out she had diabetes, she was frightened, but didn’t change her lifestyle until she became pregnant. To avoid harming her baby, Marilyn started taking steps to lower her blood sugar. Her daughter, Kendrick Osceola, was born healthy, and Marilyn has continued her healthy habits. She walks almost every day and has lost 65 pounds in 2 years.



### Continued Action Can Prevent Diabetes and Its Complications

Despite the serious situation facing American Indian and Alaska Native communities, the *Special Diabetes Program for Indians* has built a strong foundation for continued action against diabetes and its complications. The exciting and promising outcomes achieved by the *Special Diabetes Program for Indians* grant programs are the result of implementing prevention strategies that address each stage of diabetes. Using public health approaches validated in the scientific literature, the grant programs are taking every opportunity to help people reverse the progression to diabetes and its associated complications. Continuation of these activities by diabetes treatment and prevention programs nationwide will improve the quality of life for American Indians and Alaska Natives and offer hope for a diabetes-free future.

## THE VALUE OF DIABETES DATA: BERNADINE TOLBERT, M.D., PH.D.



Dr. Bernadine Tolbert's commitment to the value of data may come from her many years of scientific training. She has four degrees: M.D., Ph.D. in Biochemistry, M.S. in Nutrition, and B.S. in Chemistry. She served as the Area Diabetes Consultant for the Oklahoma City Area Indian Health Service (IHS) for 15 years, and is proud of her reputation to *agitate*, *aggravate*, and *instigate* for continuous improvement in diabetes care. "When we talk about demonstrating success, we MUST have data! That's why I'm so serious about quantifying activities," says Dr. Tolbert.


Dr. Tolbert used the *IHS Diabetes Care and Outcomes Audit* (the Audit) to help guide Oklahoma City Area IHS *Special Diabetes Program for Indians* grant programs in setting priorities for the use of Program funds. She traveled throughout the Area challenging grant programs to demonstrate outcomes that show the care they are providing is making a difference in the health status of people living with diabetes. Dr. Tolbert states, "Process measures can only take you so far. You've got to have outcomes, and that's how you assess impact."

With Dr. Tolbert's assistance in analyzing the Audit data, grant programs have identified

priorities for improved care and for allocating program resources. For example, after Audit data revealed that the use of certain medications had the potential to reduce cardiovascular risk factors, the Cheyenne and Arapaho Tribes used *Special Diabetes Program for Indians* funding to purchase hypoglycemic and lipid-lowering agents not available in the IHS formulary. As expected, data from the subset of patients who received the new medications have proven the drugs' effectiveness.

The Oklahoma City Area IHS is proud of the Audit data, which continue to show improvements across the board, and is confident that the long-term effect of these improvements will be better diabetes management and control, as well as fewer complications. Dr. Tolbert states, "These improvements can be attributed to the Audit and the availability of the *Special Diabetes Program for Indians* resources that provide not only more effective medications, but also diabetes educators to teach self-management and lifestyle change."





## CHAPTER 3 CARING FOR PEOPLE WITH DIABETES: SUCCESSFUL CLINICAL OUTCOMES

### SUMMARY

#### Issue

Caring for people with diabetes is complex, often making it difficult to manage the disease effectively. Diabetes care practices that can help health systems successfully treat people with diabetes, such as the use of clinical guidelines, best practices, and diabetes treatment clinics, are well documented in the scientific literature. Ensuring that people with diabetes have access to these components of quality diabetes care improves not only clinical outcomes, but also the health, well-being, and quality of life of people with diabetes.

#### Action

The *Special Diabetes Program for Indians* has enabled American Indian and Alaska Native communities to make quality diabetes care practices commonplace in their health care facilities. These practices include:

- ◆ Developing and implementing **key elements of diabetes care**, including diabetes teams, registries, and clinics.
- ◆ Implementing and disseminating **best practices and clinical guidelines** for diabetes care.
- ◆ Collecting data via the *Indian Health Service (IHS) Diabetes Care and Outcomes Audit*.

Results from the *IHS Diabetes Care and Outcomes Audit* show **positive changes in clinical outcomes in people with diabetes since the inception of the *Special Diabetes Program for Indians***.

These changes include:

- ◆ Improved blood sugar control.
- ◆ Slowed progression of diabetes-related kidney disease.
- ◆ Reduced risk for cardiovascular disease.

“The *Special Diabetes Program for Indians* has allowed us to compare our services and outcomes with other health care systems. Our clinical outcomes show that our diabetes care is as good as other systems, or even better on certain measures. With the resources provided by the *Special Diabetes Program for Indians*, we can take into account cultural and psychosocial factors and offer culturally competent care that usually is not reimbursable.”

Ann Bullock, M.D.  
Medical Director  
Eastern Band of Cherokee Indians  
Health and Medical Division

The elements of quality care for people with diabetes are well known and documented in the scientific literature. A gap, however, often exists between what health systems *know* and what health systems *do*. For nearly 30 years, the Indian Health Service (IHS) Division of Diabetes Treatment and Prevention has been working together with the Indian health system to bridge this gap and provide quality care for American Indians and Alaska Natives with diabetes. The *Special Diabetes Program for Indians* is building on this foundation and rapidly spreading health care improvements throughout American Indian and Alaska Native communities to address the diabetes epidemic.

### **Pioneering and Measuring Improvement**

The IHS Division of Diabetes has a long and distinguished history of serving as a benchmark for diabetes clinical and public health excellence. This accomplishment has been achieved in part by creating and distributing innovative tools to facilitate high quality health care for American Indians and Alaska Natives with diabetes. The *Special Diabetes Program for Indians* grant programs use these tools to improve diabetes treatment and prevention services in the communities that they serve.

#### **Clinical Guidelines**

In 1986, the IHS Division of Diabetes developed the *IHS Standards of Care for Diabetes*, the first set of national clinical guidelines for diabetes care published by any United States organization. Over the past 20 years, these guidelines have helped health care professionals provide excellent care to American Indians and Alaska Natives with diabetes.

Every 1 to 2 years, the IHS Division of Diabetes brings together a group of diabetes experts from the Indian health system to update the guidelines based on the latest diabetes science.

#### **Best Practices**

The IHS Division of Diabetes also works with diabetes experts from the Indian health system to develop and disseminate the *Indian Health Diabetes Best Practices* documents, which outline consensus-based approaches for successful diabetes treatment, prevention, and education. In response to direction from Congress as part of the *Special Diabetes Program for Indians*, the IHS Division of Diabetes facilitated the development of the first set of 14 best practice documents in 2001. These best practice documents cover topics such as basic diabetes care and education, diabetes medications, eye care for people with diabetes, and type 2 diabetes in youth. In 2006, the IHS Division of Diabetes facilitated the development of four new best practice documents, as well as the update of the original 14 best practice documents to include the latest scientific evidence. All of the best practice documents are available on the IHS website at: [www.ihs.gov/medicalprograms/diabetes](http://www.ihs.gov/medicalprograms/diabetes).

#### **Surveillance**

Another key tool for facilitating and measuring improvement is the surveillance system developed by the IHS Division of Diabetes to assess the quality of diabetes patient care services within the Indian health system and to monitor health outcome trends in people with diabetes over time. The cornerstone of this surveillance system is the annual *IHS Diabetes Care and Outcomes Audit* (the Audit) that tracks performance on 59 diabetes care measures each year.

- ◆ The Audit involves collecting and analyzing data on the care provided to people with diabetes, as well as the health outcomes of people with diabetes. Patient care measures include exams to monitor diabetes complications and preventive health services, such as immunizations and smoking cessation therapy. Health outcomes include blood sugar, blood pressure, and blood cholesterol values.
- ◆ Indian health facilities voluntarily participate in the Audit.
- ◆ The 2006 Audit included a review of 48,524 charts, representing care to 122,885 patients with diabetes at 297 IHS, Tribal, and Urban Indian health facilities.

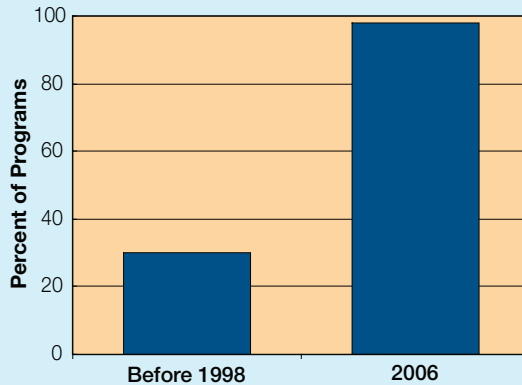
The IHS Division of Diabetes uses data from the Audit and other data collection tools to obtain information on the activities and services offered, as well as the people served, by the *Special Diabetes Program for Indians* grant programs. From analysis of these data, the IHS has seen important improvements in both the care and health of American Indians and Alaska Natives with diabetes since the inception of the *Special Diabetes Program for Indians*.

### Improving Diabetes Care: A Strong Foundation

The IHS Division of Diabetes is a leader in developing and implementing essential elements of quality diabetes care, such as diabetes teams, clinics, and registries. The *Special Diabetes Program for Indians* provided an opportunity to spread these essential elements to hundreds of American Indian and Alaska Native communities.

**Figure 3.1. Diabetes teams** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Diabetes teams that include a variety of health care professionals improve diabetes care by providing a multidisciplinary, comprehensive approach.



After receiving *Special Diabetes Program for Indians* funds, 98% of grant programs reported having **diabetes teams** in 2006 (versus 30% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

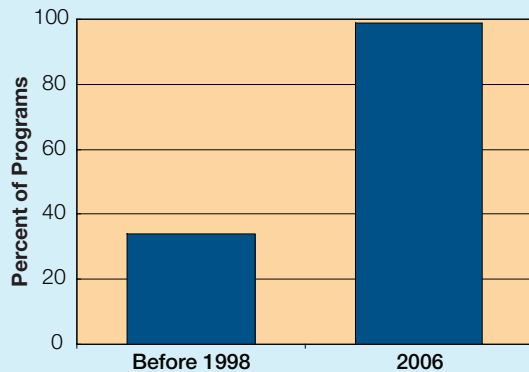
### Diabetes Teams

Diabetes is often difficult to treat because successful treatment is closely related to a person's lifestyle. People with diabetes need to actively manage their disease through healthy eating, physical activity, monitoring their blood sugar levels, and medication use. Teams of health care professionals are necessary to provide the highest quality care to people with diabetes and ensure that they manage their diabetes effectively. These diabetes teams include primary care providers, nurses, dietitians, diabetes educators, pharmacists, and community health representatives who work together to plan patient visits in advance and address patients' needs and self-management goals.

The scientific literature provides strong evidence that quality, intensive therapy from a diabetes team lowers blood sugar levels and prevents or delays the onset of serious diabetes complications. The majority of grant programs used *Special Diabetes Program for Indians* funds to establish, enhance, and support diabetes teams to provide quality diabetes care for American Indians and Alaska Natives (Figure 3.1).

**Figure 3.2. Diabetes registries** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Diabetes registries help health care providers care for people with diabetes by guiding treatment plans, anticipating problems, and monitoring progress.



After receiving *Special Diabetes Program for Indians* funds, 99% of grant programs reported having **diabetes registries** in 2006 (versus 34% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

### Diabetes Registries

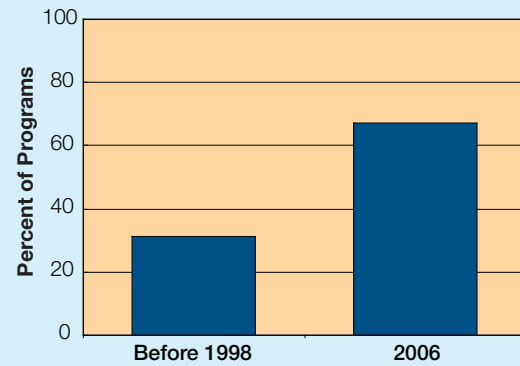
Another element of critical importance to diabetes care is the diabetes registry. The diabetes registry is an information system that tracks individual patients, as well as populations of patients. Registries may include clinical data, treatment information, and details of education provided. This information helps the diabetes team guide the course of treatment, anticipate problems, and monitor progress. Most of the *Special Diabetes Program for Indians* grant programs have used funds to establish or maintain a diabetes registry (Figure 3.2).

### Diabetes Clinics

A third element of quality diabetes care is the diabetes clinic. Diabetes clinics provide a coordinated approach to diabetes care. They help health professionals better plan and manage the care of people with diabetes. They also provide an opportunity for people with diabetes to consult with members of their diabetes team, obtain various laboratory tests and results, have their blood pressure and feet checked, and attend diabetes

**Figure 3.3. Diabetes clinics** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Diabetes clinics enhance diabetes care by improving efficiency and convenience for the patient.



After receiving *Special Diabetes Program for Indians* funds, 67% of grant programs reported having **diabetes clinics** in 2006 (versus 31% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

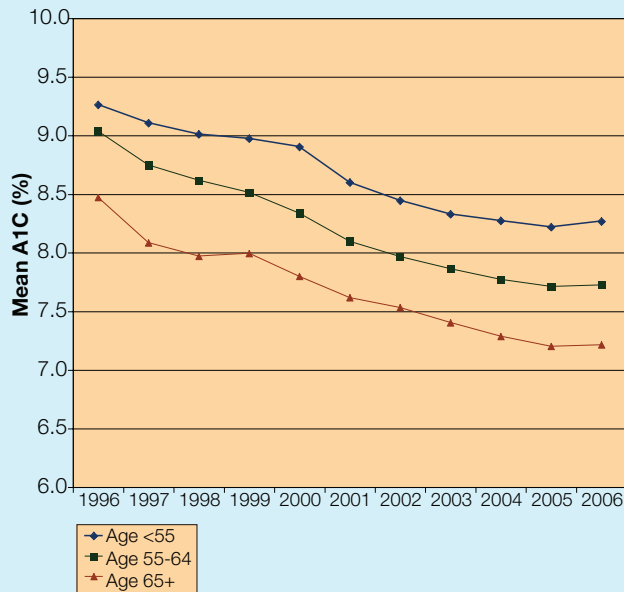
education sessions on topics such as nutrition and physical activity. The ability to obtain these services at a single visit is particularly important for patients who must travel long distances for their diabetes care. This is especially true for American Indians and Alaska Natives, many of whom live in remote, rural settings far from health care facilities. The *Special Diabetes Program for Indians* has enabled many grant programs to establish or support a diabetes clinic (Figure 3.3).

### Successful Clinical Outcomes: Pursuing Excellence

The programs and activities implemented with support from the *Special Diabetes Program for Indians* help provide continuous, proactive, and planned care to American Indians and Alaska Natives with diabetes. This care ultimately leads to better health and quality of life. Highlighted below are key areas of improvement in diabetes clinical care and outcomes since the inception of the *Special Diabetes Program for Indians*.

**Figure 3.4. Blood sugar control** has improved (decreased) in American Indians and Alaska Natives with diabetes

**Why is this important?** A decrease in A1C levels has been associated with preventing or delaying the complications of diabetes.



Source: Indian Health Service Diabetes Care and Outcomes Audit (1996-2006)

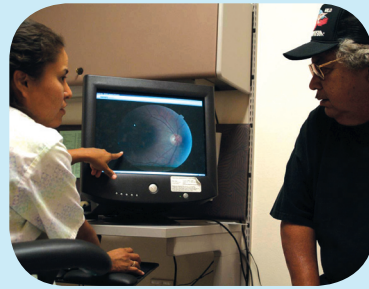
### Improving Blood Sugar Control

#### *What does the scientific research show?*

Improved blood sugar levels significantly reduce the onset and progression of diabetes-related complications, such as heart disease, stroke, blindness, lower extremity amputations, and kidney disease. The A1C test is the current criterion standard for assessing long-term blood sugar control. An A1C value of less than 7.0% is considered to be the goal for good blood sugar control. Scientific research shows that a one-unit decrease in A1C (e.g., a decrease from 8.0% to 7.0%) should translate into a 40% decrease in diabetes complications.<sup>1</sup>

**Response:** To improve blood sugar control in American Indians and Alaska Natives with diabetes, the IHS Division of Diabetes:

- ◆ Modified blood sugar goals in the *IHS Standards of Care for Diabetes* to encourage providers to be more aggressive in treating elevated blood sugars.



**Seeing is believing!** Diabetes is the leading cause of adult blindness and vision problems often go undetected until it is too late. The Indian Health Service/Joslin Vision Network Teleophthalmology Program’s vision scan technology is enabling thousands of American Indians and Alaska Natives to see pictures of the insides of their eyes—and make the connection between diabetes and eye disease. According to Program Director Dr. Mark Horton, “Over 11,000 people have had eye scans using this technology at 40 sites since 2000.”

- ◆ Supported the development of guidelines, educational efforts, and conferences for health care providers to help them teach and reinforce blood sugar management techniques to their patients.
- ◆ Supported development of posters and educational materials by the *Special Diabetes Program for Indians* grant programs to increase patients’ knowledge about the importance of blood sugar control.

**Outcome:** Blood sugar control among American Indians and Alaska Natives has steadily improved for more than a decade (Figure 3.4). **The mean blood sugar level (A1C) decreased 13% from 9.00% in 1996 to 7.85% in 2006, nearing the goal A1C of less than 7%.**

This improvement in blood sugar control will likely prevent or delay the development of diabetes complications among American Indians and Alaska Natives with diabetes. It is unlikely that this favorable trend could have been achieved without the clinical activities supported by the *Special Diabetes Program for Indians*.

## Reducing Proteinuria

### *What does the scientific research show?*

Diabetes is the number one cause of kidney failure in the United States. An early sign of kidney dysfunction is the presence of small amounts of protein in the urine, known as microalbuminuria. As kidney function declines, the amount of protein in the urine increases to abnormally high levels, a condition known as proteinuria. Using ACE inhibitors (a type of blood pressure medication that reduces protein in the urine and improves blood pressure control) prevents or slows the progression from diabetes-related kidney disease to kidney failure.

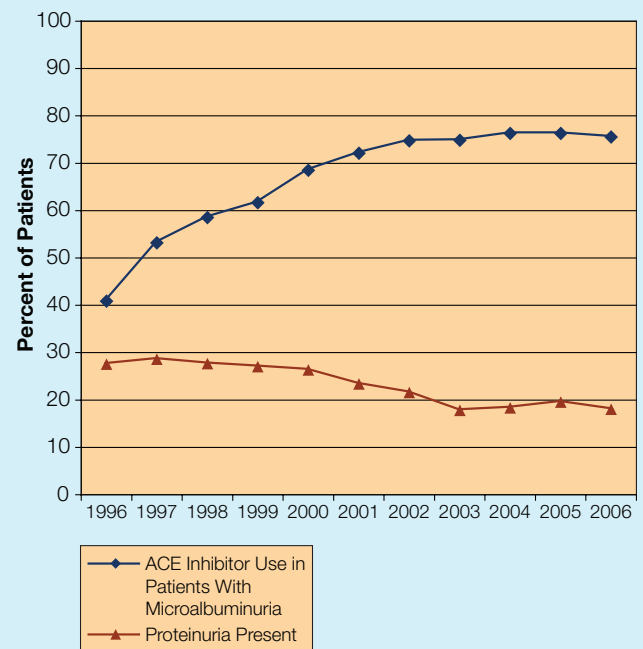
**Response:** To reduce the prevalence of protein in the urine in American Indians and Alaska Natives with diabetes, the IHS Division of Diabetes:

- ◆ Supported efforts to encourage health care providers to use ACE inhibitors more aggressively whenever appropriate.
- ◆ Provided education and written materials to health care providers promoting ACE inhibitors as the first choice in treating high blood pressure in patients with diabetes.
- ◆ Used local and regional patient awareness and information campaigns to explain how ACE inhibitors and good blood pressure control can help many patients protect their kidneys.

**Outcome:** The prevalence of protein in the urine decreased 10% from 29% in 1996 to 19% in 2006. ACE inhibitor use in diabetes patients with microalbuminuria increased 35% from 42% in 1996 to 77% in 2006 (Figure 3.5). With support from the *Special Diabetes Program*

**Figure 3.5. Proteinuria** has decreased as **ACE inhibitor use** has increased in American Indians and Alaska Natives with diabetes

**Why is this important?** Use of ACE inhibitors has been shown to prevent or slow the progression to kidney failure in people with diabetes.



Source: Indian Health Service Diabetes Care and Outcomes Audit (1996–2006)

for Indians, the Indian health system is achieving success in protecting kidney function and preventing or delaying kidney failure in American Indians and Alaska Natives with diabetes.

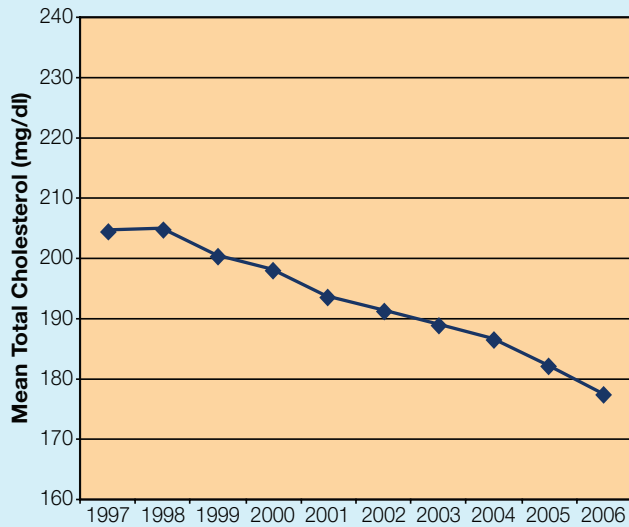
## Improving Blood Lipids

### *What does the scientific research show?*

Reducing blood lipids (i.e., cholesterol and LDL) through the use of lipid-lowering medications significantly reduces the chance of developing heart attacks and other cardiovascular complications associated with diabetes, such as stroke and heart failure. An LDL cholesterol level of 100 mg/dl is considered to be the primary goal for good lipid control.

**Figure 3.6. Total cholesterol values** have improved (decreased) in American Indians and Alaska Natives with diabetes

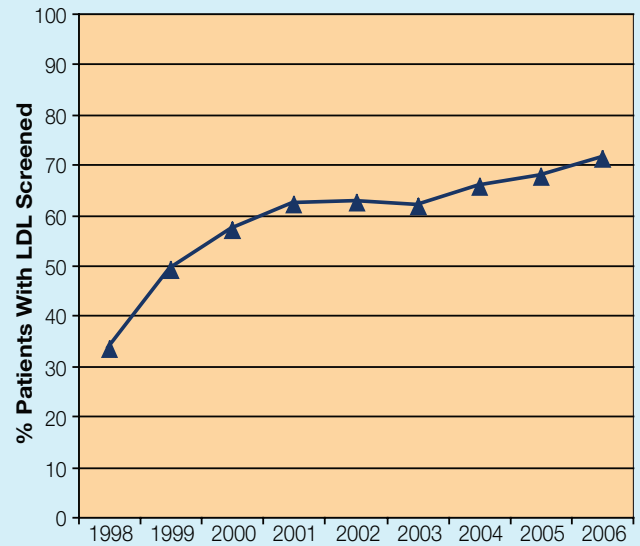
**Why is this important?** Improvement in elevated blood lipid levels, including total cholesterol, has been found to reduce cardiovascular disease, which is the leading cause of death among American Indians and Alaska Natives.



Source: Indian Health Service Diabetes Care and Outcomes Audit (1997–2006)

**Figure 3.7. LDL cholesterol screening** has increased in American Indians and Alaska Natives with diabetes

**Why is this important?** Screening individuals for elevated blood cholesterol levels is the first step to address cardiovascular disease risk in people with diabetes.



Source: Indian Health Service Diabetes Care and Outcomes Audit (1998–2006)

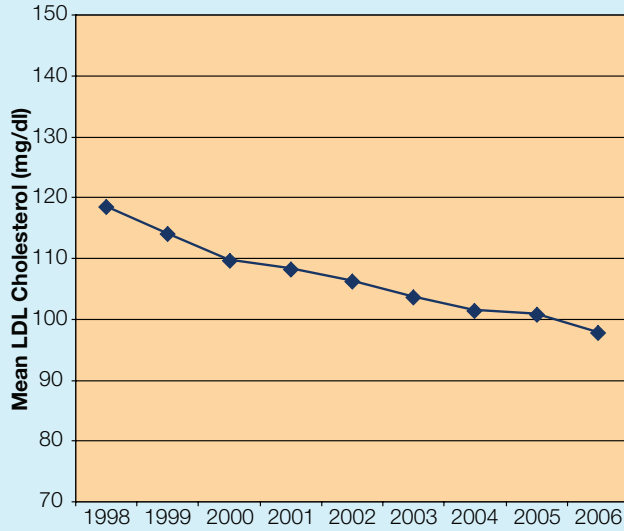
**Response:** To improve blood lipids in American Indians and Alaska Natives with diabetes, the IHS Division of Diabetes:

- ◆ Raised awareness about the connection between diabetes and cardiovascular disease in American Indian and Alaska Native communities.
- ◆ Established activities to reinforce annual blood lipid testing and to encourage providers to be more aggressive in using lipid-lowering medications whenever appropriate.
- ◆ Supported national and regional conferences to update and educate providers and patients on the importance of blood lipid control and use of medications to lower the risk of heart disease when diet alone does not work.

**Outcome:** Mean total cholesterol decreased 13% from 204 mg/dl in 1997 to 177 mg/dl in 2004 (Figure 3.6). In addition, the rate of LDL screening has more than doubled since 1998 (33% in 1998 to 71% in 2006; Figure 3.7).

**Figure 3.8. LDL cholesterol values** have improved (decreased) in American Indians and Alaska Natives with diabetes

**Why is this important?** Improvement in elevated blood lipid levels, including LDL cholesterol, has been found to reduce cardiovascular disease.



Source: Indian Health Service Diabetes Care and Outcomes Audit (1998–2006)

The mean LDL cholesterol value declined 17% from 118 mg/dl in 1998 to 98 mg/dl in 2006, surpassing the goal of less than 100 mg/dl (Figure 3.8). *The Special Diabetes Program for Indians* has supported many activities known to improve the cardiovascular health of American Indians and Alaska Natives with diabetes.

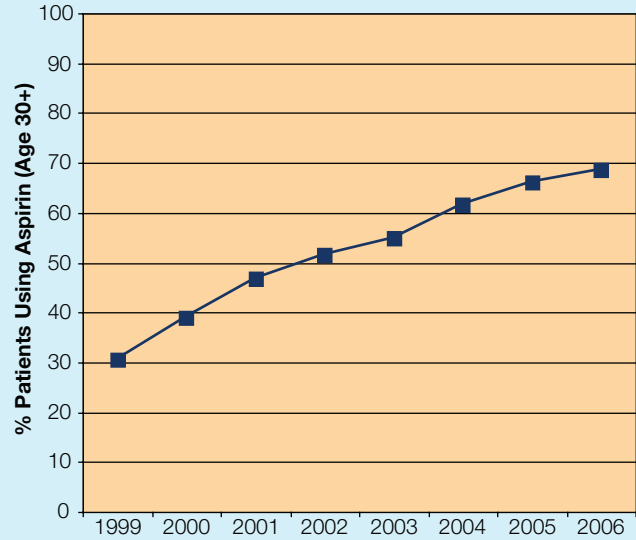
### Reducing Cardiovascular Disease Risk With Aspirin

#### *What does the scientific research show?*

Regular aspirin use can reduce cardiovascular events, such as heart attacks and strokes, in people with diabetes. Certain other medications offer similar beneficial effects.

**Figure 3.9. Aspirin use** has increased in American Indians and Alaska Natives with diabetes aged 30 and older

**Why is this important?** Aspirin therapy is used as a primary and secondary strategy to prevent cardiovascular events.



Source: Indian Health Service Diabetes Care and Outcomes Audit (1999–2006)

**Response:** To reduce cardiovascular disease risk in American Indians and Alaska Natives with diabetes, the IHS Division of Diabetes added long-term aspirin use (or other appropriate therapy) to the *IHS Standards of Care for Diabetes* for patients with diabetes aged 30 and over.

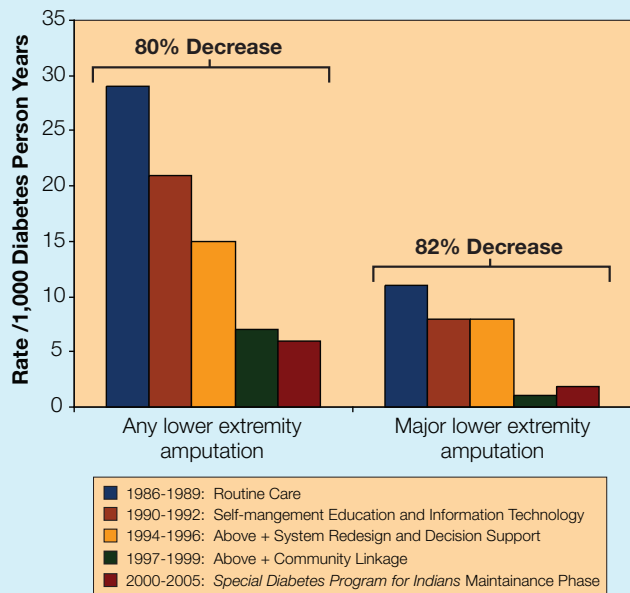
**Outcome:** Since 1999, the use of aspirin or other appropriate therapy has increased each year (Figure 3.9). **Aspirin use in diabetes patients aged 30 or older increased from 30% in 1999 to 69% in 2006.** As with blood lipid results, this positive trend will help improve the cardiovascular health of people with diabetes.





Before resorting to amputation of a broken foot that would not heal due to diabetes, Eldean Cutschall’s doctor helped her learn to manage her condition. “I didn’t know foot problems were related to diabetes,” says Eldean, who is from South Dakota. “Now I know that the most important thing I can do is work closely with my health provider to control my blood sugar.”

**Figure 3.10.** Average annual incidence of **lower extremity amputations** among American Indian and Alaska Native diabetes patients in Indian Health Service primary care settings



Sources:

1986–1996: Rith-Najarian, *J Fam Pract* 1998;47:128–132

1997–1999: Rith-Najarian, *Diabetes Care* 2000;23:1445–1446

2000–2005: Branchaud, *Bemidji Area Indian Health Service Diabetes Program*

*Chronic Care Model Interventions*: Reiber, *Lancet* 2005;366:1676–1677

## Reducing Lower Extremity Amputations

### *What does the scientific research show?*

Approximately 75% of lower extremity amputations due to diabetes can be prevented through the use of appropriate diabetes care practices and low-tech strategies, including regular foot exams and tests for sensory loss.

**Response:** The Bemidji Area IHS and the Alaska Area IHS *Special Diabetes Program for Indians* grant programs have served as leaders in developing and distributing diabetes foot care practice guidelines for the Indian health system.

**Outcome:** A clinical study in the Bemidji Area IHS showed that the use of foot care guidelines decreased amputation rates by 50% (Figure 3.10). Additional vascular surgery outreach services and the use of specialty shoes further reduced the lower extremity amputation rate by half, resulting in an overall reduction of 75%. With support from the *Special Diabetes Program for Indians*, facilities in the Indian health system are implementing foot care interventions that, when introduced system-wide, have the potential to cut the risk for lower extremity amputations significantly.



“American Indians and Alaska Natives have lower-extremity amputation rates 2–3 times higher than other groups. Studies in Alaska and northern Minnesota show that prevention efforts, such as focusing on high-risk individuals for self-care foot education, provision of protective footwear, and routine podiatry care, resulted in 20–25% reductions in amputation rates. When these efforts were augmented with system changes, such as team coordination, patient-tracking systems, comprehensive foot care practice guidelines, flow sheets, and outreach programs, **amputation rates reduced 50–75%.**”

Steve Rith-Najarian, M.D.  
Area Diabetes Consultant  
Bemidji Area Indian Health Service

## Moving Forward: Building on Successes and Strengths

Over the course of its first 10 years, the *Special Diabetes Program for Indians* has supported implementation of proven and successful strategies to address the diabetes epidemic and seen important improvements in the care and health of people with diabetes. The Indian health system will build upon these successes by continuing to:

- ◆ Provide excellent diabetes care to American Indians and Alaska Natives using proven practices.
- ◆ Collect data to monitor diabetes care patterns and outcomes.
- ◆ Update best practice documents and clinical guidelines for diabetes based on the latest diabetes science, and disseminate and facilitate the use of these tools throughout the Indian health system.
- ◆ Improve outcome measurements and evaluation of current and newly designed interventions.
- ◆ Consider additional clinical activities and data collection efforts to address areas of concern related to diabetes, such as obesity in adults and youth.
- ◆ Encourage and promote activities that help people manage their diabetes effectively.

Through these activities, the Indian health system will continue to close the gap between *best* practices and *common* practices in quality diabetes care. To help achieve this goal, the IHS Division of Diabetes will facilitate the rapid dissemination of these promising practices to American Indian and Alaska Native communities.

As the improvements in clinical treatments and outcomes presented in this chapter demonstrate, the IHS and the *Special Diabetes Program for Indians* have helped establish a strong foundation toward a healthier future for American Indians and Alaska Natives with diabetes. Although the observed changes are encouraging, the continued growth of the diabetes epidemic and increasing prevalence of other chronic conditions still require ongoing intervention. Through effective resource allocation, access to new medications and technology, program accountability, and strong partnerships, the Indian health system will continue to spread quality diabetes treatment and prevention practices to American Indian and Alaska Native communities throughout the United States.



“The *Special Diabetes Program for Indians* funding has made all of the difference in the world to American Indian Tribes in the United States, and more specifically, to the Chickasaw Nation. Before the funding allocated by Congress for the *Special Diabetes Program for Indians*, the Chickasaw Nation Health System allocated one part-time employee for diabetes care. We now support 16 full-time employees devoted to diabetes.”

Judy Goforth Parker  
Tribal Leader  
Chickasaw Nation of Oklahoma

## ALVIN WINDY BOY: TOUGH DECISIONS ON THE ROCKY BOY RESERVATION



As former Chairman of the Chippewa-Cree Tribe of the Rocky Boy Reservation near Box Elder, Montana, I have seen some difficult decisions that have to be made for diabetes and for health care. When we first got the *Special Diabetes Program for Indians* funding, we were really excited about it. But then, sitting down and looking at the figures forced us to realize that we had to make some hard choices.

Some of my advisors wanted me to put the money into treatment for the people who already have diabetes. They said we should buy the latest equipment and the newest diabetes medications, and take the very best care of those with the disease. But others thought we should put the money into the future; that is, they wanted the funds to go into prevention services, especially for the children, our future generations.

In an ideal world, we would be able to afford both: the best treatment for people with diabetes, especially our elders, and the best prevention services for those not afflicted with the disease.

The funding from the *Special Diabetes Program for Indians* was very necessary and very much appreciated, but it wasn't enough to allow us to do both. So we have taken our funds and put a little into best practices for diabetes treatment, and put the bulk of the funds into prevention. That is why it's so important for us to have the *IHS Standards of Care for Diabetes* and *Indian Health Diabetes Best Practices*, so we know the best ways to invest our dollars.

Sometimes, it's hard for me to see our elders go without, when the need is so great and these good people deserve the best care. But they are usually the loudest voices telling me, "Put those dollars into the future and save our children and grandchildren from this disease." So that's what we do. And we pray for the day when there are enough funds to provide ideal diabetes care for our people with the disease AND to prevent the disease in our future generations.

Alvin Windy Boy  
Chippewa-Cree



## CHAPTER 4 THE ECONOMIC IMPACT OF THE *SPECIAL DIABETES PROGRAM FOR INDIANS*

### SUMMARY

#### Issue

Diabetes is a chronic condition that affects many organ systems throughout the body (e.g., eyes, kidneys, nerves, heart, and brain). Although effective prevention strategies and treatments are increasingly available, implementing such interventions can be very costly. Thus, society has a great interest in ensuring that diabetes interventions are not only widely available and appropriately implemented, but also implemented in a manner that uses scarce health care resources wisely. In short, it is important that diabetes interventions are cost-effective.

#### Action

Numerous academic studies have examined the cost of diabetes and have shed light on the cost-effectiveness of various diabetes treatment and prevention strategies. Using economic studies from

other health systems and populations as comparative benchmarks, the strategies implemented in the *Special Diabetes Program for Indians* represent economically favorable interventions. The Indian Health Service estimates that the *Special Diabetes Program for Indians* has implemented activities that are cost-effective and save money in the following areas:

- ◆ Diabetes prevention
- ◆ Blood sugar and cholesterol control interventions
- ◆ Blood pressure interventions

In addition, by targeting treatment and prevention programs to younger populations, the *Special Diabetes Program for Indians* has implemented interventions that are likely to be in the most favorable range of cost-effectiveness.

Diabetes confers serious and often devastating effects on the health of individuals, families, and communities, and it extracts a high cost on our nation's economy. Although programs like the *Special Diabetes Program for Indians* represent a substantial financial investment in the health of Americans, they are likely to reap substantial economic gains and reduce the burden of diabetes for all of society.

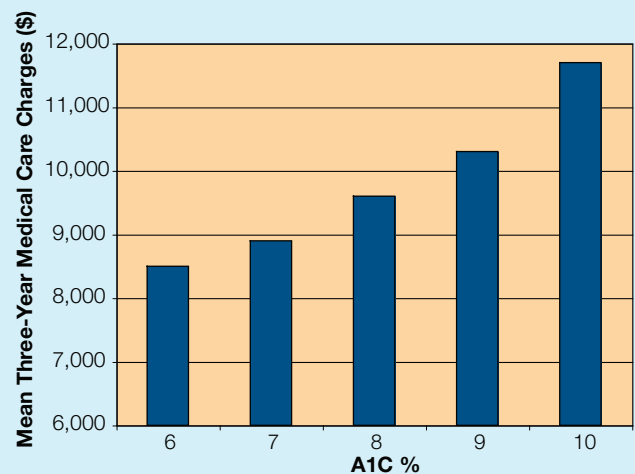
### How Much Does Diabetes Cost the United States?

Health care spending for people with diabetes is more than twice the spending for people without diabetes. A conservative estimate suggests that in 2002 diabetes cost the United States economy an *additional \$92 billion in direct health care costs* and an *additional \$40 billion in lost productivity* resulting from lost workdays, permanent disability, and premature death. Given current projections, the direct health care costs of diabetes alone will increase by 50% to \$192 billion by 2020. The communities most affected by diabetes—including American Indian and Alaska Native communities—will bear a disproportionate share of this cost.<sup>1</sup>

Poorly controlled diabetes not only results in worse clinical outcomes, but also costs more. For example, medical care costs increase as A1C increases. (A1C is a measure of long-term blood sugar control; the goal for most people with diabetes is an A1C below 7%.) Every successive 1% increase in A1C over 6% results in cumulative cost increases of approximately 4, 10, 20, and 30%.<sup>2</sup>

Fortunately, evidence is mounting that the financial burden of diabetes can be reduced. Promising strategies to reduce costs include:<sup>3</sup>

**Figure 4.1. Poor blood sugar control** is associated with increased cost of medical care



Adapted from Gilmer, *et al.*, *Diabetes Care*, 1997; 20: 1847-1853.

- ◆ Implementing primary prevention measures for those who are at high risk of developing diabetes.
- ◆ Reducing risk factors for diabetes in the population as a whole.
- ◆ Increasing the effectiveness of treatment and surveillance for those who already have diabetes.

### Many Diabetes Interventions Are Cost-Effective and Some Interventions Can Actually Save Money

Numerous analyses have demonstrated the cost-effectiveness of delaying or preventing diabetes and its complications. The following section summarizes findings from a recent Centers for Disease Control and Prevention (CDC) review of research on the cost-effectiveness of diabetes prevention programs, including the findings from the CDC Diabetes Cost-Effectiveness Study Group (see Table 4.1).<sup>4</sup>

#### It Pays to Prevent Diabetes: Primary Prevention

The Diabetes Prevention Program, a multi-center clinical trial sponsored by the National Institutes

of Health (NIH), examined whether either diet and exercise (i.e., lifestyle intervention) or the diabetes drug metformin could prevent or delay the onset of type 2 diabetes in people with pre-diabetes. Over

the three years of the study, the lifestyle intervention sharply reduced the chances that a person with pre-diabetes would develop diabetes. Metformin also reduced risk, although less dramatically.

**Table 4.1.** Cost-Effectiveness of Selected Interventions for Diabetes Treatment and Prevention

Intervention	Study Population	Cost per QALY* or Cost-Benefit Ratio
Preventing Diabetes (Primary Prevention)		
Lifestyle intervention	Pre-diabetes	\$34,600 <sup>†</sup>
Metformin therapy	Pre-diabetes	\$109,600
Preventing Diabetes Complications (Secondary Prevention)		
One-time, opportunistic screening for undiagnosed diabetes	General population	\$73,500
Controlling Diabetes Complications (Tertiary Prevention)		
Screening for diabetes-related eye disease (retinopathy)	Type 1 diabetes	\$5,500 <sup>†</sup>
	Type 2 diabetes	\$3,400 <sup>†</sup>
Preventing diabetes-related kidney disease (nephropathy): Screening for protein in the urine (microalbuminuria)	Type 1 diabetes	\$47,400 <sup>†</sup>
Preventing diabetes-related kidney disease: Treating all patients with ACE inhibitors	Type 2 diabetes	\$8,800 <sup>†</sup>
Foot care programs	Type 1 or type 2 diabetes, with various risks of amputation	Cost savings up to \$7,100 <sup>†</sup>
Intensive blood sugar control	Newly diagnosed type 2 diabetes	\$35,300 <sup>†</sup>
	Type 1 diabetes	\$27,100 <sup>†</sup>
Intensive blood pressure control	Newly diagnosed type 2 diabetes	-\$2,400 <sup>†</sup>
Cholesterol control	Newly diagnosed type 2 diabetes	\$63,200
Smoking cessation	Newly diagnosed type 2 diabetes	\$12,500 <sup>†</sup>
Diabetes self-management	Type 1 or type 2 diabetes	\$2 in reduced hospital costs for every \$1 invested

Adapted from Zhang *et al.*, *Ann Internal Medicine*. 2004; 104: 972-977.

\* QALY = Quality-adjusted life year, a measure of the benefit of a medical intervention.

<sup>†</sup> Interventions with cost-effectiveness values of **approximately or less than \$50,000 per QALY are considered economically favorable.**

The Cheyenne and Arapaho Tribes Diabetes Wellness Program in Oklahoma had plans to create a dialysis center, but a second look at their data indicated fewer patients needed dialysis. Instead, they decided to support community fitness activities. “If we make this investment in diabetes prevention *now*, we’ll save money later on and have a greater impact on the health of future generations,” says Chris Tallbear, Project Director.

In this study, the lifestyle intervention was cost-effective under a wide variety of possible models of intervention. Modeling studies showed that improving the efficiency of the lifestyle intervention by offering it in group settings would improve cost-effectiveness even more. Furthermore, the modeling studies showed that interventions targeted at younger people at risk (between the ages of 25 and 45 years) would actually *save money* relative to no interventions.

### **Preventing Diabetes Complications Is Cost Effective: Secondary Prevention**

The CDC Diabetes Cost-Effectiveness Study Group examined the lifetime benefits and costs of one-time, clinic-based, opportunistic screening and early treatment of diabetes with diagnosis and treatment.<sup>5</sup> Opportunistic screening differs from current clinical practice in that it screens people for diabetes when they visit the health care clinic for routine medical care. The study group found that opportunistic screening and early treatment reduces the lifetime occurrence of kidney failure by 26%, blindness by 35%, and lower-extremity amputation by 22%.

The study group also found that opportunistic diabetes screening programs diagnosed the disease an average of 5.5 years earlier than diagnoses made in regular clinical practice settings. Furthermore, the study group concluded that **opportunistic screening programs have a greater benefit and are more cost-effective for younger people and minority populations** than for the general population.

### **Controlling Diabetes Complications Is Cost-Effective: Tertiary Prevention**

The highest costs associated with diabetes are related to treating and managing its complications, such as eye disease, foot disease, kidney disease,

and cardiovascular disease. The scientific literature has long demonstrated that aggressive monitoring for and early treatment of diabetes complications reduces their incidence and severity. Programs that effectively reduce and manage diabetes complications do, in fact, reduce costs associated with diabetes complications.

### **Eye Disease**

Annual screening for and subsequent treatment of diabetes-related eye disease (diabetes-related retinopathy) *decrease costs and improve health outcomes* (when reduced government payments for disability and rehabilitation are included in cost analyses).

### **Foot Disease and Amputations**

Several interventions are effective in preventing foot infections, ulcers, and amputations. These interventions include educating patients and health care providers on foot care, providing patients with appropriate footwear, and ensuring patient access to diabetes clinics.

According to one study, the potential program savings of these strategies is significant. The highest economic benefit was associated with educational interventions.

### **Kidney Disease**

Screening for early kidney disease, followed by appropriate treatment, can slow the progression of the disease and prevent or delay end-stage kidney disease. Among people with type 1 diabetes, screening for protein in the urine and treating people who test positive (with a drug called an ACE inhibitor) is cost-effective. A variety of strategies ranging from screening to universal treatment also are thought to be cost-effective for kidney disease in people with type 2 diabetes.



### **Intensive Blood Sugar Control**

The Diabetes Control and Complications Trial Research Group, sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases, found intensive blood sugar control therapy for people with type 1 diabetes to be a cost-effective intervention. Other studies used a computer simulation model to demonstrate the cost-effectiveness of intensive blood sugar control therapy in people with newly diagnosed type 2 diabetes as compared with conventional care. In these analyses, intensive blood sugar control therapy was particularly cost-effective when applied to younger people with diabetes.

### **Cardiovascular Disease Treatment and Risk Reduction**

Several interventions can reduce the risk of cardiovascular disease among people with diabetes. These interventions include medication for controlling blood pressure and cholesterol values, aspirin, and behavioral interventions such as diet, physical activity, and smoking cessation programs.

The CDC Diabetes Cost-Effectiveness Study Group used a simulation model to evaluate the cost-effectiveness of intensive blood pressure control, total cholesterol level control, and smoking cessation over the lifetime of a person with newly diagnosed diabetes. The study found that intensive blood pressure control would reduce costs and improve health outcomes, making it a cost-saving intervention. The study group also determined that smoking cessation and cholesterol-lowering interventions would be cost-effective.

### **Diabetes Self-Management**

Diabetes self-management is a cornerstone of effective diabetes care and is related to improved diabetes outcomes. It involves teaching people who have diabetes about the skills and resources

they need to make the best decisions about their daily diabetes management. For each dollar invested in a diabetes self-management program, the median reduction in hospital costs is two dollars. This result likely underestimates the true benefit of such programs because it does not take into account quality of life and reduction in long-term health care costs.

### ***Special Diabetes Program for Indians: Reaping Economic Benefits***

Data gathered from the *Special Diabetes Program for Indians* demonstrate that the grant programs have directed funds at effective interventions and toward ideal target groups from an economic perspective.

Of the annual \$150 million in *Special Diabetes Program for Indians* funding, an estimated \$108.9 million went to the non-competitive Community-Directed Diabetes Programs, and \$7.5 million went to Urban Indian health programs. Of these programs, 83% delivered primary prevention interventions, 66% delivered secondary prevention interventions, and 33% delivered tertiary prevention interventions (each program could deliver more than one type of prevention activity). Using these proportions, the Indian Health Service (IHS) Division of Diabetes Treatment and Prevention estimates that approximately \$47.8 million in annual *Special Diabetes Program for Indians* funding goes toward primary prevention, \$38 million goes toward secondary prevention, and \$19 million goes toward tertiary prevention. The IHS Division of Diabetes used these estimates as the basis for subsequent analyses described below.

### **Preventing Diabetes: Primary Prevention**

The largest investment of the *Special Diabetes Program for Indians* has been directed toward preventing diabetes in people who do not have the disease. These activities have the greatest potential to lower the lifetime costs and burden of diabetes. The *Special Diabetes Program for Indians* filled an important gap in many American Indian and Alaska Native communities as the majority of the *Special Diabetes Program for Indians* diabetes prevention activities represent completely new services for the communities. The growth in the population of people with diabetes would likely have been larger had these efforts not been initiated.

The *Special Diabetes Program for Indians* grant programs had identified the importance of preventing diabetes even before the final results of the NIH Diabetes Prevention Program were released. The grant programs had already initiated similar interventions. Many of these interventions were held in community and group settings, used lifestyle changes as the key intervention, and focused on young adults, who represent 36% of the American Indian and Alaska Native population and are most at risk for diabetes.

As described earlier, economic analyses of the NIH Diabetes Prevention Program have shown that these prevention strategies and selected target groups are the most cost-effective. As shown in the academic research, even if the effectiveness of these strategies and targets is reduced by as much as 50%, the interventions found effective in the NIH Diabetes Prevention Program continue to save money. Therefore, the IHS Division of Diabetes estimates that the \$47.8 million in *Special Diabetes*

*Program for Indians* funds that were directed at primary prevention efforts each year will result in a net cost savings in future health care for American Indians and Alaska Natives.

### **Detecting and Treating Diabetes Complications: Secondary and Tertiary Prevention**

The *Special Diabetes Program for Indians* grant programs developed and implemented screening and treatment activities for diabetes complications in many diverse settings. An estimated \$57 million per year has been invested in these secondary and tertiary activities.

Data from the *IHS Diabetes Care and Outcomes Audit* provide evidence of the *Special Diabetes Program for Indians* grant programs' success in implementing cost-effective and cost-saving screening and treatment activities for diabetes complications. Since the *Special Diabetes Program for Indians* began in 1998, grant program activities have contributed to:<sup>6</sup>

- ◆ Improving blood sugar control with population mean A1C levels decreasing from 9.00% in 1996 to 7.85% in 2006.
- ◆ Increasing the number of people with diabetes screened for diabetes-related kidney disease.
- ◆ Increasing the number of people with diabetes who are screened for diabetes-related eye and foot disease.
- ◆ Decreasing population mean LDL cholesterol from 118 mg/dl in 1998 to 98 mg/dl in 2006.
- ◆ Decreasing population mean cholesterol from 205 mg/dl in 1998 to 177 mg/dl in 2006.

As noted earlier, the CDC Diabetes Cost-Effectiveness Study Group has estimated the cost-effectiveness of controlling blood sugar, cholesterol levels, and blood pressure in patients with diabetes.<sup>7</sup> The *Special Diabetes Program for Indians* has demonstrated similar clinical improvements to those used in the CDC's cost-effectiveness models. Using these findings, the IHS Division of Diabetes estimates:

- ◆ The **blood sugar and cholesterol interventions** implemented through the *Special Diabetes Program for Indians* are likely to be **cost-effective**.
- ◆ The *Special Diabetes Program for Indians* **blood pressure interventions** are likely to be **cost-saving**.
- ◆ Because the American Indian and Alaska Native population with diabetes is younger than the general United States population with diabetes, the *Special Diabetes Program for Indians* **interventions are likely to be in the most favorable of the range of cost-effectiveness**.

Data from the *IHS Diabetes Care and Outcomes Audit* also demonstrate the Indian health system's ability to maintain the current level of services to the growing number of American Indians and Alaska Natives who have diabetes. As the diabetes population has grown, the *IHS Diabetes Care and Outcomes Audit* documents tens of thousands of additional examinations compared to time periods prior to the *Special Diabetes Program for Indians*. Still, continued improvements in efficiencies and productivity will be needed to increase the proportion of American Indians and Alaska Natives with diabetes who receive these services.

“One of the well-known characteristics of the diabetes epidemic in American Indian and Alaska Native communities is that the disease is much more prevalent among people who are on average 10 to 20 years younger than those in other communities, and who often are in the prime of their family-raising and working lives. Fortunately, effective interventions are available, and essentially all of the cost-effectiveness analyses find the greatest cost savings occur when such interventions are applied to younger individuals.

“That is why investing in diabetes prevention and care for American Indian and Alaska Native people not only provides needed services to a population in the prime of their lives, but also makes good economic sense.”

Charlton Wilson, M.D.  
Associate Director  
Phoenix Indian Medical Center  
Centers of Excellence



“We in Indian Country are truly the ‘canaries in the coal mine’ for the rest of the country. We have had a tremendous rise in the numbers of people developing diabetes, and then we saw children and youth getting diabetes. Now we’re faced with the coming tidal wave of people who got their diabetes at younger ages and who are getting, not one, but multiple complications. We now have many patients who will have cost the health care system a million dollars before they die of this disease.”

“How will our systems pay for this care? How much can excellent clinical care prevent and reduce this burden? No one has had to answer these questions on such a large scale before—but we cannot afford not to answer them well, and the *Special Diabetes Program for Indians* helps give us that chance.”

Ann Bullock, M.D.  
Medical Director  
Eastern Band of Cherokee Indians  
Health and Medical Division

### **Moving Forward: A Plan to Exceed Past Performance**

In its 10 years, the *Special Diabetes Program for Indians* has contributed significant resources for treating and preventing diabetes in American Indians and Alaska Natives. The *Special Diabetes Program for Indians* grant programs have led efforts to identify and implement effective strategies for quality health care, such as diabetes prevention, early detection of diabetes and its complications, improved delivery of care, and better self-management. These elements not only improve quality of life, but also represent an effective utilization of health care system resources and in many instances have likely resulted in cost savings.

The *Special Diabetes Program for Indians* plans to contribute to the knowledge of how investments in quality diabetes treatment and prevention affect

economic costs associated with this disease. For example, the new *Special Diabetes Program for Indians* Demonstration Projects (described in Chapter 10) are likely to offer economically favorable outcomes in American Indian and Alaska Native communities. The IHS Division of Diabetes has formed a defined economic analysis team to investigate the direct costs of the Demonstration Project interventions and explore additional ways to assess the economics of diabetes treatment and prevention in the Indian health system.

This knowledge will not only guide the Indian health system's future efforts to treat and prevent diabetes and other chronic conditions, but also help policy makers, health care systems, and health care providers make informed decisions about diabetes and chronic care management.

“Despite the remarkable benefits reported from the use of new diabetes medications and the potential for significant long-term cost savings, the initial high costs associated with stocking and dispensing these drugs prohibit their widespread use in Indian health system facilities. The *Special Diabetes Program for Indians* funding has allowed some communities to purchase these medications—so people with diabetes benefit now and in the future with better health.”

Chris Lamer, Pharm.D.  
Clinical Applications Coordinator  
Cherokee Indian Hospital

## SUMMERCISE PROGRAM: THE DIFFERENCE ONE PERSON CAN MAKE



Nome is a community of 3,500 people along the Bering Sea in Northwest Alaska. A remote town that can be reached only by boat, plane, or dog sled, more than half of Nome's population is Alaska Native, predominantly members of one of several Eskimo groups living in the region.

Angie Gorn, a registered dietitian with Nome's Norton Sound Health Corporation, was inspired to develop a physical activity and nutrition program for youth. She had been working with a 7-year-old boy who weighed 140 pounds. Angie noticed that this little boy's situation was not unusual, and decided it was time to take action to improve the health of Nome's children.


In 2000, Angie used funds from the Norton Sound Health Corporation's *Special Diabetes Program for Indians* grant to start the *Summercise Program*. "I wanted to develop a program to teach kids healthy behaviors that would become a part of their lives, not just something they did during the summer," Angie recalls.

*Summercise's* goals are to increase children's physical activity, help them lose weight, and

encourage them to eat healthy foods. The program uses activities such as kayaking, hiking, berry picking, and sports to teach kids about physical activity and nutrition. Even during the winter, *Summercise* continues to reach and empower youth through health fairs, school presentations, community events, and winter sports.

More than 400 Nome kids over the age of 5 have participated in *Summercise*. Program results speak for themselves. Parents report that their kids are more active, excited about physical activity, losing weight, and eating more healthy foods.

Word has spread quickly about the success of *Summercise*. The Institute of Medicine featured the program in its report, titled *Progress in Preventing Childhood Obesity: How Do We Measure Up?* *Summercise* received the 2002 Alaska Community Award of Excellence and the 2001 Award for Excellence in Community Nutrition from the Dannon Institute. More and more *Special Diabetes Program for Indians* grant programs are building on Angie's model to improve the health of American Indian and Alaska Native youth.



## CHAPTER 5 YOUTH: ACTION TODAY FOR A HEALTHY TOMORROW

### SUMMARY

#### Issue

Once non-existent, childhood type 2 diabetes now occurs among American Indian and Alaska Native children at a higher rate than among children of other ethnicities. Although obesity is known to play a major role in the early development of diabetes, only limited evidence is currently available on the best approaches for treating and preventing both childhood diabetes and obesity.

#### Action

Since its inception, the *Special Diabetes Program for Indians* has addressed the threat of childhood obesity and diabetes, acting on the best available evidence to respond to this public health crisis. As a result, the *Special Diabetes Program for Indians* grant programs have employed a broad-based public health approach to implement interventions that promote healthy behaviors such as regular, vigorous physical activity and a healthy diet for American Indian and Alaska Native children, families, and communities.

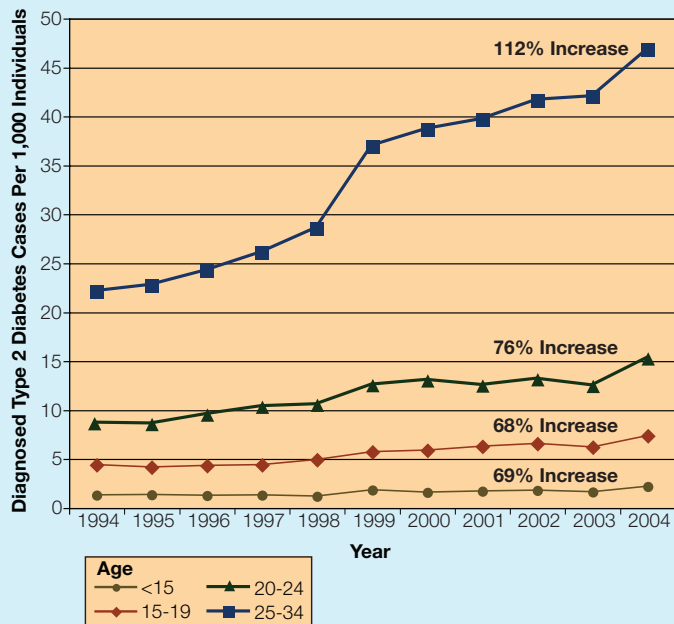
Type 2 diabetes was once considered a disease of adults. It is now understood that the disease does not discriminate, affecting people across the entire life span. Unfortunately, American Indian and Alaska Native youth appear to be leading the national trend in the emerging public health crisis of type 2 diabetes in youth. The *Special Diabetes Program for Indians* grant programs recognized this concern early on and continue to support comprehensive interventions for childhood obesity and diabetes prevention in their communities.

#### Type 2 Diabetes and Obesity Are Increasing in Youth at Alarming Rates

Although the number of American Indian and Alaska Native youth with type 2 diabetes is still relatively low, the prevalence of this disease among youth is growing at an alarming rate. One of the largest increases in diagnosed type 2 diabetes prevalence is among American Indian and Alaska Native adolescents aged 15–19 years—an increase of 68% from 1994 to 2004 (Figure 5.1 on the following page).<sup>1</sup>

**Figure 5.1. Prevalence of diagnosed type 2 diabetes by age** in American Indians and Alaska Natives younger than the age of 35, 1994 to 2004

**Why is this important?** American Indian and Alaska Native children and youth have experienced an alarming increase in the prevalence of diagnosed type 2 diabetes.



Source: Indian Health Service Division of Program Statistics

The growing rates of childhood obesity<sup>1</sup>—not only in American Indians and Alaska Natives, but also in the general United States population—point to a public health crisis. In the past 25 years, the prevalence of obesity among children in the United States has been increasing steadily. Since the 1970s, childhood obesity has more than doubled for preschool children aged 2–5 years, and tripled among children aged 6–11 years. In 1999 through 2000, the prevalence of obesity was 10.4% among all children aged 2–5 years.<sup>2</sup>

Although these national trends are troubling, the rates of obesity among American Indian and Alaska Native children exceed even these high national averages. American Indian and Alaska Native children aged 2–5 years experience rates

of obesity between 12 and 39%.<sup>3</sup> A recent study by the Aberdeen Area Indian Health Service (IHS) found that at the age of 5, 47% of boys and 41% of girls were overweight, and 24% of children were obese.<sup>4</sup>

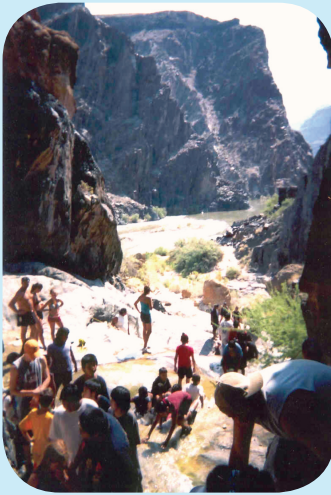
These high rates persist into later childhood. Among American Indian and Alaska Native children aged 5–18 years from nine IHS Areas in 1990, the rate of overweight was 39% versus 15% for all United States races combined.<sup>5</sup> Moreover, a 1997 study of schoolchildren in seven American Indian communities found that 28.6% of the children aged 6–11 years were obese.<sup>6</sup>

Children who are obese have a very high risk of developing type 2 diabetes. For children born in the United States in 2000, the lifetime risk of being diagnosed with type 2 diabetes at some point in their lives is 30% for boys and 40% for girls, *if* obesity rates stabilize. The lifetime risk of developing type 2 diabetes is even higher among some ethnic and minority groups.<sup>7</sup> According to IHS clinicians, almost 50% of the children and adolescents in some American Indian and Alaska Native communities are overweight. For these communities, the potential health crisis of diabetes is a significant threat to the well-being of future generations.

Because youth with type 2 diabetes develop the disease at such an early age, they will experience more years of disease burden and a higher probability of developing serious type 2 diabetes-related complications. These complications will threaten life expectancy, reduce quality of life, and lower productivity during the prime years of their lives.

<sup>1</sup>This Report uses the term “obesity” to refer to children and youth who have a body mass index (BMI) equal to or greater than the 95th percentile of the Centers for Disease Control and Prevention (CDC) age- and gender-specific BMI charts. This Report uses the term “overweight” to refer to children and youth who have a BMI equal to or greater than the 85th percentile of the CDC BMI charts. Please see the glossary for definitions of body mass index, healthy weight, and obesity.





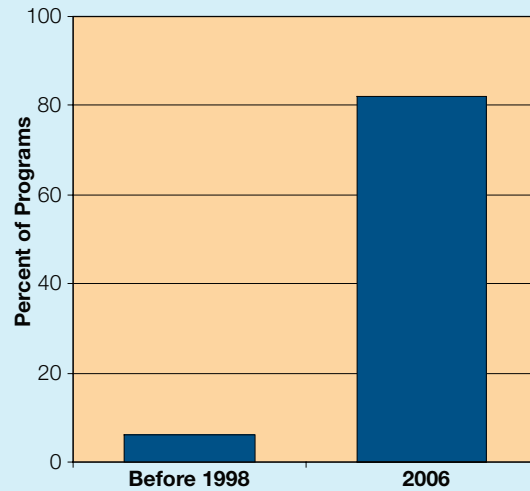
After just 3 days at the Hualapai Tribe's diabetes prevention camp in Arizona near the Grand Canyon, children are amazed to see how much their blood sugar levels have dropped. Youth between the ages of 8 and 13 learn healthy eating and physical activity habits and team-building skills. Camp ends with a memorable rafting trip down the Colorado River, exploring historic Hualapai village sites, and cooling off in the spectacular waterfalls.

### ***Special Diabetes Program for Indians: Acting Now for Future Generations***

The *Special Diabetes Program for Indians* has made it possible for American Indian and Alaska Native communities to develop and implement type 2 diabetes primary prevention programs for children and youth—a compelling priority for the future of American Indian and Alaska Native communities (Figure 5.2). These promising programs are designed to promote healthy lifestyle habits in children and youth to reduce their risk of developing type 2 diabetes and other chronic conditions.<sup>8</sup>

**Figure 5.2. Diabetes prevention programs for youth** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Primary prevention programs for youth are an urgent priority for American Indian and Alaska Native communities to promote healthy lifestyle habits and reduce the risk of developing type 2 diabetes.



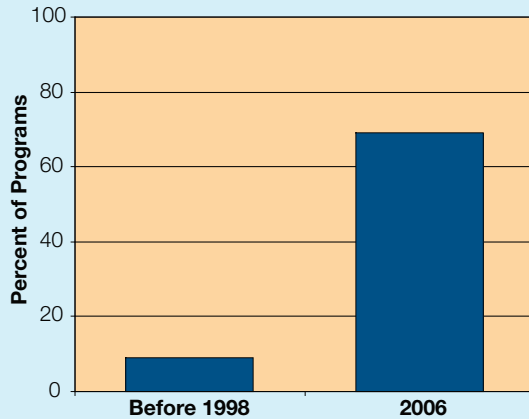
After receiving *Special Diabetes Program for Indians* funds, 82% of grant programs reported having **diabetes prevention programs for youth** in 2006 (versus 6% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

The *Special Diabetes Program for Indians* grant programs use recommended public health strategies to prevent childhood obesity.<sup>9</sup> One important strategy is breastfeeding promotion. Breastfeeding plays a particularly important role in preventing both obesity and type 2 diabetes.<sup>10</sup> Exclusive breastfeeding for the first 2 months of life has been associated with a 40% reduction in type 2 diabetes among Pima Indians.<sup>11</sup> Furthermore, the Phoenix Indian Medical Center found that American Indian and Alaska Native children who were breastfed exclusively for the first 6 months of life experienced an overweight and obesity rate of 23% at the ages of 3 and 4 years, as compared with an overweight and obesity rate of 64% in children who were formula-fed exclusively.<sup>12</sup>

**Figure 5.3. Physical activity programs for school-age youth** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Children and youth who are more physically active are at lower risk of developing diabetes and other chronic conditions.

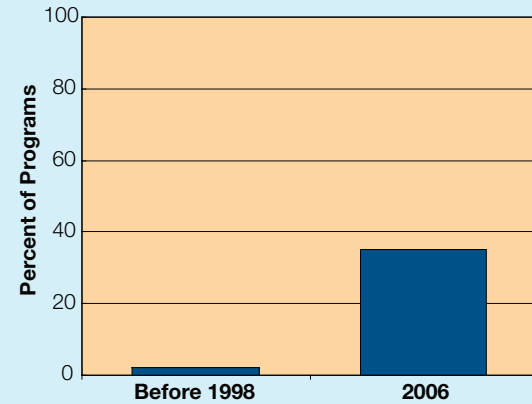


After receiving *Special Diabetes Program for Indians* funds, 69% of grant programs reported having **activities for school-age youth to encourage moderate to vigorous physical activity on most days** in 2006 (versus 9% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

**Figure 5.4. Policies to limit television viewing** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Television viewing contributes to obesity among children and youth. Decreasing television viewing time could help prevent obesity and prevent or delay type 2 diabetes and other chronic conditions.



After receiving *Special Diabetes Program for Indians* funds, 35% of grant programs reported having **guidelines, policies, or campaigns to limit television viewing for children and youth** in 2006 (versus 2% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

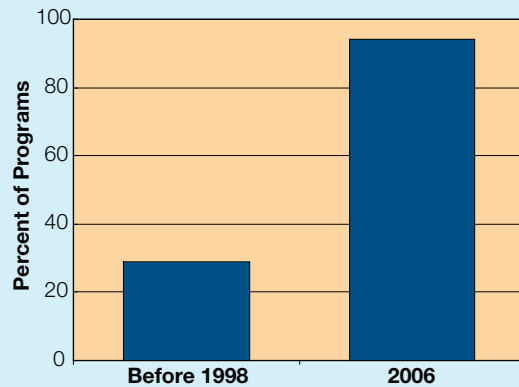
### Addressing the Multiple Pathways to Obesity

Other important obesity prevention strategies include encouraging children and youth to increase physical activity (Figure 5.3), limit television viewing (Figure 5.4), increase fruit and vegetable intake (Figure 5.5), control portion sizes, and limit soft drink consumption. The *Special Diabetes Program*

for *Indians* grant programs have implemented activities to help young children develop physical activity and healthy eating habits. These strategies address the multiple pathways that contribute to the development of obesity and subsequent type 2 diabetes, and as a result, are likely to have the greatest impact in preventing type 2 diabetes in youth.

**Figure 5.5. Nutrition services for children and youth** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Providing nutrition education and services to children and youth is important for promoting healthy eating to help prevent type 2 diabetes and its complications.

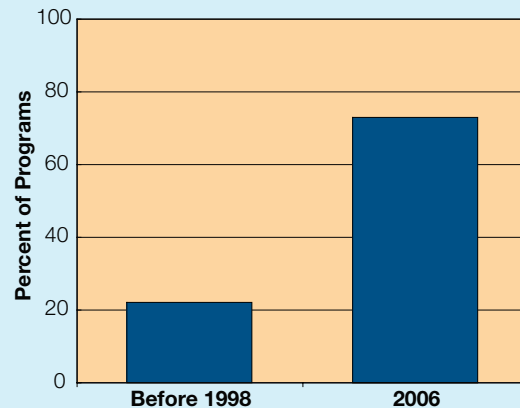


After receiving *Special Diabetes Program for Indians* funds, 94% of grant programs reported offering **nutrition services for children and youth** in 2006 (versus 29% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

**Figure 5.6. Collaboration with local school systems** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Partnerships with local schools strengthen the public health infrastructure to address type 2 diabetes in American Indian and Alaska Native youth.



After receiving *Special Diabetes Program for Indians* funds, 73% of grant programs reported **working with local school systems** in 2006 (versus 22% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

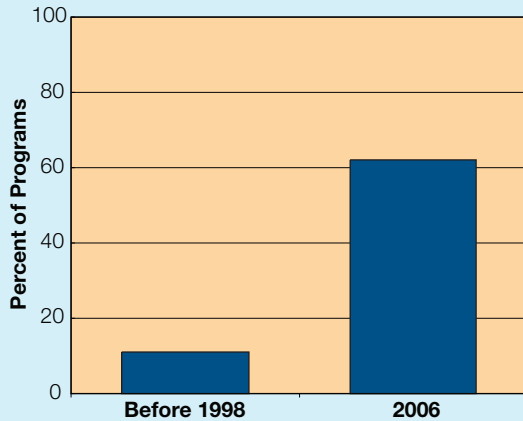
### Creating Healthy Environments

To ensure success, the *Special Diabetes Program for Indians* grant programs have worked closely with school and community partners to establish policy and environmental changes that support physical activity and healthy eating strategies (Figure 5.6). For example, grant programs have successfully changed school vending machine and wellness policies (Figures 5.7 and 5.8 on following pages), increased the availability of school and community

physical activity opportunities (Figures 5.9 and 5.10 on following pages), increased access to fitness facilities for children and youth, and built or improved local playgrounds (Figures 5.11 and 5.12 on following pages). These programs have created a supportive environment for children and youth to exercise and eat more healthfully, helping to lower their risk for developing diabetes now and in the future.

**Figure 5.7. School-based healthy eating programs** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** School-based interventions have considerable potential to influence healthy eating choices in American Indian and Alaska Native children and youth since they spend a significant amount of time each day in school.

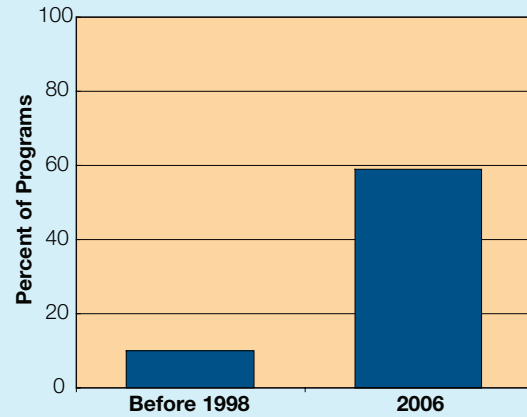


After receiving *Special Diabetes Program for Indians* funds, 62% of grant programs reported having **school-based healthy eating programs** in 2006 (versus 11% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

**Figure 5.8. School-based nutrition services** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Policies addressing school-based nutrition services can ensure that foods available at schools meet current nutritional guidelines and help students avoid the unhealthy foods and beverages that are often sold in schools.

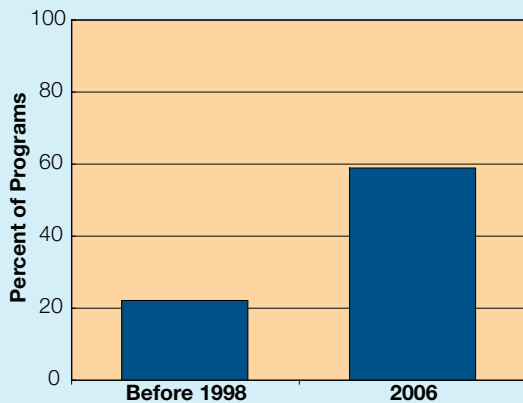


After receiving *Special Diabetes Program for Indians* funds, 59% of grant programs reported offering **school-based nutrition services** in 2006 (versus 10% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

**Figure 5.9. School-based physical activity programs** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Physical activity is important to help prevent or delay the onset of diabetes. The United States Surgeon General and other organizations recommend 60 minutes of moderate to vigorous physical activity every day for children and youth to maintain a healthy lifestyle.

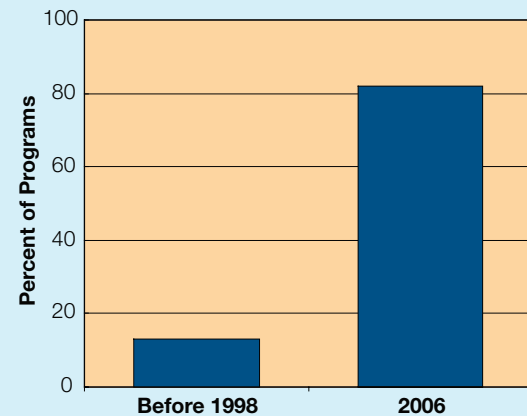


After receiving *Special Diabetes Program for Indians* funds, 59% of grant programs reported having **school-based physical activity programs** in 2006 (versus 22% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

**Figure 5.10. Community-based physical activity programs for children and youth** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Community-based programs provide additional opportunities for youth to be active beyond the school setting.

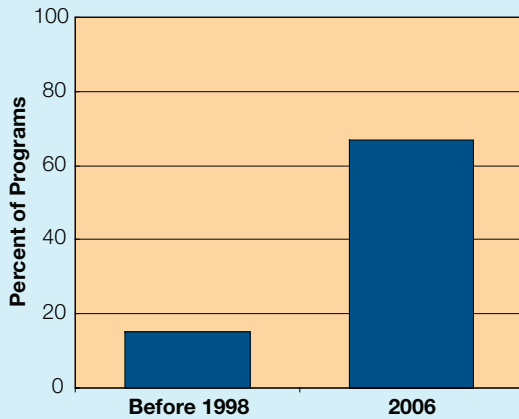


After receiving *Special Diabetes Program for Indians* funds, 82% of grant programs reported having **community-based physical activity programs** in 2006 (versus 13% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

**Figure 5.11. Safe environments for physical activity** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** The opportunity to be physically active on a regular basis in a safe environment is likely to increase the chance that children and youth will adopt a more physically active lifestyle.

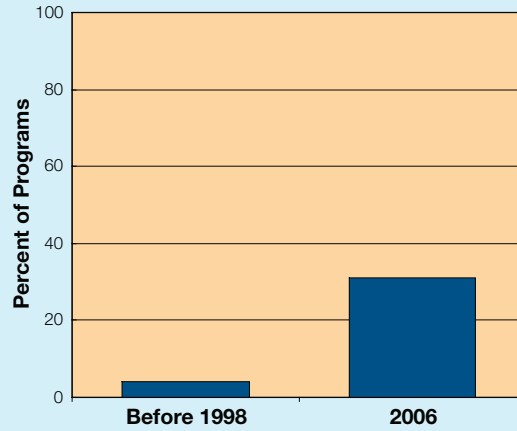


After receiving *Special Diabetes Program for Indians* funds, 67% of grant programs reported that they were able to provide **safe environments for physical activity** in 2006 (versus 15% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

**Figure 5.12. Activities to build or improve playgrounds** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Playgrounds increase opportunities for unstructured physical activity (i.e., play) and provide a safe place for children to be active.

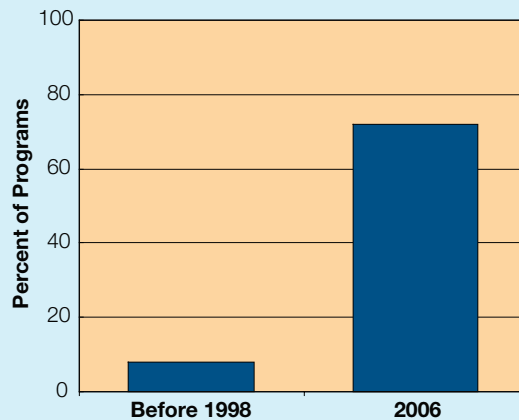


After receiving *Special Diabetes Program for Indians* funds, 31% of grant programs reported that they were able to **build or improve playgrounds** in 2006 (versus 4% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

**Figure 5.13. Weight management programs for children and youth** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Management of obesity among children and youth is essential to reducing obesity-related conditions, including type 2 diabetes.



After receiving *Special Diabetes Program for Indians* funds, 72% of grant programs reported having **weight management programs for children and youth** in 2006 (versus 8% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

### Improving the Health of the Entire Family

The *Special Diabetes Program for Indians* grant programs also have implemented activities and services to support behavior changes for youth and their families. Family involvement in achieving and maintaining a healthy weight for children is essential. Parents need to promote healthy eating behaviors and regular physical activity for their children. They often are responsible for purchasing and offering healthy foods and portion sizes, serving as role models, and making mealtime enjoyable. In addition, one or both parents and other siblings may be overweight or have diabetes, further suggesting that the entire family should be targeted for intervention. Recognizing the key role families play in the health of youth, many grant programs offer weight management (Figure 5.13), medical nutrition therapy, and behavioral health services for children, adolescents, and their families.



“My daughter’s grades have improved by one grade point, she’s lost seven pounds, and she’s more active and dances all over the house,” says one parent whose child participates in a physical activity program developed through a partnership between the Indian Health Board of Billings and the Billings Native Youth Theatre Group in Montana. Each week, 40 children gather to dance, stretch, and work on posture, breathing, and vocals.

### Putting Best Practices Into Action

As directed through the *Special Diabetes Program for Indians* legislation, the IHS Division of Diabetes Treatment and Prevention collaborated with Indian health diabetes experts to develop and implement the *Indian Health Diabetes Best Practices: Adult Weight Management and Youth and Type 2 Diabetes*. The strategies outlined in these Best Practice documents target women of childbearing age and families to intervene before conception, during the prenatal period, and during the first few years

of the child’s life. The *Special Diabetes Program for Indians* grant programs are implementing the approaches in these Best Practice documents through:

- ◆ Reducing *in utero* exposure to elevated blood sugar levels in gestational diabetes programs.
- ◆ Promoting breastfeeding of infants for at least 2 months through awareness campaigns, promotion programs, and policies.
- ◆ Establishing programs to increase physical activity and improve food choices and eating behaviors early in life.
- ◆ Intervening earlier with children who are obese and have diabetes and making appropriate referrals.
- ◆ Treating youth with type 2 diabetes.

### Moving Forward: A Plan for Protecting Our Youth From Type 2 Diabetes

The childhood obesity epidemic and the emergence of type 2 diabetes in youth is a complex issue. As described by the Institute of Medicine’s recent report, *Progress in Preventing Childhood Obesity: How Do We Measure Up?*, these public health concerns have evolved over the past few decades.<sup>13</sup> It will take years—if not decades—to reverse the

startling childhood obesity and type 2 diabetes trends that affect virtually every community in the United States.

**The *Special Diabetes Program for Indians* has brought hope to American Indian and Alaska Native communities that they can reduce the risk for type 2 diabetes in their children and youth.** Many of the *Special Diabetes Program for Indians* grant programs have implemented activities that address commonly accepted risk factors for childhood obesity and type 2 diabetes. These activities will ensure ongoing success in overcoming the serious threat of type 2 diabetes to future generations.

Reflecting the Institute of Medicine's recommendations, the Indian health system will continue broad-based, collaborative efforts to turn the tide of this public health crisis, including:

- ◆ Rapidly disseminating the latest scientific research and promising practices on weight management for children and youth.
- ◆ Addressing the emotions associated with diabetes and other chronic conditions. These efforts can help inform medical providers about how parents, caregivers, and youth prefer to hear messages on healthy weight and the problems of obesity and diabetes.

In 2004, the Ak-Chin Diabetes Program in Maricopa, Arizona, started D-Group, a support group for children with type 2 diabetes. "D-Group has opened the door for these kids to share their experiences in a safe and comfortable environment, to receive diabetes education, and to ask questions they wouldn't ask their parents or health care providers," says Marilyn Velasco, Program Assistant.

- ◆ Leading the paradigm shift away from blaming the parents to treating diabetes, overweight, and obesity as chronic conditions that require long-term management.
- ◆ Leading efforts and strategies to strengthen self-esteem and cultural pride and to promote healthy body images.

By employing a multi-faceted approach that includes families, schools, the health care system, and other important stakeholders, the *Special Diabetes Program for Indians* has provided a pathway to health and wellness for children and youth, their families, and future generations.

## SAYERS FAMILY FROM RED LAKE: PARTICIPATING IN A LIFE-CHANGING PROGRAM

“Now that I know what we’re putting in our bodies, we won’t eat fast food anymore,” says Charmaine Sayers. Preventing diabetes is a family affair for the Sayerses. Charmaine, her husband Adrian, and her mother Theresa all participate in the Red Lake Comprehensive Health Services Diabetes Prevention Program in Minnesota.

The Red Lake Diabetes Prevention Program staff believes that many of their participants wanted to, or tried to, make changes before joining the program, but did not know how. The Diabetes Prevention Program classes and lifestyle coaching have provided the tools and skills participants need to eat healthy and get regular physical activity to prevent the onset of diabetes.

The Sayerses have learned how to read food labels and make healthier food choices. “The program reconditioned our way of thinking regarding food, and now we can go anywhere, eat anywhere, and still stay within our limits and eat healthier foods,” says Charmaine.

The Sayerses have taken full advantage of all the program has to offer. In addition to completing the



core 16-week program, they continue to attend monthly follow-up sessions. They weigh in, attend classes, and keep written records of physical activity and food choices. They are also habitual users of the program’s fitness center, incorporating a full cardiovascular workout and weight lifting routine into their healthy lifestyles.

Best of all, the Sayerses are surpassing their original goals. “Adrian is one of our biggest success stories,” says Program Coordinator Stephanie Morgan. “He entered the program at 280 pounds, and his current weight is 236 pounds after 8 months in the program.”

Charmaine Sayers is convinced that what she has learned has added years to her life, and she talks about the Diabetes Prevention Program to anyone who will listen. “This program has definitely changed my life and that of my family,” she proudly declares.





## CHAPTER 6 GOOD NUTRITION: JOURNEY TO BETTER HEALTH

### SUMMARY

#### Issue

Good nutrition has far-reaching benefits on health. It can effectively prevent, delay, or treat diabetes and other health conditions, such as cardiovascular disease, obesity, and some cancers. Helping people improve their diet, however, depends on access to effective nutrition services and interventions.

#### Action

American Indian and Alaska Native communities have used *Special Diabetes Program for Indians* funding to focus on increased access to nutrition services such as:

- ◆ Providing **nutrition programs to adults, families, and communities.**
- ◆ Improving the infrastructure for nutrition services by hiring **nutrition and diabetes education professionals.**
- ◆ Disseminating **promising practices** in nutrition.

Over the last century, American Indians and Alaska Natives have experienced drastic lifestyle and cultural changes. Many American Indians and Alaska Natives have adopted a “westernized” lifestyle characterized by consuming foods high in fat and sugar and by getting less physical activity.

The combination of these dietary and activity changes, along with hereditary factors, has resulted in high rates of overweight, obesity, and obesity-related diseases, including diabetes, among American Indians and Alaska Natives.<sup>1</sup> In recent years, nutrition has come to the fore as a major *modifiable* determinant of these conditions. For example, a recent study of diabetes and obesity in Pima Indians in the United States and in Mexico found that the development of diabetes and obesity is determined mostly by behavioral and lifestyle factors such as diet and exercise—even in populations with a hereditary predisposition to these conditions.<sup>2</sup>



Gayle Eaglewoman (Crow Creek Sioux) is one of many success stories from the diabetes program at the Indian Walk-In Center in Salt Lake City, Utah. Thanks to the program's nutrition classes and one-on-one counseling sessions, Gayle now chooses healthy commodity foods, reduces her portion sizes, and avoids fast food and super-sized pop. As a result, Gayle has lost 30 pounds, and her blood sugar is under control.

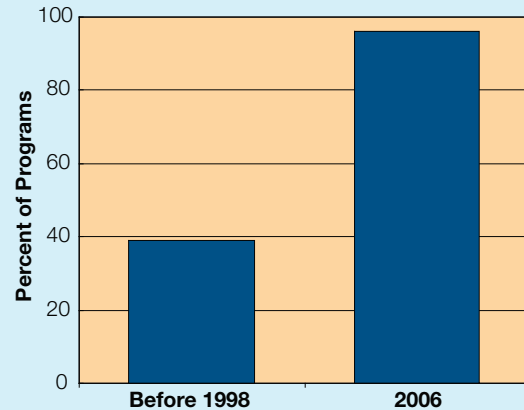
### The Role of Nutrition in Diabetes Treatment and Prevention

Good nutrition behaviors are essential for diabetes treatment and prevention. Among people with diabetes, nutrition interventions can help improve blood sugar control, blood pressure control, and lipid levels.<sup>3</sup> For people at risk for developing diabetes, nutrition is one of the key elements in *preventing* diabetes. The National Institutes of Health Diabetes Prevention Program demonstrated that lifestyle changes—including improved nutrition and physical activity—can help reduce a person's chance of developing type 2 diabetes.<sup>4</sup>

The benefits of good nutrition extend beyond diabetes to help prevent, delay, or treat other conditions such as obesity, metabolic syndrome, some cancers, gestational diabetes, cardiovascular disease, kidney disease and the need for dialysis, alcoholism, and poor dental health.

**Figure 6.1. Nutrition services for adults** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Nutrition services can help people with diabetes improve their blood sugar control, blood pressure control, and lipid levels. For people at risk of developing diabetes, nutrition services are key elements in preventing diabetes.



After receiving *Special Diabetes Program for Indians* funds, 96% of grant programs reported offering **nutrition services for adults** in 2006 (versus 39% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

### *Special Diabetes Program for Indians: Spearheading Efforts to Improve Nutrition*

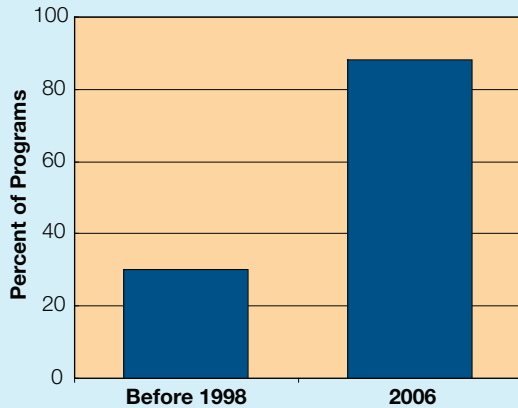
The *Special Diabetes Program for Indians* has taken a lead role in developing policies and practices to enhance nutrition services in American Indian and Alaska Native communities. These scientific-based practices address the cultural, community, and economic factors that influence diet and nutrition, as well as individual lifestyle changes.<sup>5</sup>

#### Providing Nutrition Services for Adults and Communities

The *Special Diabetes Program for Indians* grant programs made significant enhancements in clinical and community nutrition programs and services (Figure 6.1). The increase in these services for adults and communities has helped empower individuals and communities to make changes that lead to healthier eating behaviors. These programs and services include:

**Figure 6.2. Nutrition services for families** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Nutrition services that target and support the entire family are essential to helping individuals make healthy lifestyle changes to prevent diabetes and its complications.



After receiving *Special Diabetes Program for Indians* funds, 88% of grant programs reported offering **nutrition services for families** in 2006 (versus 30% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006



Parents of the Red Lake Band of Ojibwe in Red Lake, Minnesota, have turned around their children’s school lunch menus to include more healthy food choices. Students now are offered lower-fat, lower-sugar meals or the choice of soup and salad. Best of all, Will King Bird and other students enjoy the food, like lower fat turkey hot dogs, and are eating healthy. For students from lower-income families, this is especially important since school lunches are sometimes their only daytime meal.

- ◆ Traditional food and nutrition activities, such as having elders teach traditional food practices, gathering and gardening indigenous foods, changing traditional recipes to make them healthier, and encouraging healthier food choices at cultural and community events.
- ◆ Increased access to community gardens and farmers markets, cooking classes, grocery store tours, and healthy use of commodity foods.
- ◆ Collaborations with local businesses to increase availability of healthy foods, develop point-of-purchase health messages, allow sampling of healthy foods, and offer healthy recipes.
- ◆ Training programs for clinical and community outreach workers and staff of Tribal food programs to increase the accuracy and consistency of nutrition information and to enhance opportunities to convey healthy eating messages to high-risk individuals in clinic and community settings.

### Providing Nutrition Services for Families

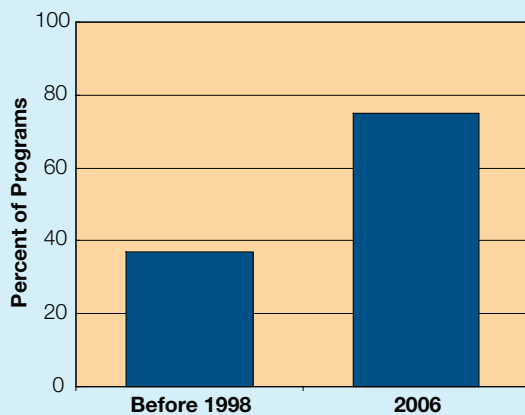
The *Special Diabetes Program for Indians* grant programs implemented nutrition services that target and support the whole family (Figure 6.2). Food is readily available, inexpensive, and sold in ways that encourage over-consumption in schools and communities. Therefore, the family home is a critical setting to teach children about proper nutrition and adequate physical activity. As role models, parents have a great deal of influence on children’s behaviors. Nutrition programs that target families provide parents and children with the skills to deal with an environment that does not support healthy eating and an active lifestyle.

### Recognizing the Importance of Nutrition Health Professionals

Registered dietitians and public health nutritionists play an integral role in health promotion and disease prevention. These nutrition health professionals serve on diabetes program staff and multidisciplinary health teams, and are involved

**Figure 6.3. Access to registered dietitians** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Enhanced staffing with registered dietitians increases access to medical nutrition therapy and other nutrition services that help prevent diabetes, as well as diabetes-related disability and complications.<sup>6</sup>

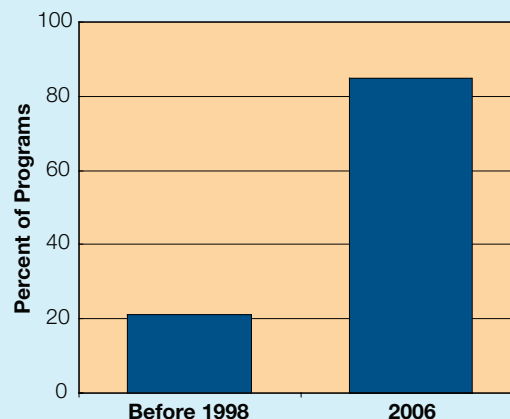


After receiving *Special Diabetes Program for Indians* funds, 75% of grant programs reported offering access to the services of a **registered dietitian** in 2006 (versus 37% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

**Figure 6.4. Access to diabetes educators** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Diabetes educators provide diabetes self-management education that is tailored to the individual needs and preferences of patients with diabetes.



After receiving *Special Diabetes Program for Indians* funds, 85% of grant programs reported offering access to the services of a **diabetes educator** in 2006 (versus 21% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

with planning and delivering health promotion and disease prevention programs in schools, worksites, and community, clinical, and public health settings.

Increased access to registered dietitians improves access to specialized nutrition services such as medical nutrition therapy (MNT), which involves intensive nutrition counseling and follow-up. MNT is important in all stages of diabetes: preventing diabetes, managing existing diabetes, and preventing or slowing the development of complications and disability.<sup>7</sup>

Furthermore, the scientific literature strongly suggests that MNT provided by a registered dietitian with experience in diabetes management is clinically effective and an important component of diabetes self-management education.<sup>8</sup> Many *Special Diabetes Program for Indians* grant programs have used funds to procure the services of registered dietitians, including MNT, in their diabetes treatment and prevention efforts (Figure 6.3).

### Recognizing the Importance of Diabetes Educators

Diabetes educators are key members of a multi-disciplinary health care team. Diabetes educators have specialized training in behavioral interventions, teaching individuals and groups, learning theories, and counseling patients. They use these skills to facilitate patient behavior change and improve clinical outcomes.

Diabetes educators also are essential to providing self-management education to people with diabetes. Diabetes self-management education is an essential element of diabetes care and helps people with diabetes maintain effective self-care practices, such as healthy eating.<sup>9</sup> Many *Special Diabetes Program for Indians* grant programs have used funds to hire diabetes educators (Figure 6.4).

### Disseminating Promising Practices in Nutrition

The Indian Health Service Division of Diabetes Treatment and Prevention collaborated with Indian

health diabetes experts to develop and implement the *Indian Health Diabetes Best Practices: Nutrition and Physical Activity* based on the positive outcomes of the grant programs. This Best Practice document outlines consensus-based, promising nutrition strategies implemented in American Indian and Alaska Native communities, including:

- ◆ Helping people learn lifetime skills for improving their diet.
- ◆ Providing support for making and sustaining healthy lifestyle changes.
- ◆ Using support groups and traditional approaches to improving nutrition, such as talking circles and storytelling.

### **Moving Forward: A Plan for Building on Progress**

The scientific literature has documented the association between nutrition and diabetes, and offers strong evidence that nutrition programs are a cornerstone of effective diabetes treatment and prevention efforts. Nutrition programs and policies in American Indian and Alaska Native communities are an important component of diabetes treatment and prevention.

Health care providers, researchers, and government agencies must work together to develop and implement effective clinical and public health strategies that lead to sustained lifestyle changes among individuals and, more broadly, populations.<sup>10</sup> The *Special Diabetes Program for Indians* has provided many American Indian and Alaska Native communities with a foundation for addressing the complex relationship between nutrition and diabetes. The lessons learned and expertise developed as a result of this Program will help the Indian health system



The San Felipe Pueblo Farmers' Market in New Mexico has touched the lives of community members, young and old. Elders are teaching how to plant gardens. Youth are helping to harvest. "You see children helping their parents and grandparents," says Felice Lucero, manager of the San Felipe Pueblo Farm Service Program. Today, over 100 people grow and sell produce and many have improved their eating habits.

continue to enhance nutrition-related activities for diabetes treatment and prevention, including:

- ◆ Staffing of qualified nutrition and diabetes education health care professionals.
- ◆ Health promotion and disease prevention resources.
- ◆ Efficiency of delivering nutrition services through clinical and community partnerships and collaborations.
- ◆ Advocacy efforts for environmental changes in community and public health settings, schools, worksites, places of worship, and businesses.

These efforts will support sustainable lifestyle changes across the entire lifespan.

Although major lifestyle and cultural changes in American Indian and Alaska Native communities over the last century have made it difficult for people to eat well and be active, the *Special Diabetes Program for Indians* has helped provide clear direction for continued action and progress. The essential elements identified for good nutrition—early intervention, focus on prevention, clear and consistent nutrition information—will help ensure that American Indian and Alaska Native communities overcome the epidemic of obesity and subsequent chronic conditions.

## WHITE MOUNTAIN APACHE: A TOWN GETS FIT



Thousands of people lined the streets of the small town of Whiteriver, Arizona, waiting for the White Mountain Apache Tribal Days Parade. They expected to see rodeo queens on horseback. Instead, they were treated to a show of White Mountain Apache Tribal fitness.

Just before the parade started, over 150 White Mountain Apache Tribal members took part in a Tribal run/walk. For over 2 hours, a steady stream of Apache community members ran and walked down Main Street. How did so many people get so fit?

Ten years ago, there was no such pre-parade show of fitness. In 1993, the Tribe opened its first fitness center in an empty space that had been used to show films to Fort Apache military troops in the 1800s. About 10 people a day used the one treadmill, two bicycles, and 10-pound free weights.

In 2004, the Tribe moved the fitness center to a newer and larger building, bought state-of-the-art fitness equipment, and hired and trained staff. Memberships are free and include personal training and nutrition counseling. Now, over 200 people use the center each day. *Special Diabetes*

*Program for Indians* funds help support wellness activities at the fitness center and throughout the community.

The fitness craze has spilled over to many other areas of the community. A skate park and a horseshoe pit were built. Part of a historic route that linked the White Mountain Apache people to other Apache and Navajo communities is being restored as a community walking path. And most recently, a “Strong Man Competition” was held. A father of four in his mid-40s came in third!

Although many people are getting fit, Alethea Velasquez, Director of the Apache Diabetes Wellness Center, knows her job is just beginning. “Eighty-five percent of the people who use our fitness center are men,” she says. “Women are more modest, and the thought of using a co-ed facility is often intimidating.”

The Tribe is soon going to offer a women’s wellness program along with free child care. Alethea believes the program will result in more moms using the fitness center and entering the White Mountain Apache Tribal Days Run/Walk.



## CHAPTER 7 PHYSICAL ACTIVITY: MOVING TOWARD WELLNESS

### SUMMARY

#### Issue

American Indians and Alaska Natives are traditionally active people who engage in daily activities, such as hunting, fishing, dancing, and gathering. These traditional activities have given way to a more sedentary lifestyle that has contributed to the high rates of diabetes and obesity in American Indian and Alaska Native communities.

#### Action

To reclaim their healthy tradition of physical activity, American Indian and Alaska Native communities have used *Special Diabetes Program for Indians* funding to focus on the following key areas of physical activity:

- ◆ Offering **community physical activity programs**, such as walking and running programs and exercise classes.
- ◆ Incorporating **traditional elements**, such as canoeing and berry picking into physical activity programs.
- ◆ Establishing **Tribal wellness policies** to encourage physical activity among Tribal members.
- ◆ Investing in **physical activity resources and infrastructure** by hiring physical activity specialists.
- ◆ Developing **innovative partnerships** to encourage physical activity.

Regular physical activity is critically important for good health. Nearly every individual benefits from regular physical activity. Even moderate daily physical activity can substantially reduce the risk of developing or dying from diabetes, cardiovascular disease, high blood pressure, and other chronic conditions. Physical activity also can help reduce injury, improve mobility, and enhance psychological well-being.

The *Special Diabetes Program for Indians* grant programs recognized physical activity as an essential component of diabetes treatment and prevention. As a result, these programs developed physical activity interventions for people with or at risk for developing diabetes. These programs offer hope that physical activity interventions can help reverse the troubling trends of diabetes, cardiovascular disease, and obesity that threaten the health of American Indian and Alaska Native communities.



Walt Klamath of the Siletz Tribe lives on 40 acres in Oregon. When he found out he had diabetes, he became more active. His workouts include walking around his property and gathering

and splitting wood to fuel the fires of weekly sweat lodge ceremonies. He has lost weight, brought his blood sugar levels down, and feels great. “This is a good way to live,” he says.

## The Consequences of Inactivity

Despite the clear health benefits of physical activity, most adults and children lead relatively sedentary lifestyles. The consequences of physical inactivity are substantial. Physical inactivity can compromise a person’s health and their involvement with their families and communities. Without the benefit of regular physical activity to relieve stress and address possible overweight and obesity, health risks can mount, leading to potentially more serious health problems.

Physical inactivity also affects our nation’s economic health. The National Institutes of Health (NIH) has estimated the national cost of diabetes to be \$100 billion and of overweight and obesity to be \$117 billion.<sup>1</sup> On the other hand, regular physical activity helps prevent disease and promote health, indicating that physical activity programs actually may decrease health care costs. A study performed by researchers at the Centers for Disease Control and Prevention estimated that increasing regular moderate physical activity among the more than 88 million inactive Americans over the age of 15 years might reduce annual national direct medical costs by \$76.6 billion in 2000 dollars.<sup>2</sup>

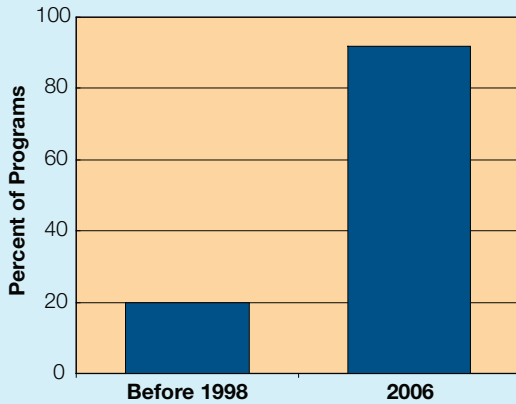
## Physical Activity: On the Front Line of the Diabetes Epidemic

Physical activity is an essential element of diabetes treatment and prevention. It can help people with diabetes prevent or delay complications, as well as improve blood sugar control, blood pressure control, and blood lipid levels. Regular physical activity also can reduce the risk for cardiovascular disease, the leading killer of people with diabetes.



**Figure 7.1. Community walking and running programs** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Walking and running programs provide an opportunity for regular physical activity that can help prevent or manage diabetes and control weight.



After receiving *Special Diabetes Program for Indians* funds, 92% of grant programs reported having **walking or running programs** for the community in 2006 (versus 20% before 1998).

Source: *Special Diabetes Program for Indians Evaluation 2006*

The NIH Diabetes Prevention Program focused the spotlight squarely on the benefits of physical activity on diabetes. The study determined that a modest weight loss sharply reduced the risk of developing diabetes in people with pre-diabetes.<sup>3</sup> A key weight loss strategy used in the NIH Diabetes Prevention Program was moderate physical activity. Study participants exercised at moderate intensity, usually by walking briskly an average of 30 minutes a day, 5 days a week. This study provides scientific evidence that people at risk for developing diabetes can use physical activity—along with an improved diet and behavior modification—to avoid developing diabetes.



“Powwow dancing helps Native people be proud of who they are,” says Rocco Clark, Sr., a dance instructor with the Yakama Tribe’s *Dance Away Diabetes Program* in Washington. More than 30 children and 20 adults attend Rocco’s popular 2-hour class each week, learning intricate dance steps and building their endurance. Rocco teaches the rules of powwow dancing—and the importance of respecting family, elders, and tradition.

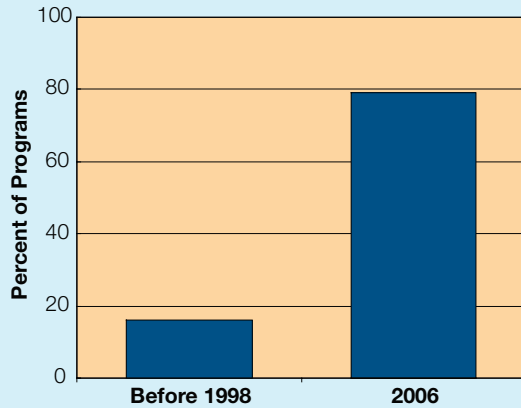
***Special Diabetes Program for Indians: Honoring a Tradition of Physical Activity***

American Indian and Alaska Native lifestyles are traditionally active, with activities such as hunting, fishing, dancing, and gathering providing the main source of physical activity. But in many American Indian and Alaska Native communities, the availability of store-bought and prepared foods has significantly decreased the reliance on traditional activities, leading to a more sedentary lifestyle.

The *Special Diabetes Program for Indians* has made it possible for many American Indian and Alaska Native communities to reclaim their healthy tradition of physical activity. Many *Special Diabetes Program for Indians* grant programs have used their funds to offer community walking and running programs (Figure 7.1) and exercise

**Figure 7.2. Community exercise classes** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Exercise programs that target and support all members of the community are one of the key elements for creating more active communities.



After receiving *Special Diabetes Program for Indians* funds, 9% of grant programs reported offering **exercise classes that include aerobics and stretching for all community members** in 2006 (versus 16% before 1998).

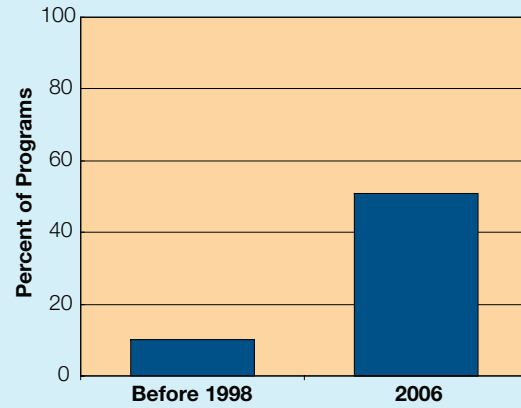
Source: *Special Diabetes Program for Indians* Evaluation 2006

classes (Figure 7.2) for all age groups. These promising physical activity programs often incorporate traditional elements, such as canoeing, dancing, or berry picking, and are based on local needs and priorities.

The *Special Diabetes Program for Indians* grant programs also have used a number of other strategies to increase and encourage physical activity among American Indians and Alaska Natives. For example, after receiving *Special Diabetes Program for Indians* funds, many Tribes established policies to offer employees physical activity breaks (Figure 7.3). These policies are

**Figure 7.3. Policies related to physical activity breaks for Tribal staff** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Tribal health policies related to physical activity breaks can help reduce barriers to physical activity, such as lack of time to be active.



After receiving *Special Diabetes Program for Indians* funds, 51% of grant programs reported having **policies related to physical activity breaks for Tribal staff** in 2006 (versus 10% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

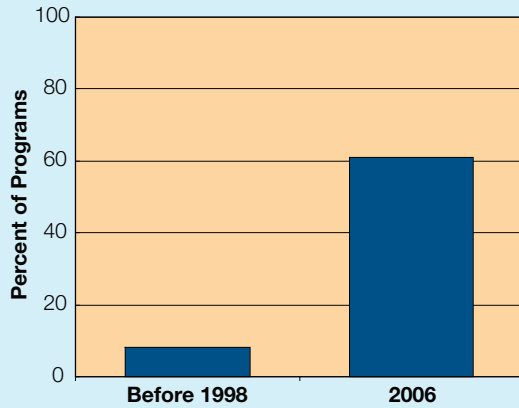
particularly important for helping people maintain physical activity or incorporate physical activity into their already busy lives.

Furthermore, grant programs have been able to hire physical activity specialists (Figure 7.4). These specialists play a major role in the success of physical activity programs by offering expertise, behavior change support, and encouragement to community members.

The *Special Diabetes Program for Indians* grant programs developed innovative partnerships as another key strategy to encourage physical

**Figure 7.4. Access to physical activity specialists** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Physical activity specialists help people begin exercise programs, exercise safely, and reach and maintain maximum fitness levels.



After receiving *Special Diabetes Program for Indians* funds, 61% of grant programs reported having **physical activity specialists** in 2006 (versus 8% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

activity. For example, the *Special Diabetes Program for Indians* has collaborated with Nike, Inc., over the past 3 years to provide specialized fitness training sessions. During these interactive sessions, Nike and *Special Diabetes Program for Indians* grant program staff work together to develop and refine fitness techniques that incorporate culturally specific and culturally appropriate content. This partnership is expected to demonstrate positive, short-term health benefits and shows promise as a model program that will improve physical activity levels in American Indian and Alaska Native communities over the long term.



In partnership with Nike, Inc., the Northwest Portland Area Indian Health Board's (NPAIHB) Western Tribal Diabetes Project held its third annual Native Fitness Training Event in 2006, welcoming 175 participants from 65 Tribes nationwide. Kerri Lopez of the NPAIHB says of these events:

“The 3-year NPAIHB–Nike partnership has provided Tribal programs with hands-on tools and templates for fun, fitness, and data. Staff and participants walk away feeling energized and renewed with a dose of creative and innovative ideas.”





The “Cherokee Jumping Rope for Diabetes” event has the highest turnout of any special event on the Eastern Band of Cherokee Reservation in North Carolina. Cherokee Elementary School jump rope teams put on a spectacular choreographed show and end it by inviting everyone to join in and jump with them. The Cherokee Diabetes Program uses this opportunity to promote its activities and distribute diabetes education materials to Tribal members.



The Indian Health Service Division of Diabetes Treatment and Prevention collaborated with Indian health diabetes experts to develop and implement the *Indian Health Diabetes Best Practices: Nutrition and Physical Activity*. The *Special Diabetes Program for Indians* grant programs are implementing the elements in this Best Practice document through:

- ◆ Helping people learn lifetime skills for increased physical activity.
- ◆ Providing support for making and sustaining healthy lifestyle changes by targeting the entire family for behavior change, offering stress management classes, and ensuring access to behavioral health specialists.
- ◆ Improving community access to physical activity programs.

### **Moving Forward: A Plan for Increasing Access to Physical Activity**

Physical activity has the potential to ease the burden of disease and improve the quality of life in American Indian and Alaska Native communities. The amount of physical activity needed to realize health benefits is moderate, but requires access to physical activity programs and resources for individuals and communities. The consequences of failing to recognize physical activity as key to improving health are grim and costly.

The *Special Diabetes Program for Indians* has made great strides in raising awareness about the benefits of physical activity and integrating physical activity into American Indian and Alaska Native communities. Many of the *Special Diabetes Program for Indians* grant programs have employed innovative and culturally appropriate strategies to increase physical activity.

The Indian health system will continue to help individuals make healthy choices and encourage physical activity to reduce the burden of obesity and diabetes by:

- ◆ Using the latest scientific research and promising practices to develop physical activity and policy guidelines.



Port Gamble S'Klallam Tribe employees in Kingston, Washington, can take a half hour of paid leave each day for wellness activities. The Tribe's *Personal Enrichment and Health Program* has resulted in many more people walking and exercising in the middle of the day. Ellen Price (left), who walks almost every day, has lost 20 pounds and says she feels more energetic at work and better about herself.

- ◆ Addressing the behavioral issues of physical activity, self-esteem, cultural pride, and promotion of healthy body images.
- ◆ Promoting and translating physical activity resources and standards of care throughout American Indian and Alaska Native communities.
- ◆ Collecting more rigorous data on grant program activities and their effectiveness.

When individuals adopt active, healthy habits, the benefits reach far beyond what can be accomplished through a single workout or community event. These active role models inspire active communities, translating to better health for all community members.

## TYRONE CYPRESS: AN AMAZING TRANSFORMATION OF MIND AND BODY



Even Tyrone is surprised. “When I see a picture of myself before I lost weight, I can’t believe that was me! I don’t even feel connected to the person,” he says. He looks closer and then says, “He looks like a person in pain, someone who thinks he is nothing.”

Tyrone Cypress used to weigh 230 pounds. He says his days involved getting up, going to work, eating, and sitting around. His self-esteem was so low, he never thought of going to see a doctor. Even though his mother and aunts had diabetes, Tyrone never knew he was at risk for diabetes.

Then a counselor asked Tyrone if he loved himself. Tyrone spent 3 days struggling to come up with an answer and then told the counselor: “I want to love myself.”


This changed the course of Tyrone’s life. He learned that he needed to change his mind,

actions, and body. He threw away the pizza, pop, candy, and chips in his kitchen. For the first time in his life, he bought foods that were good for his body. The same week, he started lifting weights and walking.

Now, when Tyrone sees pictures of himself, he sees something different. “I see a healthy person, someone who is motivated and capable.” He sees someone who has taken control of his health. “I have lowered my risk for diabetes.”

In 2004, Tyrone reached his goal weight of 155 pounds. Strangers no longer ask him if he is a sumo wrestler. They ask him if he is a boxer.

Tyrone wants to help others. “I want to show people that they can make healthy changes for themselves, their families, and their children,” he says. “There is no telling how healthy American Indian and Alaska Native people will be.”



## CHAPTER 8 WEIGHT MANAGEMENT: REDUCING THE BURDEN OF OBESITY

### SUMMARY

#### Issue

Obesity is an increasingly common problem among all United States communities. American Indian and Alaska Native communities, however, are particularly vulnerable to the growing obesity epidemic. The consequences of obesity are serious because obesity places people at very high risk for developing diabetes, cardiovascular disease, and other chronic conditions.

#### Action

The scientific literature suggests that addressing obesity and weight management may be one of the most effective strategies for preventing diabetes and its complications. As a result, American Indian and Alaska Native

communities have used *Special Diabetes Program for Indians* funding to focus on the following key areas of weight management:

- ◆ Offering **adult weight management programs**.
- ◆ Implementing **community-based weight management programs**.
- ◆ Using **innovative weight management tools and activities**, such as lifestyle and behavior change interventions, family and traditional nutrition programs, group support programs, and individual diet programs.
- ◆ Establishing **partnerships with schools, work sites, and the community** to offer weight management activities.

Over the past few decades, the United States has witnessed a steady and dramatic increase in obesity among all Americans. Now recognized as a global epidemic, obesity has the potential to incur substantial costs not only for the United States, but also for communities and individuals affected by this preventable condition.

Obesity's effects are far-reaching. It is a major contributor to the burden of chronic conditions and disability. In fact, the current epidemic of diabetes in the United States is largely the consequence of the obesity epidemic.<sup>1</sup> Obesity also poses a major risk for life-threatening conditions, such as cardiovascular disease, hypertension, stroke, and certain forms of cancer.<sup>2</sup> Other chronic conditions are related to obesity, including osteoarthritis and gallstones.<sup>3</sup>

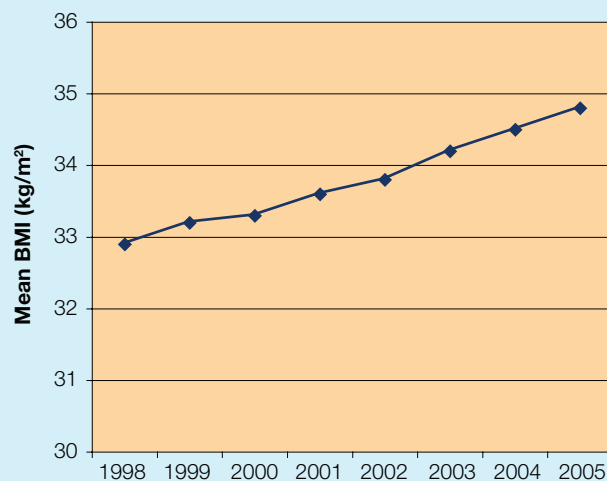
Although obesity is a complex condition that affects all age and socioeconomic groups, vulnerable populations—including American Indians and Alaska Natives—are most at risk.

### **The Consequences of Obesity for American Indians and Alaska Natives**

Overweight and obesity are common and increasingly prevalent problems among American Indians and Alaska Natives. In 1995, 59.2% of American Indian and Alaska Native adults with diabetes were obese. By 2004, 69.9% of American Indian and Alaska Native adults with diabetes were obese.<sup>4</sup> Furthermore, as illustrated in Figure 8.1, the body mass index of American Indian and Alaska Native adults with diabetes has steadily increased over the last decade.

**Figure 8.1. Body mass index (BMI) has increased in American Indians and Alaska Natives with diagnosed diabetes**

**Why is this important?** The average BMI in this population increased from 32.9 to 34.7 between 1998 and 2005. The Centers for Disease Control and Prevention considers a person to be obese if their BMI is greater than 30.



Source: Indian Health Service Diabetes Care and Outcomes Audit (1995–2005)

Between 60% and 90% of diabetes appears to be related to obesity or weight gain.<sup>5</sup> Because the prevalence of obesity is higher among American Indians and Alaska Natives than other groups in the United States, they are disproportionately affected by diabetes and other obesity-related conditions. Diabetes is the single most important risk factor for cardiovascular disease in American Indians and Alaska Natives. Over the past decade, cardiovascular disease has become the leading cause of death for American Indians and Alaska Natives.

What makes American Indians and Alaska Natives vulnerable to overweight and obesity? Several studies suggest that heredity and socioeconomic and developmental influences are the major contributing factors. Recent research suggests that behavioral and lifestyle conditions related to diet and physical activity are also key determinants in both the development and degree of obesity.<sup>6</sup>



For example, a study of diabetes and obesity in Pima Indians in the United States and Mexico found a much *higher prevalence of diabetes and obesity along with a lower level of physical activity* in United States Pima Indians. These findings indicate that the development of diabetes and obesity is determined mostly by behavioral and lifestyle factors, even in populations hereditarily prone to these conditions, suggesting that diabetes and obesity may be preventable conditions.<sup>7</sup>

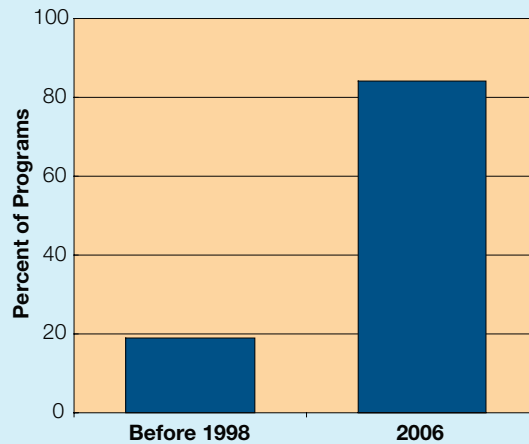
### Promising Practices for Overcoming the Obesity and Diabetes Epidemics

Addressing obesity and weight management may be one of the most important strategies for preventing and treating diabetes. The Diabetes Prevention Program, a clinical trial sponsored by the National Institutes of Health (NIH), determined that weight loss is the *single most effective* intervention for preventing type 2 diabetes. This large study found that a modest weight loss of 5–7% of initial body weight reduced the risk of developing diabetes by 58% in people with pre-diabetes.<sup>8</sup> Furthermore, in people with diagnosed diabetes, studies have shown that weight loss resulted in decreased insulin resistance, lower fasting blood sugar levels, and reduced need for diabetes medication.<sup>9</sup> These findings held true for American Indians and Alaska Natives who participated in these studies.

The weight loss strategies used in the NIH Diabetes Prevention Program reflect the current scientific consensus on the three main elements of effective weight management: nutrition, physical

**Figure 8.2. Weight management programs** for adults increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Weight loss is the most effective intervention for preventing diabetes.<sup>10</sup>



After receiving *Special Diabetes Program for Indians* funds, 84% of grant programs reported having **weight management programs** for adults in 2006 (versus 19% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

activity, and behavioral changes. Participants in the NIH Diabetes Prevention Program followed a low-fat, low-calorie meal plan, increased their physical activity levels, and received significant behavior change support.

### *Special Diabetes Program for Indians: Responding to the Obesity Epidemic*

The *Special Diabetes Program for Indians* provided a much-needed opportunity for American Indian and Alaska Native communities to implement effective and culturally appropriate weight management programs. Many *Special Diabetes Program for Indians* grant programs have used funding to establish adult weight management programs (Figure 8.2).



Michael Durand from the Sandia Pueblo in New Mexico started walking the dirt roads of the Sandia Reservation so he could stop taking diabetes medicine and avoid diabetes complications. “I wanted to be healthy. I didn’t want to take insulin

like my dad,” he says. In 2 years, Michael’s A1C went from 15% to 5.6%, and he lost 50 pounds. “I’m happier and more outgoing,” he says. “I feel alive!”

Recently, the *Special Diabetes Program for Indians* grant programs developed a number of *community-based* weight management programs modeled after the NIH Diabetes Prevention Program and other well-known weight loss programs, such as the Weight Watchers® Program. These programs are starting to demonstrate positive, short-term health outcomes.

The *Special Diabetes Program for Indians* grant programs also have implemented many other weight management tools and activities for people with diabetes or at risk for developing diabetes. These include:

- ◆ Lifestyle and behavior change interventions.
- ◆ Innovative nutrition programs, including family nutrition, traditional food, and gardening programs.
- ◆ Physical activity programs.
- ◆ Social and group support programs.
- ◆ Individualized diet programs.
- ◆ Medication use.
- ◆ Surgery.
- ◆ Commercial weight loss programs.

Many grant programs have established focused weight management activities that involve partnerships with schools, work sites, and the community (refer to Chapters 5, 6, and 7 for further information). In addition, as part of the *Special Diabetes Program for Indians*, the Indian Health Service (IHS) Division of Diabetes Treatment and Prevention facilitated development of the *Indian Health Diabetes Best Practices: Adult Weight Management*. This Best Practice document, based on the positive outcomes of the grant programs, outlines promising weight management strategies that can be implemented in American Indian and Alaska Native communities.

### **Moving Forward: A Plan for Reducing the Threat of Obesity**

The *Special Diabetes Program for Indians* has provided many American Indian and Alaska Native communities with the foundation necessary to address obesity. The activities implemented through the *Special Diabetes Program for Indians* represent only the beginning of what is needed to address the obesity epidemic. Overweight and obesity continue to increase in American Indian and Alaska Native communities, particularly



“More cultural knowledge and connection means more self-esteem, and that’s the key to positive, ongoing change,” says Robin Crouse, health educator with the Seneca Nation’s *Trail Blazers: Trails of the Iroquois* weight loss program in upstate New

York. In just over a year, 20 Trail Blazers have lost 300 pounds. Symbols of their success: wearing a string of “pony” beads to represent every pound lost!

among American Indian and Alaska Native youth.<sup>11</sup> The Indian health system will build upon the promising practices and outcomes achieved so far in American Indian and Alaska Native communities through the *Special Diabetes Program for Indians*. IHS, Tribal, and Urban Indian health programs will use proven, effective weight management strategies to halt the growth of the obesity epidemic in American Indian and Alaska Native communities. These strategies include:

- ◆ Rapidly disseminating the latest scientific research and promising practices on adult weight management throughout the Indian health system.
- ◆ Addressing the need for culturally appropriate behavioral therapy for obesity and diabetes in adults.
- ◆ Remedying shortages of registered dietitians, counselors, and behavioral therapists to address the lifestyle and behavioral needs of American Indians and Alaska Natives.
- ◆ Addressing the emotions associated with diabetes and other chronic conditions.
- ◆ Leading the paradigm shift away from blaming the patient to treating overweight and obesity as chronic conditions that require long-term management.

- ◆ Leading efforts to reduce stress, identify depression early, strengthen self-esteem and cultural pride, and promote healthy body images.
- ◆ Building upon the *Special Diabetes Program for Indians* data infrastructure to continue improving evaluation of weight management strategies, including evaluating the cost-effectiveness of interventions within the context of community-driven priorities.

Obesity is a chronic condition that requires a lifelong commitment to be treated successfully. The good news is that a variety of effective approaches for weight management are available to help individuals achieve and maintain a healthy body weight.

The *Special Diabetes Program for Indians* grant programs have developed a strong track record of implementing these weight management approaches in diverse communities. The grant programs are prepared to share this expertise and knowledge to help other communities throughout the United States understand the social, cultural, and environmental factors that underlie overweight and obesity.

## BARBARA MORA: FINDING THE STRENGTH TO OVERCOME DIABETES

When I was growing up, people said that if you had diabetes in your family, then your family had “a touch of sugar” or “bad blood.” My mother told me only mean people got it—that their bitter and nasty thoughts made their blood bad.

My mother was one of the kindest and most generous persons I have ever known. No wonder she was devastated when she found out she had diabetes. She thought the Creator was punishing her and that someone had wished bad things to happen to her.

My mother never took control of her diabetes. She stayed upset and overwhelmed for the rest of her life. She passed away from kidney failure.

Eleven years ago, when my doctor told me I had diabetes, I was shocked and angry. I couldn't believe the Creator had let me get diabetes. I was terrified that my mother's fate would be my own. I lost faith and could only see a dark, terrifying future. I felt like the doctor had just handed me a death sentence.

The first few months with diabetes were tough. Every time I tried to test my blood sugar, I just put



my head down and cried. Yet, I made myself go to monthly diabetes clinic meetings. Even though I was depressed, I kept going to support groups, testing my blood sugar, taking my medication, and walking. My husband and I took part in sweat lodge ceremonies and prayed daily.

Two years later, my depression lifted. I began to see that having diabetes has nothing to do with “bad blood” or bad behavior or displeasing the Creator. Now, I accept the fact that I have diabetes, and I know I can control it.

I know for sure that Native Americans do not have “bad blood.” We have brave, bold blood! If there is anyone who can overcome diabetes, if there is anyone who can show that a person can live well with diabetes, it is a Native American. The Creator gave us the strength to overcome diabetes.

Barbara Mora  
Paiute/Dine



## CHAPTER 9 HEALING FROM THE HEART: LIFTING SPIRITS AND CREATING HEALTHY COMMUNITIES

### SUMMARY

#### Issue

The rise of diabetes in American Indian and Alaska Native communities is complex and multifaceted. Lifestyle behaviors, such as poor diet and physical inactivity, are major contributors to the diabetes epidemic. Other factors—such as poverty, social injustice, trauma, intergenerational grief, and forced cultural change—also affect a person’s health and their response to their health status in ways that clearly extend beyond the current health care paradigm.

#### Action

Scientific evidence is mounting that behavior change strategies, cultural support, and patient-centered care are important components of successful diabetes treatment and prevention efforts. American Indian and Alaska Native communities have used *Special Diabetes Program for Indians* funding to lead this paradigm shift by:

- ◆ Offering **culturally appropriate diabetes education programs**.
- ◆ Using **evidence-based, patient-centered approaches** to encourage people to make and maintain healthy lifestyle changes.
- ◆ Focusing on **traditional approaches** for diabetes treatment and prevention.
- ◆ Creating **healthy environments** through partnerships with schools, work sites, and the community.

Many chronic conditions are closely linked to life-long behavior patterns. Diabetes is unique among chronic conditions in that a person's behavior influences treatment and prevention efforts to a large extent. The scientific literature provides compelling evidence that behavioral issues must be addressed to reduce the considerable personal, social, and fiscal burden associated with diabetes.<sup>1</sup>

The *Special Diabetes Program for Indians* has acted on the clear association between behavior and diabetes. As a result, the grant programs use diabetes treatment strategies promoting health care that is patient-centered, culturally appropriate, and individual- and population-based—essential elements for helping patients change behavior patterns.

### **Influences on Lifestyle Behavior Choices in American Indian and Alaska Native Communities**

Behavioral factors—such as poor diet and physical inactivity—and unhealthy environments that can affect behavior are very strong risk factors for diabetes and play a key role in the success of treatment efforts. Differences in behavioral factors appear to be related to differences in diabetes and obesity rates across cultures.<sup>2</sup>

#### **Lifestyle Behaviors**

Recent evidence among Pima Indians in the United States and Mexico indicates that even in populations who have inherited a tendency to develop diabetes, the progression to diabetes is mostly determined by lifestyle behaviors. These two populations share a common ancestry, but have very different lifestyles. Notably, the time spent engaged in physical activity



Seventeen-year-old Tim C. Brown drums, dances, and sings for the Mt. St. Elias dance group in Yakutat, Alaska. The Tlingit youth says the dancing teaches him much more than the importance of being in shape. Tim says, “I feel like a proud Native person. I walk around with a smile on my face.”

was 7-fold higher among Mexican Pima Indian women and more than 2.5-fold higher among Mexican Pima Indian men than their United States Pima Indian counterparts. The Mexican Pima Indians also consumed a diet with a much higher fiber intake and lower fat intake than that of the United States Pima Indians. These differences in lifestyle behaviors are reflected in the high prevalence of diabetes among the United States Pima Indians (38%), as compared with their Mexican counterparts (6.9%).<sup>3</sup>

#### **Unhealthy Environments**

Many American Indians and Alaska Natives live in pervasively adverse social and physical environments that place them at higher risk than many other Americans for exposure to traumatic experiences.<sup>4</sup> Recent research indicates that these traumatic experiences have a powerful correlation with health status. Even traumatic childhood experiences are strongly associated with adult health status decades later. Diabetes, heart disease, obesity, and alcoholism all have been shown to have roots in adverse environments and experiences.<sup>5</sup>

Other environmental factors, such as poverty, lack of economic opportunity, isolation, and forced cultural change, can affect the mental health and well-being of individuals. Indeed, American Indians and Alaska Natives suffer from higher rates of depression than the general United States population. Furthermore, rates of depression are even higher in American Indians and Alaska Natives with diabetes. Depressed patients with diabetes are less likely to follow diabetes self-management activities (e.g., medication adherence and physical activity) and have poorer blood sugar control.<sup>6</sup>

### ***Special Diabetes Program for Indians: Models for Behavior Change***

Diabetes experts and researchers have long called for the need to address the behavioral factors that affect diabetes treatment and prevention efforts. The *Special Diabetes Program for Indians* provided American Indian and Alaska Native communities with the opportunity to respond to this call to action.

#### **Getting That Extra Push: Adopting and Maintaining Healthy Behaviors**

People with diabetes often need assistance in adhering to and coping with the very complex treatment regimen for diabetes. The regimen includes not only diet and physical activity, but also medication use, blood sugar monitoring, and managing diabetes-related complications, such as eye, kidney, and foot problems. People with diabetes also must make regular visits to their health care team. This can be a burden if great distances must be traveled or if the health care system is not responsive to patient needs or lacks



“Group medical visits help people to feel less alone in their lives and in dealing with diabetes. Research has shown that people have better glucose and cholesterol readings when they get their care in group visits, but people keep coming back because they feel better when they can share the load with others.”

Ann Bullock, M.D.  
Medical Director  
Eastern Band of Cherokee Indians  
Health and Medical Division

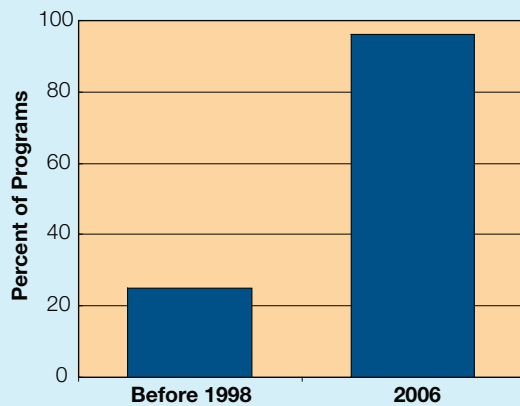
an efficient design for the delivery of high quality, patient-centered care.

The *Special Diabetes Program for Indians* grant programs have implemented scientifically proven, patient-centered strategies to engage patients in their diabetes care and encourage adherence to their diabetes treatment plans. These strategies include establishing diabetes teams, clinics, and registries (see Chapter 3).

The grant programs also have used strategies aimed at improving the social environment of people living with diabetes. For example, many grant programs started programs that use community members as lifestyle coaches and mentors, as well as group support activities, to help people with diabetes follow their diabetes treatment regimen. The scientific literature indicates that these types of social support activities are associated with better regimen adherence and improved blood sugar control.<sup>7</sup>

**Figure 9.1. Organized diabetes education** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Diabetes education programs provide an opportunity for people with diabetes and their families to learn more about diabetes self-management and prevention.

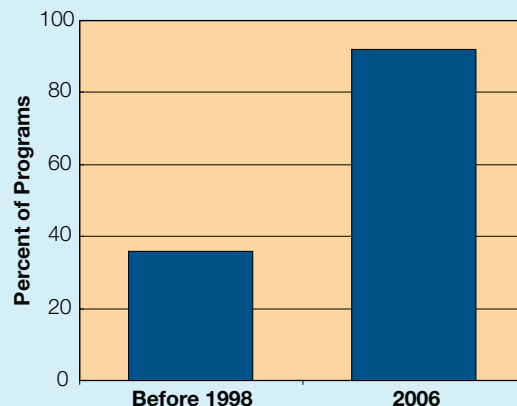


After receiving *Special Diabetes Program for Indians* funds, 96% of grant programs reported offering **organized diabetes education** in 2006 (versus 25% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

**Figure 9.2. Culturally appropriate diabetes education programs** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Culturally appropriate diabetes education programs can help make diabetes treatment and prevention plans more acceptable, better understood, and more effective.



After receiving *Special Diabetes Program for Indians* funds, 92% of grant programs reported offering access to **culturally appropriate diabetes education programs** in 2006 (versus 36% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

### Empowering Patients Through Culturally Appropriate Diabetes Self-Management Education

One important strategy of the *Special Diabetes Program for Indians* has been to establish changes throughout the Indian health care system that *support good diabetes self-management*.

Diabetes self-management is a cornerstone of effective diabetes care and is related to improved diabetes outcomes.<sup>8</sup> It involves teaching people who have diabetes about the skills and resources they need to make the best decisions about their daily diabetes management.

The majority of the grant programs have established organized, culturally appropriate diabetes self-management education programs (Figures 9.1

and 9.2). Culturally appropriate programs are particularly important because culture is a key determinant of behavior that cannot be separated from health and may have a profound effect on the way an individual defines and experiences health and disease. Because culture and health messages are intertwined and inseparable concepts, it is important to integrate culture and health information so that interventions are more acceptable, better understood, and more effective.

### Tradition and Health Care: An Effective Partnership for Diabetes Care

Many *Special Diabetes Program for Indians* grant programs now use diabetes talking circles, along with group support, in a spiritual setting. The talking circles create an acceptable way for people with





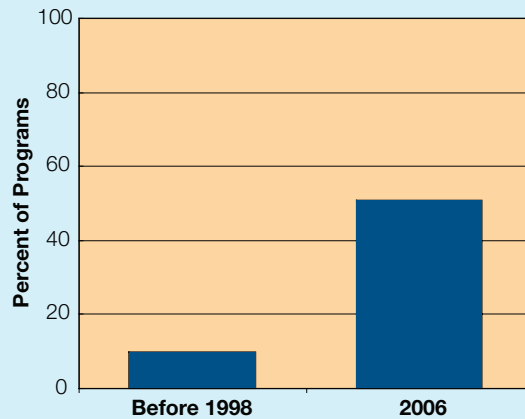
“Don’t worry. The circle takes you in the direction you need to go. Tears are good for healing,” says Lucky McKay (Miwok-Pomo). That message has helped participants in Sonoma County Indian Health’s talking circle program in California not only cope with the emotional issues related to having diabetes, but also learn how to control their diabetes.

diabetes to express their feelings about living with diabetes, receive support, absorb information, and strengthen traditional ties (Figure 9.3). Diabetes talking circles are associated with:<sup>9</sup>

- ◆ A reduction in fatalistic attitudes toward diabetes.
- ◆ Improved diabetes knowledge.
- ◆ Improved knowledge about dietary fat and fiber.
- ◆ Increased knowledge about physical activity.
- ◆ Improved diabetes treatment compliance and adherence.

**Figure 9.3. Talking circles** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Diabetes talking circles use a traditional approach to create a culturally acceptable way for American Indians and Alaska Natives to express their feelings about living with diabetes.



After receiving *Special Diabetes Program for Indians* funds, 51% of grant programs reported offering **talking circle activities** in 2006 (versus 10% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

### Helping Individuals by Changing the Environment

Environments affect the entire population exposed to them. Implementing community-wide policies that encourage healthy behaviors can have a positive effect on diabetes at the population level. As described earlier in this Report, many *Special Diabetes Program for Indians* grant programs have enacted school- and community-wide policies to treat and prevent diabetes (see Chapter 5).

Another important strategy used by the *Special Diabetes Program for Indians* has been to link individuals to resources that can assist with improving their environment. Many grant programs established close partnerships with local social service programs to assist patients

with improving their environment and socio-economic life circumstances (Figure 9.4). These social service programs include vocational rehabilitation, education services, housing programs, childcare services, transportation services, literacy programs, and domestic violence shelters.

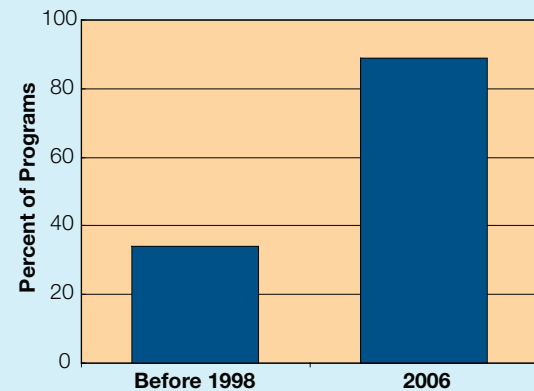
### Best Practices: Actionable Models for Behavior Change

The Indian Health Service (IHS) Division of Diabetes Treatment and Prevention collaborated with Indian health diabetes experts to develop and implement *Indian Health Diabetes Best Practices* documents on a number of topics associated with behavioral factors, such as depression care, diabetes self-management, and community advocacy. The *Special Diabetes Program for Indians* grant programs are implementing the elements in these Best Practices documents through:

- ◆ Screening for depression in a culturally appropriate manner.
- ◆ Offering a variety of therapies to help patients cope with stress and depression, such as the use of antidepressant medications, group and individual therapy, coping skills training, acupuncture, and various types of physical activity, including traditional dance, yoga, and walking and running programs.
- ◆ Conducting public forums, focus groups, surveys, and interviews to identify community diabetes needs.
- ◆ Developing culturally appropriate, community-directed diabetes programs that complement and support clinical diabetes programs.

**Figure 9.4. Collaboration with social services programs** increased with implementation of the *Special Diabetes Program for Indians*

**Why is this important?** Collaborations with local community partners, including social services programs, have strengthened the local public health infrastructure to ensure the success of diabetes treatment and prevention efforts.



After receiving *Special Diabetes Program for Indians* funds, 89% of grant programs reported **working with social services** programs in 2006 (versus 34% before 1998).

Source: *Special Diabetes Program for Indians* Evaluation 2006

- ◆ Helping community members become “expert users” of the Indian health system.
- ◆ Ensuring that diabetes self-management education activities reach the entire community.

These activities underscore the *Special Diabetes Program for Indians* grant programs’ dedication to providing patient-centered, culturally appropriate care. The Best Practices documents reflect diabetes treatment and prevention efforts already taking place in some American Indian and Alaska Native communities and can help guide other programs as they develop new and enhance existing activities.

## Moving Forward: A Behavioral Approach to Achieving Health Equity

The scientific research clearly demonstrates that behavior can have a negative effect on health status. However, with proper attention to patient-centered and culturally appropriate strategies, behavior can change and contribute to a healthier quality of life. The *Special Diabetes Program for Indians* grant programs have shown that addressing factors that influence behavior—such as depression, trauma, social support, and cultural change—can foster health and wellness.

The Indian health system plans to continue promoting the strategies successfully used by the *Special Diabetes Program for Indians* to encourage healthy behavior and a sense of healing among American Indians and Alaska Natives. To bring these strategies to the next level, IHS, Tribal, and Urban Indian health programs will work together to:

- ◆ Institutionalize support for behavior change strategies throughout the Indian health system.
- ◆ Reach consensus on a framework for measuring and reporting the quality of patient-centered and culturally competent care.
- ◆ Collect more rigorous data on grant program activities and their effectiveness.

Elements of culture and tradition must be added to behavioral interventions to ensure that they are successful and acceptable within American Indian and Alaska Native communities. The “Pima Pride” study clearly illustrates the importance of this strategy. This small study involved the Pima Indians of Arizona and was designed to test the



At Black Bear Elementary School on the Fond du Lac Reservation in Minnesota, John Henry McMillen uses powwow dancing to

teach kindergarteners how to respect themselves and others and how to honor their culture by avoiding alcohol and non-traditional tobacco use. John says respect starts with the drum. He explains, “Children learn to respect the drum, not to hit Grandfather the drum, and to respect themselves.”

efficacy of lifestyle interventions. The researchers divided the study participants into two groups: (1) the Pima Action Group that received nutrition and physical activity interventions; and (2) the Pima Pride Group that received pamphlets about nutrition and physical activity and participated in regular meetings on Pima culture and history with local cultural leaders. At the end of 12 months, both groups had increased their physical activity, but the Pima Pride Group had more favorable outcomes for weight, waist circumference, and blood sugar and insulin levels. The researchers concluded that **increasing pride in identity and culture had a more favorable impact on health behaviors and risk than focusing on changing diet and exercise behaviors alone.**<sup>10</sup>

The promising outcomes of the “Pima Pride” study and the strategies used by the *Special Diabetes Program for Indians* grant programs are showing that cultural and social support have a more direct effect on diabetes control in ways that extend beyond the current diabetes treatment and prevention paradigm. The Indian health system is poised to continue leading this paradigm shift and to incorporate these approaches effectively and efficiently into diabetes treatment and prevention efforts throughout American Indian and Alaska Native communities.

## THE CHOCTAW NATION HAPPY HEART PROJECT

In 2004, the Choctaw Nation Tribal Council applied for and was awarded a competitive grant for a *Special Diabetes Program for Indians* Cardiovascular Disease Risk Reduction Demonstration Project, now called the Healthy Heart Demonstration Project. The new *Choctaw Nation Happy Heart Project* was launched in 2005, building on the Choctaw Nation's strong foundation of success from *Special Diabetes Program for Indians* Community-Directed Diabetes Program activities.

Sandra Dukes, Project Director, feels that the success of the *Special Diabetes Program for Indians* Healthy Heart Demonstration Project, at both the administrative and patient levels, is due to the rigor and accountability of the grant program process. Requirements include monthly visits with patients to provide a higher level of education, monitoring, and management of cardiovascular disease risk factors in patients with diabetes. Sandra also believes that being able to focus on a smaller group of patients allows her staff to provide more personalized, intimate care and to address critical emotional aspects of diabetes.



“For our Healthy Heart participants, it takes a level of commitment over and above what they’ve been used to in the past,” says Sandra.

The higher level of care patients are receiving has resulted in real improvements in their health. While patients’ average A1C in 1995 was above 8%, now 90% of the patients have A1C levels below 8%.

The *Choctaw Nation Happy Heart Project* staff are proud that participants are learning they can make small changes to help avoid having heart attacks and strokes in the future. By aggressively treating cardiovascular disease risk factors to target levels, and by helping people make healthy lifestyle changes, they hope these changes will filter down to the children in their community and turn the tide of diabetes, obesity, and cardiovascular disease.



## CHAPTER 10 DEMONSTRATION PROJECTS: TRANSLATING THE SCIENCE

### SUMMARY

#### Issue

In 2004, Congress directed the Indian Health Service (IHS) to implement a new program to address diabetes prevention and cardiovascular disease risk reduction in American Indian and Alaska Native communities. Although major clinical trials and research studies have shed light on promising prevention and risk reduction strategies, the grant programs must determine how to translate the research findings into the diverse settings of American Indian and Alaska Native communities.

#### Action

In response to Congressional direction, the IHS launched the *Special Diabetes Program for Indians* Demonstration Projects. Now in the second year of this 5-year program, the Demonstration Project grant programs have developed and begun implementing comprehensive diabetes prevention and cardiovascular disease risk reduction interventions, community awareness activities, and evaluation plans. The IHS is poised and ready to share the successes and lessons learned through the Demonstration Projects to help communities throughout the United States implement successful diabetes prevention and cardiovascular disease risk reduction strategies.

Recent studies from the scientific literature demonstrate that diabetes and its complications can not only be treated, but also prevented. How can the research findings from controlled, clinical trials be translated to health care settings? Will diabetes treatment and prevention strategies outlined in the scientific literature work in health care settings as diverse as a clinic in rural Alaska, a small Urban clinic in Dallas, or a busy Indian Health Service (IHS) hospital in Phoenix? The *Special Diabetes Program for Indians* Demonstration Projects hold promise in answering these questions and spreading the lessons learned from these projects throughout the Indian health system.

### **A Plan to Lead Improvement in Diabetes Treatment and Prevention**

In 2004, Congress extended the funding for the *Special Diabetes Program for Indians* through 2008 and added an additional \$50 million per year to the Program (Public Law 107-360). Further Congressional directives detailed the intent for the additional funds, stating, "...the IHS should develop a competitive grant program to address... (1)... **the most compelling diabetes complication(s)** in American Indians and Alaska Natives and (2)... **primary prevention of diabetes** in American Indians and Alaska Natives." These directives further encouraged the IHS to **use the latest scientific findings and demonstrate new approaches** to deal with diabetes and related health complications.

The IHS set aside \$27.4 million of *Special Diabetes Program for Indians* funding per year from fiscal year 2004 through fiscal year 2008 for this new program, called the *Special Diabetes Program for Indians* Demonstration Projects.

Based on recommendations gathered from an extensive Tribal consultation:

- ◆ The IHS followed Congressional recommendations and established the Demonstration Projects to address diabetes prevention and cardiovascular disease, the most compelling complication of diabetes in American Indians and Alaska Natives.
- ◆ Only previous *Special Diabetes Program for Indians* grant programs could compete for funding. Interested programs completed an application that provided evidence of their capacity to successfully implement planned project activities that involve recruiting and retaining participants in intensive interventions and conducting rigorous data collection needed for evaluation of these projects.
- ◆ The IHS convened a review group that included IHS diabetes staff, diabetes experts, Tribal Leaders, and Tribal representatives. This group reviewed applications from 128 grant programs and selected a diverse group of 66 grant programs, representing IHS, Tribal, and Urban programs; large and small programs; and geographically diverse locations.
- ◆ The IHS Division of Diabetes Treatment and Prevention established the *Special Diabetes Program for Indians* Demonstration Projects Coordinating Center to provide day-to-day coordination and technical assistance to the grant programs. The IHS awarded the coordinating center contract to the University of Colorado Health Sciences Center in Denver, Colorado, through a competitive process.
- ◆ The IHS is conducting a comprehensive evaluation of the Demonstration Projects to answer questions on program effectiveness and outcomes based on solid, statistically accurate, and timely data.

## **Special Diabetes Program for Indians Demonstration Projects**

The 66 selected grant programs were awarded grants for one of two programs within the *Special Diabetes Program for Indians* Demonstration Projects:

### **Diabetes Prevention Demonstration Project: 36 Grant Programs**

The Diabetes Prevention Demonstration Project focuses on preventing diabetes in American Indians and Alaska Natives at risk for developing the disease. This project adapted, and is currently implementing, the curriculum from the National Institutes of Health (NIH) Diabetes Prevention Program. This landmark study, published in 2002, demonstrated that individuals with pre-diabetes could prevent type 2 diabetes through lifestyle changes and, to a lesser extent, with a medication called metformin.

Many of the *Special Diabetes Program for Indians* grant programs were already working on diabetes prevention interventions prior to the release of the NIH Diabetes Prevention Program study findings in 2002. The *Special Diabetes Program for Indians* Diabetes Prevention Demonstration Project funds provided the resources to build stronger diabetes prevention programs by translating the promising study findings through implementation of a common, structured diabetes prevention education program in 36 sites.

### **Healthy Heart Demonstration Project: 30 Grant Programs**

The Healthy Heart Demonstration Project focuses on reducing the risk of cardiovascular disease in American Indians and Alaska Natives who already have diabetes. This program is currently implementing a clinical, team-based, case management approach to treat risk factors for



The Kenaitze Indians' *Diabetes Prevention Program* in Kenai, Alaska, has created a unique approach to motivate people with pre-diabetes to make healthy lifestyle changes. Using a mural of the Yagahali Chulane—the river of a healthy mind and body—participants mark their journey to prevent diabetes by placing hand-crafted “paddles” and “fish” at different points along the river, symbolizing the goals they have achieved.

cardiovascular disease. This approach is based on current models for chronic care management and the latest cardiovascular disease prevention clinical guidelines.

Cardiovascular disease is the leading complication of diabetes, and the number one killer of American Indian and Alaska Native adults. The Strong Heart Study, an ongoing study of cardiovascular disease in 13 American Indian and Alaska Native communities, demonstrated that diabetes is a major risk factor and accounts for the majority of risk for cardiovascular disease events in American Indians and Alaska Natives. The incidence of cardiovascular disease in American Indians and Alaska Natives now exceeds rates in the general United States population. The funds for the *Special Diabetes Program for Indians* Healthy Heart Demonstration Project offer hope that American Indian and Alaska Native communities can reverse these troubling trends by implementing a more intensive, structured case management approach to addressing cardiovascular disease risk in people with diabetes.

## Creating the Framework for Progress

When the *Special Diabetes Program for Indians* Demonstration Projects began, the Indian health system was armed with Congressional direction and evidence from the scientific literature. The grant programs knew that they needed to focus on diabetes prevention and cardiovascular disease risk reduction, but they did not yet know how to implement common project activities that reflected recent scientific research in 66 diverse programs and communities.

In fiscal year 2005, the grant programs and the IHS launched an intensive, year-long collaborative process to design diabetes prevention and cardiovascular disease risk reduction interventions, community awareness activities, and a comprehensive project evaluation. This collaborative process also provided the grant programs with the opportunity to obtain technical assistance, network with one another, and help each other work through problems and challenges. Importantly, the collaborative process allowed grant programs to share the lessons learned from their years of experience in diabetes treatment and prevention through the *Special Diabetes Program for Indians*.

By the end of the collaborative planning year, the grant programs had developed a comprehensive plan for the interventions, community awareness activities, and evaluation. All of the grant programs successfully completed the requirements of the collaborative planning year and moved on to the next phase of required activities. Process data from the planning year demonstrate the grant

programs' enthusiasm and support for the Demonstration Projects:

- ◆ 91% of grant programs were confident in their ability to implement the clinical and community awareness activities.
- ◆ A high percentage of grant programs reported local support for their projects:
  - Administrative support 92%
  - Clinical support 92%
  - Tribal government support 80%
  - Community support 79%

Although the grant programs have demonstrated positive progress one year into the program, they continue to work to overcome ongoing challenges:

- ◆ 60% of the grant programs reported difficulties with hiring qualified staff, particularly in rural, smaller programs.
- ◆ 33% of the grant programs reported difficulties with recruiting job applicants.
- ◆ Staff turnover was significant and required constant orientation.
- ◆ Grant programs devoted a substantial amount of time to obtaining local commitment to the new projects.
- ◆ Technical assistance needs were substantial, with the majority of grant programs requesting assistance with: (1) project participant recruitment and retention strategies; (2) motivational interviewing; (3) teaching the adapted NIH Diabetes Prevention Program curriculum; (4) program evaluation; (5) community awareness activities; and (6) case management.



- ◆ Computer and internet access posed a challenge, with 24% of grant programs reporting access to at least one old or slow processor computer, 6% without high speed internet access, and 50% without writable file storage or backup systems.

### **Early Progress of the Special Diabetes Program for Indians Demonstration Projects**

The grant programs successfully began implementation of the rigorous Demonstration Project activities in fiscal year 2006. In addition, the grant programs have launched community awareness activities tailored to meet local needs and priorities of individual American Indian and Alaska Native communities. The following, along with the stories woven throughout this chapter, describe the early progress of the grant programs:

#### **Diabetes Prevention Demonstration Project**

Each grant program is required to recruit 48 participants with pre-diabetes into the project each year. The grant programs will teach the NIH Diabetes Prevention Program *Lifestyle Balance Curriculum*, adapted by each site for cultural sensitivity and appropriateness during the planning year. The goals for the participants include weight loss, making healthier food choices, and increased physical activity. By January 2007, the grant programs had recruited a total of 1,043 participants into the Diabetes Prevention Demonstration Project. Most of these individuals were newly diagnosed with pre-diabetes through the Demonstration Project. Without this project, these individuals may not have known their increased risk for the



The Indian Health Council, Inc.'s *Journey of the Heart* program in San Diego, California, is making a difference in educating and motivating people with diabetes to reduce their risk of cardiovascular disease. “We are using the *Indian Health Diabetes Best Practices*, treating for stroke and cardiac issues, monitoring A1C and microalbumin, and providing educational classes,” says Virginia Hernandez, Diabetes Management Coordinator. “Participants wouldn’t get this kind of care anywhere else.”

development of diabetes or taken this opportunity to prevent diabetes.

#### **Healthy Heart Demonstration Project**

Each grant program is required to recruit 50 participants with diabetes into the project each year. Each grant program will implement an intensive case management program to treat cardiovascular disease risk factors to target goals and educate American Indians and Alaska Natives on cardiovascular disease risk. By January 2007, the grant programs had recruited a total of 961 participants into the Healthy Heart Demonstration Project. All of these individuals already had diabetes, but did not previously have access to the type of intensive case management and chronic condition management offered by the Healthy Heart Demonstration Project.

## **Moving Forward: Using Evaluation and Lessons Learned to Rapidly Spread Quality Diabetes Care**

The *Special Diabetes Program for Indians* Demonstration Projects will continue their activities through fiscal year 2008. The IHS Division of Diabetes is using a public health program evaluation framework to answer the following questions:

- ◆ Did the grant programs successfully implement the required activities?
- ◆ How did the grant programs implement the required activities in diverse communities?
- ◆ What were the short-term, intermediate, and long-term outcomes as a result of the program activities?
- ◆ Were there improvements in risk factor reduction for diabetes and cardiovascular disease?
- ◆ What factors were associated with successful participants and grant programs?
- ◆ What were the lessons learned?

Activities in the final year of this 5-year project (fiscal year 2008) also include disseminating project results and lessons learned throughout the Indian health system. The results will help the Indian health system understand how to best translate the research on diabetes treatment and prevention into the real world settings of American Indian and Alaska Native communities. The IHS Division of Diabetes also will use the lessons learned from the Demonstration Projects to train other Indian health programs to launch successful diabetes prevention and cardiovascular disease risk reduction strategies and activities.

The *Special Diabetes Program for Indians* Demonstration Projects are building on the foundation of the original *Special Diabetes Program for Indians* Community-Directed Diabetes Programs to ensure that, as Congressman Nethercutt declared, “Another generation of Native children must not be permitted to develop diabetes at even greater rates than today!” The many successes and lessons learned have provided direction to shape a future in which all children can live in a diabetes-free world.

Special Diabetes Program for Indians Demonstration Projects Map



## Special Diabetes Program for Indians Healthy Heart Demonstration Projects

State	IHS Area	Grant Program Name	Consortium With Other Tribes or Agencies	Award Amount 2004	Award Amount 2005	Award Amount 2006	Total
AK	Alaska	Yukon-Kuskokwim		\$330,000	\$324,300	\$324,300	\$978,600
AZ	Phoenix	Hualapai		\$330,000	\$324,300	\$324,300	\$978,600
AZ	Phoenix	Whiteriver IHS		\$404,000	\$397,100	\$397,100	\$1,198,200
AZ	Tucson	Tohono O'Odham Nation	✓	\$404,000	\$397,100	\$397,100	\$1,198,200
CA	California	Indian Health Council		\$330,000	\$324,300	\$324,300	\$978,600
CA	California	Redding Rancheria	✓	\$330,000	\$324,300	\$324,300	\$978,600
CA	California	Riverside-San Bernardino		\$404,000	\$397,100	\$397,100	\$1,198,200
CA	California	Toiyabe		\$330,000	\$324,300	\$324,300	\$978,600
MI	Bemidji	Sault Ste Marie		\$330,000	\$324,300	\$324,300	\$978,600
MN	Bemidji	Leech Lake		\$404,000	\$397,100	\$397,100	\$1,198,200
MN	Bemidji	Mille Lacs Band	✓	\$330,000	\$324,300	\$324,300	\$978,600
MT	Billings	Blackfeet Tribe		\$404,000	\$397,100	\$397,100	\$1,198,200
MT	Billings	Confederated Salish & Kootenai		\$330,000	\$324,300	\$324,300	\$978,600
MT	Billings	Ft Belknap	✓	\$330,000	\$324,300	\$324,300	\$978,600
NM	Albuquerque	Albuquerque IHS		\$404,000	\$397,100	\$397,100	\$1,198,200
NM	Albuquerque	Ramah Navajo		\$330,000	\$324,300	\$324,300	\$978,600
NM	Albuquerque	Santo Domingo		\$330,000	\$324,300	\$324,300	\$978,600
NM	Albuquerque	Taos-Picuris		\$330,000	\$324,300	\$324,300	\$978,600
NM	Navajo	Navajo Area IHS		\$404,000	\$397,100	\$397,100	\$1,198,200
NY	Nashville	St. Regis Mohawk		\$330,000	\$324,300	\$324,300	\$978,600
OK	Oklahoma	Absentee Shawnee		\$330,000	\$324,300	\$324,300	\$978,600
OK	Oklahoma	Choctaw Nation		\$404,000	\$397,100	\$397,100	\$1,198,200
OK	Oklahoma	IHC Resource Center of Tulsa	✓	\$330,000	\$324,300	\$324,300	\$978,600
OK	Oklahoma	Muscogee Creek		\$404,000	\$397,100	\$397,100	\$1,198,200
SD	Aberdeen	Wagner Health Care IHS		\$330,000	\$324,300	\$324,300	\$978,600
UT	Phoenix	Uintah & Ouray IHS		\$404,000	\$397,100	\$397,100	\$1,198,200
WA	Portland	NW Washington IHB		\$330,000	\$324,300	\$324,300	\$978,600
WA	Portland	Seattle IHB		\$330,000	\$324,300	\$324,300	\$978,600
WA	Portland	Yakama IHC		\$404,000	\$397,100	\$397,100	\$1,198,200
WI	Bemidji	Bad River Band		\$330,000	\$324,300	\$324,300	\$978,600
<b>Total</b>				<b>\$10,714,000</b>	<b>\$10,529,800</b>	<b>\$10,529,800</b>	<b>\$31,773,600</b>

**Special Diabetes Program for Indians Diabetes Prevention Demonstration Projects**

State	IHS Area	Grant Program Name	Consortium With Other Tribes or Agencies	Award Amount 2004	Award Amount 2005	Award Amount 2006	Total
AK	Alaska	Kenaitze		\$330,000	\$324,300	\$324,300	\$978,600
AK	Alaska	Norton Sound		\$330,000	\$324,300	\$324,300	\$978,600
AK	Alaska	SEARHC		\$404,000	\$397,100	\$397,100	\$1,198,200
AK	Alaska	Southcentral Foundation		\$404,000	\$397,100	\$397,100	\$1,198,200
AZ	Phoenix	Colorado River		\$404,000	\$397,100	\$397,100	\$1,198,200
AZ	Phoenix	Gila River		\$404,000	\$397,100	\$397,100	\$1,198,200
AZ	Navajo	Tuba City		\$404,000	\$397,100	\$397,100	\$1,198,200
CA	California	IHC – Santa Clara	✓	\$330,000	\$324,300	\$324,300	\$978,600
CA	California	Sonoma County		\$330,000	\$324,300	\$324,300	\$978,600
CA	California	UAI Involvement		\$330,000	\$324,300	\$324,300	\$978,600
CA	California	United Indian Health Services	✓	\$404,000	\$397,100	\$397,100	\$1,198,200
ID	Portland	Coeur d’Alene		\$330,000	\$324,300	\$324,300	\$978,600
KS	Oklahoma	Haskell Health	✓	\$404,000	\$397,100	\$397,100	\$1,198,200
MN	Bemidji	Fond Du Lac		\$330,000	\$324,300	\$324,300	\$978,600
MN	Bemidji	IHB of Minneapolis		\$330,000	\$324,300	\$324,300	\$978,600
MN	Bemidji	Red Lake		\$330,000	\$324,300	\$324,300	\$978,600
MS	Nashville	Mississippi Choctaw		\$404,000	\$397,100	\$397,100	\$1,198,200
MT	Billings	Rocky Boy		\$330,000	\$324,300	\$324,300	\$978,600
ND	Aberdeen	Trenton IHS	✓	\$330,000	\$324,300	\$324,300	\$978,600
NE	Aberdeen	Winnebago Tribe		\$330,000	\$324,300	\$324,300	\$978,600
NM	Albuquerque	San Felipe Pueblo	✓	\$330,000	\$324,300	\$324,300	\$978,600
NM	Albuquerque	Zuni Pueblo		\$404,000	\$397,100	\$397,100	\$1,198,200
NY	Nashville	Seneca Nation		\$330,000	\$324,300	\$324,300	\$978,600
OK	Oklahoma	Cherokee Nation		\$404,000	\$397,100	\$397,100	\$1,198,200
OK	Oklahoma	Chickasaw Nation		\$404,000	\$397,100	\$397,100	\$1,198,200
OK	Oklahoma	Lawton IHS	✓	\$404,000	\$397,100	\$397,100	\$1,198,200
OR	Portland	Cow Creek Band	✓	\$404,000	\$397,100	\$397,100	\$1,198,200
OR	Portland	Warm Springs		\$404,000	\$397,100	\$397,100	\$1,198,200
SD	Aberdeen	Cheyenne River Sioux		\$330,000	\$324,300	\$324,300	\$978,600
SD	Aberdeen	Pine Ridge IHS		\$404,000	\$397,100	\$397,100	\$1,198,200
SD	Aberdeen	Rapid City IHS		\$330,000	\$324,300	\$324,300	\$978,600
WA	Portland	Colville		\$330,000	\$324,300	\$324,300	\$978,600
WA	Portland	Chehalis	✓	\$330,000	\$324,300	\$324,300	\$978,600
WA	Portland	Quinault		\$330,000	\$324,300	\$324,300	\$978,600
WI	Bemidji	Ho-Chunk		\$330,000	\$324,300	\$324,300	\$978,600
WI	Bemidji	Menominee		\$330,000	\$324,300	\$324,300	\$978,600
<b>Total</b>				<b>\$12,990,000</b>	<b>\$12,766,800</b>	<b>\$12,766,800</b>	<b>\$38,523,600</b>

## IN THEIR OWN WORDS: QUOTES FROM *SPECIAL DIABETES PROGRAM FOR INDIANS STAFF*

“Tribal communities have risen to the call of taking control of diabetes and preventing diabetes.”

Arlie Beeson, Gila River Indian  
Community (Arizona)

“There was no diabetes program before the *Special Diabetes Program for Indians*.”

Kelle Little, Coquille Indian Tribe (Oregon)

“The *Special Diabetes Program for Indians* has allowed us to have a ‘backbone’ for our wellness and outreach programs.”

Gary Ferguson, Eastern Aleutian Tribes  
(Alaska)

“**The *Special Diabetes Program for Indians* has allowed us to follow our diabetes patients more closely to prevent long-term complications.**”

Paula Gray, K’imaw Medical Center  
(California)

“Since the *Special Diabetes Program for Indians* started, our whole community has changed. We drink water, eat fruits and vegetables, and work to control diabetes.”

Ivy Radcliffe, Native American  
Community Health (Arizona)

“We have gotten our Native youth up and active . . . involving them in activities that make them feel good about themselves.”

Reyna Rivera, Sonoma County Indian  
Health Project (California)

“I sense a much deeper sense of trust and teamwork in managing diabetes and health care in my community since the *Special Diabetes Program for Indians* started.”

Quana Winstead, Cherokee  
(North Carolina)

“Tribal Leader advocacy is so necessary to keep our programs going.”

Jan Atencio, Albuquerque Area  
Diabetes Program (New Mexico)

“Since the *Special Diabetes Program for Indians* started, many families have changed their lifestyles. We involve the whole family.”

Connie Brushbreaker, Rosebud Sioux Tribe  
(South Dakota)

“**Our exercise program is so popular, our Diabetes Prevention Program graduates don’t want to stop meeting!**”

Patricia Rosett, Sonoma County  
Indian Health Project (California)

“The *Special Diabetes Program for Indians* has assisted us in building bridges between local and Tribal governments to promote good health outcomes for all people.”

Phyllis Davis, Gun Lake Tribe (Michigan)

“The *Special Diabetes Program for Indians* has given my community hope. We are going back to our traditions and being physically active again.”

Carol Cruz, San Juan Pueblo (New Mexico)



## CHAPTER 11

# PATHWAYS TO SUCCESS: LESSONS LEARNED FROM THE *SPECIAL DIABETES PROGRAM FOR INDIANS*

### SUMMARY

Over the course of its 10-year history, the *Special Diabetes Program for Indians* has identified pathways that lead to quality diabetes care. Some of these pathways relate to translating the science of diabetes treatment and prevention in the diverse settings of American Indian and Alaska Native communities. Other pathways relate to implementing effective diabetes programs. These lessons are presented in this Report with the hope that other health care professionals, program administrators, Tribal Leaders, and patients on the front lines of the diabetes epidemic can apply them to their own programs.

The *Special Diabetes Program for Indians* has made great strides in diabetes treatment and prevention, paving the way to a healthier future for American Indian and Alaska Native communities. During the past 10 years, the *Special Diabetes Program for Indians*, together with the Indian Health Service (IHS) Division of Diabetes Treatment and Prevention, has learned many important lessons that have contributed to the Program's success. These pathways to success reflect the vast experience in diabetes treatment and prevention that American Indian and Alaska Native communities gained as a result of the *Special Diabetes Program for Indians*.

### Pathways to Effective Translation of the Science

The *Special Diabetes Program for Indians* uses findings from the scientific literature to guide the development and implementation of diabetes treatment and prevention activities. The Program learned the following lessons in the course of translating the science on diabetes in American Indian and Alaska Native communities.

### **Treating and preventing diabetes and its complications requires continued, persistent action**

Since the inception of the *Special Diabetes Program for Indians*, American Indian and Alaska Native communities have experienced significant, positive outcomes in diabetes treatment and prevention. Although the observed changes are encouraging, the diabetes epidemic requires concerted, ongoing efforts to reverse its growth. Through effective resource allocation, attention to new findings in the scientific literature on diabetes, access to new medications and technology, program accountability, and strong partnerships, the *Special Diabetes Program for Indians* has led the effort to spread quality diabetes treatment and prevention practices to American Indian and Alaska Native communities and their health systems throughout the United States.

### **Protecting children and youth from type 2 diabetes is a top priority**

The childhood obesity epidemic, and resulting emergence of type 2 diabetes in youth, is a complex issue. It will take years—if not decades—to reverse the startling childhood obesity and type 2 diabetes trends that affect virtually every community in the United States.

Until the results of several major scientific studies on preventing type 2 diabetes in youth are published in the coming years, the *Special Diabetes Program for Indians* has identified several strategies that hold promise. Effective programs target women of childbearing age and their families to intervene before conception, during the prenatal period, and during the first few years of the child's life; breastfeeding promotion, for example, is a particularly effective strategy to reduce childhood obesity and type 2 diabetes. As with adults,

effective programs offer strategies to increase physical activity and improve food choices and behaviors early in life. Furthermore, intervening earlier with children who are already obese and have diabetes is especially important.

### **Reducing the threat of obesity will help stem the diabetes epidemic**

The prevalence of overweight and obesity continues to increase in American Indian and Alaska Native communities. The scientific literature suggests that addressing obesity and weight management is one of the most effective strategies for preventing diabetes and its complications in adults and youth.

The *Special Diabetes Program for Indians* learned that weight loss among American Indians and Alaska Natives requires the use of multiple, culturally appropriate strategies. Adults and youth require access to weight loss programs that use innovative weight management tools and activities designed for specific age groups and individuals. To reach as many people as possible, effective diabetes programs must offer activities and services in a variety of community settings. In addition, diabetes programs need to form partnerships with schools, work sites, and other community organizations to provide access to healthy foods and to change community norms and the environment.

### **Nutrition programs are a cornerstone of effective diabetes treatment and prevention efforts**

The scientific literature documents the association between high-fat, high-calorie diets and the onset of diabetes, and offers strong evidence that nutrition programs are a cornerstone of effective diabetes treatment and prevention. Consequently, the need for nutrition programs, services, and



policies to promote good nutrition and healthy eating is as urgent as ever.

Although numerous socioeconomic and environmental factors in American Indian and Alaska Native communities make it difficult for people to eat well, the *Special Diabetes Program for Indians* identified pathways for continued action and progress. These pathways—early intervention, focus on prevention, efficient delivery of nutrition services, and clear and consistent nutrition messages—will ensure that American Indian and Alaska Native communities overcome the epidemics of obesity, diabetes, and subsequent chronic conditions.

### **Increasing access to physical activity is vital at all ages**

Physical activity has great potential to ease the burden of diabetes and improve the quality of life in American Indian and Alaska Native communities. The scientific literature shows that only moderate physical activity is needed to realize health benefits. The *Special Diabetes Program for Indians* uses innovative, culturally appropriate strategies to raise awareness about the benefits of physical activity and to integrate more active lifestyles into American Indian and Alaska Native communities. Access to physical activity programs and resources for these communities must improve.

### **Focus on a behavioral approach to achieving health equity**

The scientific literature clearly demonstrates that certain lifestyle behaviors have a negative effect on health status. The *Special Diabetes Program for Indians* learned that people *can* change their behaviors and have a healthier quality of life when they have access to patient-centered care and culturally appropriate behavioral therapy. This includes avoiding blaming the patient, and instead



“Before the *Special Diabetes Program for Indians*, we had over a 5-month wait to get a patient into the diabetes clinic. The *Special Diabetes Program for Indians* funds have made possible a state-of-the-art diabetes program here in Cherokee where we see success stories every day of people controlling their diabetes. Without the *Special Diabetes Program for Indians*, we would go back to having too little care available for far too many patients.”

Ann Bullock, M.D.  
Medical Director  
Eastern Band of Cherokee Indians  
Health and Medical Division

addressing the emotions associated with diabetes and treating overweight and obesity as chronic conditions that require long-term management. In addition, obesity prevention will not work without stress reduction activities, early identification of depression, strengthening self-esteem and cultural pride, and promoting healthy body images.

### **Include family and community interventions**

Health programs typically focus on the *individual* with the disease. The *Special Diabetes Program for Indians* learned that a more successful approach in American Indian and Alaska Native communities is to focus on the *family and the community*. This strategy is important because other family members, rather than the person with diabetes, often make decisions about purchasing and preparing food, as well as plan activities for the family. Furthermore, focusing on the family and the community helps

ensure that people who are at risk for developing diabetes can access information about diabetes prevention.

## Pathways to Effective Program Implementation

The *Special Diabetes Program for Indians* is the largest grant program in the history of the IHS. The IHS Division of Diabetes learned many important lessons about effective program implementation during the course of administering and managing a grant program of this scale.

### Involve local leaders and community members in program decision-making

The *Special Diabetes Program for Indians* implemented several strategies to promote stronger collaboration between the IHS and local Tribal and Urban Indian health programs. First, the *Special Diabetes Program for Indians* involved local leaders and community members in funding and program development decisions. Second, national and regional program administrators enhanced partnerships with the grant programs by sharing knowledge and expertise, suggesting clinical and public health strategies for excellence, providing surveillance, and facilitating a peer-to-peer network. As a result, local leaders and community members have assumed greater ownership of their diabetes programs.

### Building program infrastructure takes time

When the *Special Diabetes Program for Indians* funding became available in 1998, some American Indian and Alaska Native communities already had basic diabetes programs in place, but the majority of organizations in the Indian health system did

“Prevention of diabetes has been brought to the forefront so much that I would now call ‘prevention’ a household word. Our Tribal members are aware of prevention methods, and I believe that it is becoming part of our culture as we attempt to prevent diabetes through lifestyle changes.”

Judy Goforth Parker  
Tribal Leader  
Chickasaw Nation of Oklahoma

not. The *Special Diabetes Program for Indians* funding enhanced existing diabetes programs and helped create many new programs. Now, 10 years since the *Special Diabetes Program for Indians* began, most American Indian and Alaska Native communities have the infrastructure necessary to provide excellent diabetes clinical care and to conduct diabetes treatment and prevention activities.

### Program communication must be consistent and reinforced

The *Special Diabetes Program for Indians* learned that communication about its mission, goals, and objectives must be consistent and reinforced. This practice helps ensure that all grant programs understand and promote the same vision to Tribal Leaders and Tribal members. This practice also recognizes that it takes time for people to understand a complex and serious disease like diabetes and to accept new ideas and ways of living.

To encourage their communities to embrace the *Special Diabetes Program for Indians*, the grant programs used a number of successful communication strategies. For example, the grant programs tailored program messages to different subgroups

within the population. The grant programs also delivered program messages through trusted sources, such as Tribal leaders, and through a variety of communication channels to ensure that they reached and influenced the intended audiences.

### **Find ways to work together**

In a large, multifaceted program like the *Special Diabetes Program for Indians*, numerous stakeholders bring differing opinions and approaches to bear. The *Special Diabetes Program for Indians* learned that program staff and Tribal Leaders must work together and maintain their focus on common goals. To foster an ongoing collaboration between the IHS and Tribal leadership, the IHS established the Tribal Leaders Diabetes Committee to serve as an advisory body to the IHS on decisions regarding *Special Diabetes Program for Indians* funding, administration, and direction. Through this unique partnership, Tribal Leaders and the IHS worked together to crystallize the many facets of diabetes treatment and prevention—as well as the challenges of diabetes in American Indian and Alaska Native communities—into a cohesive, structured program.

### **Focus on the basics of good clinical care**

When funding for a new initiative becomes available, programs may be tempted to purchase the latest technology to help address a major public health problem, such as the diabetes epidemic. Although technology is an important tool in addressing diabetes, the *Special Diabetes Program for Indians* learned that a focus on good clinical care and solid public health practices is essential for treating and preventing diabetes effectively. Toward this end, the *Special Diabetes Program for Indians* promotes the basics of quality diabetes treatment and prevention by disseminating the consensus-



Melanie Benjamin changed her life by integrating healthy living into her everyday routine.

based *IHS Standards of Care for Diabetes* and *Indian Health Diabetes Best Practices* documents.

### **Avoid duplication of effort by creating mechanisms for sharing ideas**

The *Special Diabetes Program for Indians* developed a strong network that employs a number of strategies to ensure that information flows between the grant programs and the IHS. First, the IHS Division of Diabetes ensures that new and innovative tools, materials, and processes are shared among the grant programs. Second, the *Special Diabetes Program for Indians* provides networking opportunities at national and regional conferences to help grant programs learn from one another. Third, the *IHS Standards of Care for Diabetes*, the *IHS Guidelines for Care of Adults With Prediabetes and/or the Metabolic Syndrome*, and the *Indian Health Diabetes Best Practices* documents provide the grant programs with a mechanism for sharing diabetes treatment and prevention expertise. The *Special Diabetes Program for Indians* learned that these communication tools are essential to ensure that lessons learned in Alaska are available to programs in Oklahoma, and that new materials developed in California reach audiences in Tennessee.

### **Foster creativity and reward innovation**

Often, research from large diabetes treatment and prevention studies tells us the *what*: what needs to be done, what factors are important, what measures to use, and what results to expect. But research rarely tells us *how*: how to implement the interventions in the real world and how to deal with uncontrollable variables. The *Special Diabetes Program for Indians* learned that the best ideas to answer these questions do not necessarily emerge at the national level and then filter down to local programs. Instead, the best ideas often come from the innovations of creative people working at the local level. In addition, the *Special Diabetes Program for Indians* learned it is important to foster this local creativity, reward it, and make it easier for health care providers to implement their ideas.

### **Partner with many and share the credit**

The many successes of the *Special Diabetes Program for Indians* represent only the beginning of what can be achieved when Tribal, governmental, and organizational partners work together toward a shared goal. These partnerships are important at the local, regional, and national levels.

For example, the *Special Diabetes Program for Indians* has formed partnerships with many agencies and organizations, such as the National Diabetes Education Program, a program co-sponsored by the National Institutes of Health and the Centers for Disease Control and Prevention (CDC). As a result, the grant programs are able to use diabetes

materials that these organizations have developed. This efficient practice saves time and money, and helps ensure that communication about diabetes at the local and national levels is accurate and consistent. In addition, the grant programs share their work freely, encouraging one another to tailor activities and materials to suit local needs.

### **Evaluation design needs to take into account many different outcomes**

Evaluating a project as large and complex as the *Special Diabetes Program for Indians* requires an approach that monitors the achievements made along the way to reaching the ultimate goal of reducing diabetes in American Indian and Alaska Native communities. The *Special Diabetes Program for Indians* uses an evaluation tool developed by the CDC, called the Framework for Program Evaluation in Public Health, to evaluate short-term and intermediate outcomes. This approach not only recognizes that it takes many years to reach a long-term outcome, such as reducing the prevalence of diabetes, but also informs effective program development and implementation.

### **Strive to demonstrate improved cost performance as well as clinical performance**

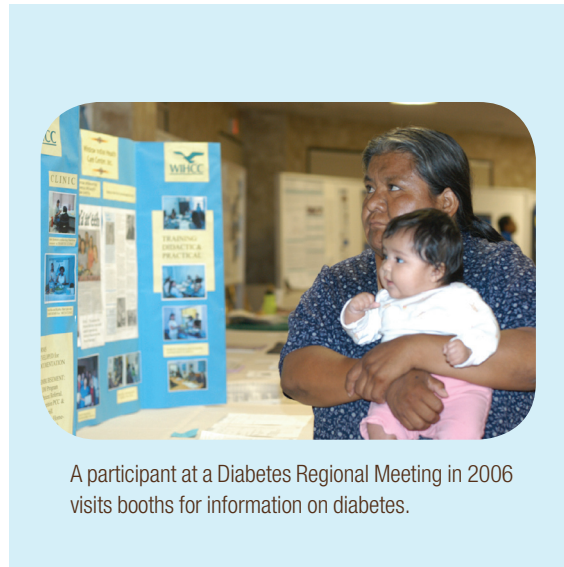
The *Special Diabetes Program for Indians* created systems to study how investments in quality diabetes treatment and prevention affect the economics associated with the disease. For example, the *Special Diabetes Program for Indians*

Demonstration Projects use proven strategies that should result in economically favorable outcomes over time. The IHS has formed an economic analysis team to investigate the direct costs of the Demonstration Projects in American Indian and Alaska Native communities. The economic analysis team will provide critical information regarding effective treatment and prevention interventions and economic savings.

### **Celebrate success**

Immersed in the busy, day-to-day work of delivering diabetes care or running a grant program, it is easy to lose sight of all that is being accomplished. Every now and then, it is important to step back, look at the milestones that have been achieved, and celebrate the successes—large and small.

The *Special Diabetes Program for Indians* learned that national and regional conferences are particularly important for gathering the grant programs to review how far they have come and to share both challenges and successes. These networking opportunities energize grant program staff to take on new challenges, and they return home ready to celebrate their own successes and implement the ideas gathered from their colleagues.



A participant at a Diabetes Regional Meeting in 2006 visits booths for information on diabetes.

### **Moving in the Right Direction**

Over the course of the past 10 years, the IHS and the *Special Diabetes Program for Indians* have learned to translate findings from the scientific literature into effective diabetes programs, shedding light on the pathways to successful diabetes treatment and prevention. Equipped with these lessons learned, the Indian health system is poised to continue working toward the goal of a diabetes-free future.

## LORELEI DECORA: RETURNING TO THE TRADITION OF BEING DIABETES-FREE

Fourteen years ago, I broke down and cried on the second floor of the Rosebud Hospital in Rosebud, South Dakota. While making my rounds as a public health nurse, it suddenly hit me: Every patient on the medical/surgical ward that day was hospitalized due to a diabetes complication. There was an epidemic of diabetes in Native people, and I hadn't even seen it coming.

From that day on, I knew I had to do everything I could to help create a diabetes-free future for Native people. With the guidance of the Creator, I learned that the key to overcoming diabetes is to realize we are spiritual people and cannot feel self-worth and be healthy when we are separated from our traditions.

Since then, thousands of medical professionals and Tribal program staff have joined the fight against diabetes. And the result is a beautiful sight! When I travel to other Tribes, I see entire communities mobilized to fight diabetes. Tribal departments, Tribal councils, and government and non-profit agencies—we all are working with a single purpose. Over and over we pledge this: We are committed to creating a diabetes-free future for Native people for at least two generations. That is how long it will take to make preventing diabetes a tradition.

So far, we have made progress with adults. We have done this patient by patient, family by family. But there is only so much that can be done with adults who have ingrained habits. As Perry Dyea (Laguna) says, "I've eaten fried meat and tortillas all my life. Suddenly, I'm told to eat an orange! That won't work!" But Perry did learn to control his diabetes by eating less and walking every day.



Perry's children are a different story. They don't have to break habits and learn new ones. Community-wide mobilizations to fight diabetes are happening in almost every Indian community, plus a new initiative called *Diabetes Education in Tribal Schools* is giving our children the opportunity to learn about diabetes prevention right in their classrooms.

With continued efforts by the Indian Health Service and other agencies, our children will be looking at a future vastly different from Perry's. They will have the opportunity to learn to say, "Yes, you can tell me to choose meat that is baked, broiled, or grilled. And I will listen!"

Everything we've learned about grounding people in spirituality and tradition and mobilizing communities has had amazing results for a generation of people. And now we are face-to-face with a huge, historic opportunity: to learn how to prevent diabetes in our youngest generation.

When we have done this and our children are automatically making healthy choices, day after day, then we will have succeeded. We have paved the way for a diabetes-free future for Native people, and in doing so, we have returned to tradition.

Lorelei DeCora  
Winnebago Tribe



## CHAPTER 12

# THE FUTURE DIRECTION OF DIABETES CARE IN THE INDIAN HEALTH SYSTEM

### SUMMARY

Through the collective and persistent efforts of the grant programs, Tribal Leaders, and Indian Health Service Division of Diabetes Treatment and Prevention, the *Special Diabetes Program for Indians* has helped American Indians and Alaska Natives move toward a diabetes-free future. To continue working toward this goal, the Indian health system will follow a focused action plan that is based not only on guidance from Tribal Leaders, Tribal members, and grant programs, but also on proven scientific findings.

The Indian Health Service (IHS), Tribal, and Urban Indian health programs will leverage the experience and expertise gained over the past 10 years of the *Special Diabetes Program for Indians* to spread effective diabetes treatment and prevention strategies throughout American Indian and Alaska Native communities. To achieve this goal, the Indian health system will focus on two main strategies: (1) improve diabetes prevention and cardiovascular disease risk reduction through wide integration of the Demonstration Project findings; and (2) build on the grant programs' record of success in clinical care, nutrition, physical activity, weight management, and other key areas of diabetes treatment and prevention.

### Apply the Findings of the Diabetes Prevention and Healthy Heart Demonstration Projects

By fiscal year 2009 when the rigorous evaluation of the *Special Diabetes Program for Indians* Diabetes Prevention and Healthy Heart Demonstration Projects is complete, the Indian health system will understand how best to implement these successful interventions in the diverse settings of American Indian and Alaska Native communities.

The next step will be to disseminate the Demonstration Projects' successful treatment and prevention strategies to American Indian and Alaska Native communities throughout the

United States. The infrastructure and processes already in place as a result of the *Special Diabetes Program for Indians* will help the Indian health system to spread these innovations rapidly and efficiently. Integrating the new findings into established programs within American Indian and Alaska Native communities is efficient and ensures long-term sustainability, which is necessary to achieve success in diabetes treatment and prevention.

The IHS also hopes that the Demonstration Projects will shed light on how to apply new evidence from the diabetes literature about effective treatment and prevention strategies. For example, by 2010, the results of major studies about diabetes prevention in children will be released. The results of the Demonstration Projects may help the Indian health system understand the most effective way to translate and implement the latest, evidence-based diabetes prevention activities for children and youth.

### **Build on Current Success**

Over the course of its 10-year history, the *Special Diabetes Program for Indians* has enhanced and refined diabetes treatment and prevention practices in American Indian and Alaska Native communities. The Indian health system will continue to build on the Program's strong record of success by continuing to implement the following activities.

#### **Clinical Care**

The Indian health system will deliver quality care for American Indians and Alaska Natives with diabetes by:



Steve Riith-Najarian and Ray Shields work together in the effort to care for people with diabetes.

- ◆ Developing and implementing key elements of diabetes care, such as diabetes teams, registries, and clinics.
- ◆ Treating blood sugar, blood pressure, and cholesterol aggressively to reduce cardiovascular disease risk and to slow the progression of diabetes-related eye disease, kidney disease, and nerve disease.
- ◆ Developing and disseminating the Indian Health Diabetes Best Practices documents.
- ◆ Supporting and promoting activities that help people manage their diabetes effectively.
- ◆ Improving outcome measurements and evaluation of current and newly designed interventions.

#### **Youth**

Through a multi-faceted approach that includes families, schools, health care providers, and other important community stakeholders, the Indian health system will continue to address the childhood obesity epidemic and the emergence of type 2 diabetes in youth by:

- ◆ Rapidly disseminating the latest scientific research and promising practices.



- ◆ Addressing the continued need for age-specific, culturally appropriate behavioral therapy.
- ◆ Defining strategies to address psychosocial risk factors and social determinants for childhood obesity.
- ◆ Developing a sustainability plan for preventing type 2 diabetes in youth.

### Nutrition

Nutrition programs and policies in American Indian and Alaska Native communities are an important component of diabetes treatment and prevention. The Indian health system will enhance this key element of diabetes care by:

- ◆ Increasing staffing of qualified nutrition and diabetes education health care professionals.
- ◆ Improving access to health promotion and disease prevention resources.
- ◆ Delivering nutrition services through clinical and community partnerships and collaborations in an efficient manner.
- ◆ Expanding advocacy efforts for environmental changes in community and public health settings, schools, worksites, places of worship, and corporate locations.

### Physical Activity

The Indian health system will work to help people adopt or maintain active lifestyles to reduce the burden of obesity and diabetes by:

- ◆ Using the latest scientific research and promising practices to develop physical activity policy guidelines.



At the Nike Training program, participants do push-ups to measure their physical fitness.

- ◆ Addressing the behavioral issues of physical activity, self-esteem, cultural pride, and promotion of healthy body images.
- ◆ Continuing to promote and translate physical activity resources and standards of care throughout American Indian and Alaska Native communities.

### Weight Management

The Indian health system will use proven, effective weight management strategies to halt the growth of the obesity epidemic in American Indian and Alaska Native communities by:

- ◆ Rapidly disseminating the latest scientific research and promising practices on adult weight management.
- ◆ Remedying shortages of registered dietitians, counselors, and behavioral therapists to address the lifestyle and behavioral needs of American Indians and Alaska Natives.
- ◆ Addressing the emotions associated with diabetes and other chronic conditions.
- ◆ Leading the paradigm shift away from blaming the patient to treating overweight and obesity as chronic conditions that require long-term management.

### **Behavior Change**

The Indian health system will promote proven strategies that encourage healthy behavior and a sense of healing among American Indians and Alaska Natives. IHS, Tribal, and Urban Indian health programs will bring these strategies to the next level by:

- ◆ Addressing the need for culturally appropriate behavioral therapy.
- ◆ Focusing on traditional approaches for diabetes treatment and prevention.
- ◆ Raising awareness about the need to address behavioral health issues and their relationship to physical health.

### **On the Path to a Healthier Future**

The IHS is poised to continue working with Tribal Leaders, Tribal members, and Indian health system partners to realize the dream of a diabetes-free future for American Indians and Alaska Natives. Now is the time to take the path to that healthier future.



The Road Ahead: Participating in an organized community walk, a Seminole family hopes they are on the path to a diabetes-free future.





# APPENDIX 1

## INDIAN HEALTH SERVICE DIVISION OF DIABETES TREATMENT AND PREVENTION

For nearly 3 decades, the Indian Health Service (IHS) Division of Diabetes Treatment and Prevention has served as a leader in the fight against the growing diabetes epidemic.

### **A Call to Action: Establishment and Background of the IHS Division of Diabetes Treatment and Prevention**

Congress established the IHS Division of Diabetes Treatment and Prevention in 1979 in response to the emerging epidemic of diabetes in American Indian and Alaska Native communities. Formerly called the IHS National Diabetes Program, the mission of the IHS Division of Diabetes is to develop, document, and sustain clinical and public health efforts to treat and prevent diabetes in American Indians and Alaska Natives.

With an office in Albuquerque, New Mexico, the IHS Division of Diabetes is comprised of:

- ◆ The Director.
- ◆ The Deputy Director, also a Nurse Consultant.
- ◆ A Medical/Clinical Consultant with expertise in pediatrics.
- ◆ A Nutrition Consultant.
- ◆ Two *Special Diabetes Program for Indians* Grant Project Officers.
- ◆ A Data Management/Statistical Consultant.
- ◆ Administrative support staff.

Since its original call to action, the IHS Division of Diabetes has mobilized an extensive network—including governmental and non-governmental organizations, scientific experts, health care professionals, and community members—to implement diabetes treatment and prevention activities in American Indian and Alaska Native communities. This network has created significant capacity and infrastructure for diabetes. In partnership with this network, the IHS Division of Diabetes provides services and support in the following areas:

- ◆ **Diabetes data:** Comprehensive diabetes surveillance system.
- ◆ **Technical support:** Training and research translation.
- ◆ **Quality assurance and improvement:** Standards of care, clinical guidelines, consensus-based *Indian Health Diabetes Best Practices* documents, and program accreditation.
- ◆ **Employment:** Resource information on a full complement of training opportunities.
- ◆ **Cultural competence:** Culturally relevant diabetes education materials and expertise in health disparities.
- ◆ **Information systems support:** Ongoing enhancement of and training on key components of the IHS Electronic Patient Record System, including the Electronic Health Record and the Diabetes Management System.

## Overview of the Indian Health Diabetes Network

The Indian health diabetes network includes an Area Diabetes Consultant in each of the 12 IHS Areas, 19 Model Diabetes Programs, 399 *Special Diabetes Program for Indians* grant programs, and other diabetes and technical experts.

### Area Diabetes Consultants

The Indian Health Care Improvement Act, amended in 1987, established that each IHS Area should have an Area Diabetes Consultant to support a variety of activities, including:

- ◆ Serve as Project Officers for the *Special Diabetes Program for Indians* Community-Directed Diabetes Program.
- ◆ Serve as a liaison between the *Special Diabetes Program for Indians* grant programs and clinical staff at IHS, Tribal, and Urban Indian health care facilities.
- ◆ Play a critical role in the coordination of the extensive Indian health system diabetes network to facilitate bi-directional information flow from local to national levels.
- ◆ Provide diabetes orientation, training, and monitoring activities to health care professionals and paraprofessionals.
- ◆ Work with the IHS Division of Diabetes to translate and disseminate the latest scientific findings on diabetes treatment and prevention to American Indian and Alaska Native communities.

### Model Diabetes Programs

Congress established the Model Diabetes Programs through legislation in 1979 when it created the IHS Division of Diabetes. The IHS developed these programs to design effective approaches to diabetes clinical care, provide diabetes education, and translate and develop new approaches to diabetes care. The Model Diabetes Programs have made significant contributions in the communities where they are located, including:

- ◆ Providing state-of-the-art, comprehensive clinical diabetes care.
- ◆ Offering support and technical assistance to other Indian health programs.
- ◆ Developing and testing education materials.
- ◆ Disseminating promising diabetes care strategies by publishing data in peer-reviewed medical journals.
- ◆ Offering diabetes education and nutrition counseling services.
- ◆ Providing diabetes education to health care professionals and paraprofessionals.
- ◆ Implementing community-based diabetes prevention activities.



At a Diabetes Regional Meeting in 2006, attendees network with each other, participate in seminars, and share their own stories.

### ***Special Diabetes Program for Indians***

The 399 *Special Diabetes Program for Indians* grant programs are the newest members of the Indian health diabetes network. The grant programs participate in organized education sessions, conferences, and regular conference calls, and they share information and lessons learned with one another. As a result, they have expanded and strengthened the network so that information flows rapidly among the local, regional, and national levels. This ensures the rapid translation of new scientific findings to local health care settings throughout the system.

### **Building on Partnerships**

Early in its diabetes treatment and prevention efforts, the IHS recognized the importance of creating strong partnerships and alliances. The *Special Diabetes Program for Indians* provided an opportunity for the IHS Division of Diabetes to strengthen existing partnerships and create new ones. These organizations have united with the IHS Division of Diabetes to combat the diabetes epidemic:

- ◆ American Academy of Pediatrics, Committee on Native American Child Health
- ◆ American Association of Diabetes Educators
- ◆ American Diabetes Association
- ◆ American Dietetic Association
- ◆ Association of American Indian Physicians
- ◆ Boys and Girls Clubs of America
- ◆ Centers for Disease Control and Prevention
- ◆ IHS Head Start
- ◆ Institutions of higher learning, including universities and Tribal colleges
- ◆ Joslin Diabetes Center
- ◆ Juvenile Diabetes Research Foundation International
- ◆ National Congress of American Indians
- ◆ National Diabetes Education Program
- ◆ National Indian Health Board
- ◆ National Institutes of Health
- ◆ State diabetes prevention and control programs
- ◆ Urban Indian Health Institute
- ◆ United States Department of Agriculture

## Training Opportunities

The IHS offers numerous training opportunities for Indian health programs. In 2006, health care professionals and paraprofessionals, community health program staff, community members, Tribal Leaders, and *Special Diabetes Program for Indians* grant program staff from all 12 IHS Areas attended trainings sponsored by the IHS. The trainings covered topics such as:

- ◆ Case management.
- ◆ Chronic condition care.
- ◆ Chronic kidney disease management.
- ◆ Clinical diabetes management for health care professionals.
- ◆ Data management systems.
- ◆ Diabetes education.
- ◆ Diabetes management for health care paraprofessionals.
- ◆ Exercise science.
- ◆ Lifestyle coaching and motivational interviewing to promote behavior change.
- ◆ Obesity prevention in children and youth.
- ◆ Weight management.

The *Special Diabetes Program for Indians* Demonstration Project grant programs also participated in several trainings on cardiovascular disease risk reduction strategies and the National Institutes of Health (NIH) Diabetes Prevention Program *Lifestyle Balance Curriculum*.

## Strong Record of Accomplishments

The IHS Division of Diabetes has a long history of serving as a benchmark for diabetes clinical and public health excellence. The table on following page highlights the accomplishments of the IHS Division of Diabetes.



**Table A1.1. Indian Health Service Division of Diabetes Treatment and Prevention Accomplishments**

Decade	Accomplishments
Late 1970s	<ul style="list-style-type: none"> <li>◆ Early in its history, became a <b>pioneer in developing a public health approach</b> to diabetes.</li> </ul>
1980s	<ul style="list-style-type: none"> <li>◆ Published some of the first <b>American Indian and Alaska Native diabetes epidemiologic surveillance data</b>.</li> <li>◆ Developed the <i>IHS Standards of Care for Diabetes</i> in 1986.</li> <li>◆ Began publishing <b>articles in peer-reviewed journals</b> about the use of the <i>IHS Diabetes Care and Outcomes Audit</i> to measure improvements in diabetes care.</li> </ul>
1990s	<ul style="list-style-type: none"> <li>◆ Demonstrated the <b>delivery of significantly better care to elderly American Indian and Alaska Native patients</b> with diabetes, as compared with the United States elderly population (1994 General Accounting Office report).</li> <li>◆ Continued <b>improvements in diabetes care practices</b>.</li> <li>◆ Established the <i>Special Diabetes Program for Indians</i> with funds awarded by Congress. The purpose of the Program is to treat and prevent diabetes in American Indian and Alaska Native communities.</li> <li>◆ <b>Recognized internationally</b> as a model of community involvement and program effectiveness. Invited to present at the World Congress on Diabetes Prevention.</li> <li>◆ <b>Contributed a chapter</b> on diabetes in American Indians and Alaska Natives to the widely used <b>NIH publication titled <i>Diabetes in America</i></b>.</li> </ul>
2000s	<ul style="list-style-type: none"> <li>◆ <b>Expanded the <i>Special Diabetes Program for Indians</i></b> with increased funding from Congress, including the development of <b>demonstration projects</b> on the primary prevention of diabetes and cardiovascular risk reduction.</li> <li>◆ Received approval from the Centers for Medicare and Medicaid Services as a <b>National Accreditation Organization for American Indian and Alaska Native diabetes education programs</b>. The American Diabetes Association is the only other organization in the United States with this authority.</li> <li>◆ Translated and disseminated the results of the <b>NIH Diabetes Prevention Program</b>.</li> <li>◆ Developed and disseminated the <i>Indian Health Diabetes Best Practices</i> documents.</li> <li>◆ Evaluated <b>the <i>Special Diabetes Program for Indians</i> Community-Directed Diabetes Programs</b>, which have demonstrated numerous positive, significant short-term and intermediate outcomes.</li> <li>◆ Improved the accuracy of <b>baseline long-term measures</b> (e.g., prevalence and mortality), and established systems to measure long-term diabetes complications.</li> <li>◆ Collaborated with the Joslin Vision Network Teleophthalmology Project to <b>implement eye scan technology and evaluate American Indians and Alaska Natives for diabetes-related eye disease</b> through 41 programs in 16 states.</li> <li>◆ Collaborated with the United States Department of Defense, Veterans Administration, and Joslin Diabetes Center to develop a <b>web-based case management program</b> to improve diabetes team care coordination and self-management education for people with diabetes.</li> <li>◆ Collaborated with the American Academy of Pediatrics to develop and publish a <b>clinical report on preventing and treating type 2 diabetes in American Indian and Alaska Native children</b> (<i>Pediatrics</i>, October 2003).</li> <li>◆ Submitted two <b>reports to Congress</b> (2000 and 2004) on the progress and outcomes of the <i>Special Diabetes Program for Indians</i>.</li> </ul>



## APPENDIX 2

# EVALUATION METHODOLOGY FOR THE *SPECIAL DIABETES PROGRAM FOR INDIANS* COMMUNITY-DIRECTED DIABETES PROGRAMS

The *Special Diabetes Program for Indians* represents a broad, community-based public health approach to diabetes treatment and prevention for American Indians and Alaska Natives. The Program allows American Indian and Alaska Native communities to develop activities that address local concerns and needs. As a result, the *Special Diabetes Program for Indians* funding supports a wide range of services, posing a challenge for evaluation of the Program.

To address this challenge, the Indian Health Service (IHS) Division of Diabetes Treatment and Prevention used accepted public health evaluation frameworks and models. These frameworks and models used a variety of data sources to measure the extent to which services and activities were implemented and to measure the outcomes that could be attributed to the *Special Diabetes Program for Indians* Community-Directed Diabetes Programs.

The following is a description of the *Special Diabetes Program for Indians* evaluation methodology. The IHS Division of Diabetes used this evaluation methodology to obtain the results described in this Report, as well as the two previous reports to Congress, on the *Special Diabetes Program for Indians*. (For an in-depth discussion of the evaluation methodology, please refer to the “December 2004 Interim Report to Congress on the *Special Diabetes Program for Indians*.”)

### Evaluation of the *Special Diabetes Programs for Indians* Community-Directed Diabetes Programs

The IHS Division of Diabetes conducted formal evaluations of the *Special Diabetes Program for Indians* Community-Directed Diabetes Programs to:

- ◆ Determine whether the grant programs implemented diabetes treatment and prevention services for American Indians and Alaska Natives.
- ◆ Measure diabetes treatment and prevention outcomes reported by the grant programs.

To meet these objectives for its evaluation of the *Special Diabetes Program for Indians*, the IHS Division of Diabetes used: (1) the Centers for Disease Control and Prevention (CDC) Framework for Program Evaluation in Public Health; and (2) the Chronic Care Model.

### CDC Framework for Program Evaluation in Public Health

The CDC Framework for Program Evaluation in Public Health allows many outcomes to be measured along a continuum of short-term, intermediate, and long-term outcomes.<sup>1</sup> During the first few years of the *Special Diabetes Program for Indians*, **short-term outcomes** included accomplishments related to **developing the infrastructure** needed to start and enhance

diabetes treatment and prevention activities. For example, the *Special Diabetes Program for Indians* grant programs needed to hire staff, develop their programs, and offer diabetes treatment and prevention services such as foot care, physical activity, and diabetes education services.

As the grant programs gained expertise in diabetes care, the IHS Division of Diabetes obtained information on **intermediate outcomes**. Intermediate outcomes can be measured to determine if the grant programs' **activities and services resulted in measurable changes**, such as increasing awareness of diabetes and reducing risk factors for diabetes and its complications.

**Long-term outcomes**, including whether the *Special Diabetes Program for Indians* resulted in **reduced complications and death from diabetes**, eventually can be measured. However, the current trends in diabetes-related complications and deaths may take years to reverse given the magnitude of the diabetes epidemic in American Indian and Alaska Native communities. Therefore, planning for initial long-term outcome measurements has focused on ensuring that data systems are in place to measure trends over time.

### **Chronic Care Model**

The IHS Division of Diabetes used the Chronic Care Model to evaluate the effectiveness of its systems of care in addressing diabetes as a chronic condition. The MacColl Institute of the Group Health Cooperative of Puget Sound developed this model to help health systems develop the basic elements

necessary to improve care at the community, health system, provider, and patient levels.<sup>2</sup> The model addresses the need to focus on the health care system as a whole to improve care of chronic conditions.

Since its introduction over a decade ago, managed care organizations, public health agencies, and the World Health Organization have used the Chronic Care Model to evaluate their effectiveness in managing diabetes and other conditions.<sup>3</sup> The Chronic Care Model recommends that health systems implement the following components to address chronic conditions effectively:

- ◆ Community resources and policies.
- ◆ Health system organization.
- ◆ Self-management support.
- ◆ Delivery system design.
- ◆ Decision support.
- ◆ Clinical information systems.

Since the 1980s, the IHS has successfully implemented many of the elements that are now part of the Chronic Care Model to improve diabetes care and management. The *Special Diabetes Program for Indians*, however, allowed even more Indian health programs, particularly Tribal programs, to build the infrastructure needed to implement these elements. In addition, the *Special Diabetes Program for Indians* enabled the Indian health system, for the first time, to measure its effectiveness in implementing these system changes.

## Measures for the Evaluation

The IHS Division of Diabetes identified and analyzed the following categories of measures for the evaluation of the *Special Diabetes Program for Indians* Community-Directed Diabetes Program:

- ◆ Program accomplishments related to developing and implementing activities to treat and prevent diabetes (short-term outcomes):
  - Systems and diabetes program development.
  - Basic clinical care for people with diabetes.
  - Diabetes education, activities, and programs.
  - Community diabetes awareness and activities.
  - Focus on diabetes prevention in children and youth.
- ◆ Measurable changes in preventing long-term diabetes complications (intermediate outcomes):
  - Blood sugar control, including A1C.
  - Protein in the urine (i.e., proteinuria) and medication use (e.g., ACE inhibitor use).
  - Blood lipid levels, including LDL.
  - Cardiovascular disease risk factors, including aspirin use.
- ◆ Measurable changes in prevalence, complications, and diabetes-related deaths (long-term outcomes).

## Data Sources for the Evaluation

The IHS Division of Diabetes used the following data sources for the evaluation of the *Special Diabetes Program for Indians* Community-Directed Diabetes Programs:

***IHS Diabetes Care and Outcomes Audit.*** Since 1986, the IHS Division of Diabetes has coordinated the annual *IHS Diabetes Care and Outcomes Audit*. Each year, more than 90% of IHS and Tribal facilities that collectively provide care to over 120,000 American Indians and Alaska Natives with diabetes review their medical records for compliance with the *IHS Standards of Care for Diabetes*. The *IHS Diabetes Care and Outcomes Audit* follows a standardized protocol to ensure statistical integrity and comparability of measures over time.<sup>4</sup>

### **Data collection tools on program activities:**

Since the beginning of the *Special Diabetes Program for Indians*, the IHS Division of Diabetes has collected data from the grant programs on their activities, services, and populations served. The IHS Division of Diabetes used a standard method to collect data from all programs to ensure the quality of the data.

**Diabetes prevalence:** The IHS Division of Diabetes tracks diabetes prevalence data based on the number of American Indians and Alaska Natives who received health care services at IHS, Tribal, or Urban Indian health facilities at least once during the last three fiscal years. The IHS Division of Diabetes generates annual diabetes prevalence reports by age, gender, and region of the country, as well as reports on prevalence over time, magnitude of change in prevalence over time, and prevalence of diabetes among American Indians and Alaska Natives as compared with other racial and ethnic groups.<sup>5</sup>

**Diabetes-related complications:** The IHS Division of Diabetes monitors diabetes complications and risk factors at IHS and Tribal facilities.<sup>6</sup> This helps the facilities track their progress in reducing complications and treating complications at earlier stages. Using *Special Diabetes Program for Indians* funds, the IHS Division of Diabetes is developing a national clinical diabetes data mart as part of the IHS National Data Warehouse. This data mart contains aggregate, patient-level information on people with diabetes, including outpatient, hospitalization, and contract care data, allowing the IHS Division of Diabetes to monitor and track diabetes-related complications in a more comprehensive manner than has been possible previously.

**Diabetes-related deaths:** The IHS Division of Diabetes uses data from death certificates to calculate diabetes death rates.<sup>7</sup> Because of underreporting of diabetes on death certificates and racial misclassification, most experts agree that the true diabetes death rates are underestimated for American Indians and Alaska Natives in national statistics.

**Regional diabetes meetings:** The IHS Division of Diabetes coordinated two meetings in 2006 for *Special Diabetes Program for Indians* grant programs and collected qualitative data from meeting participants.







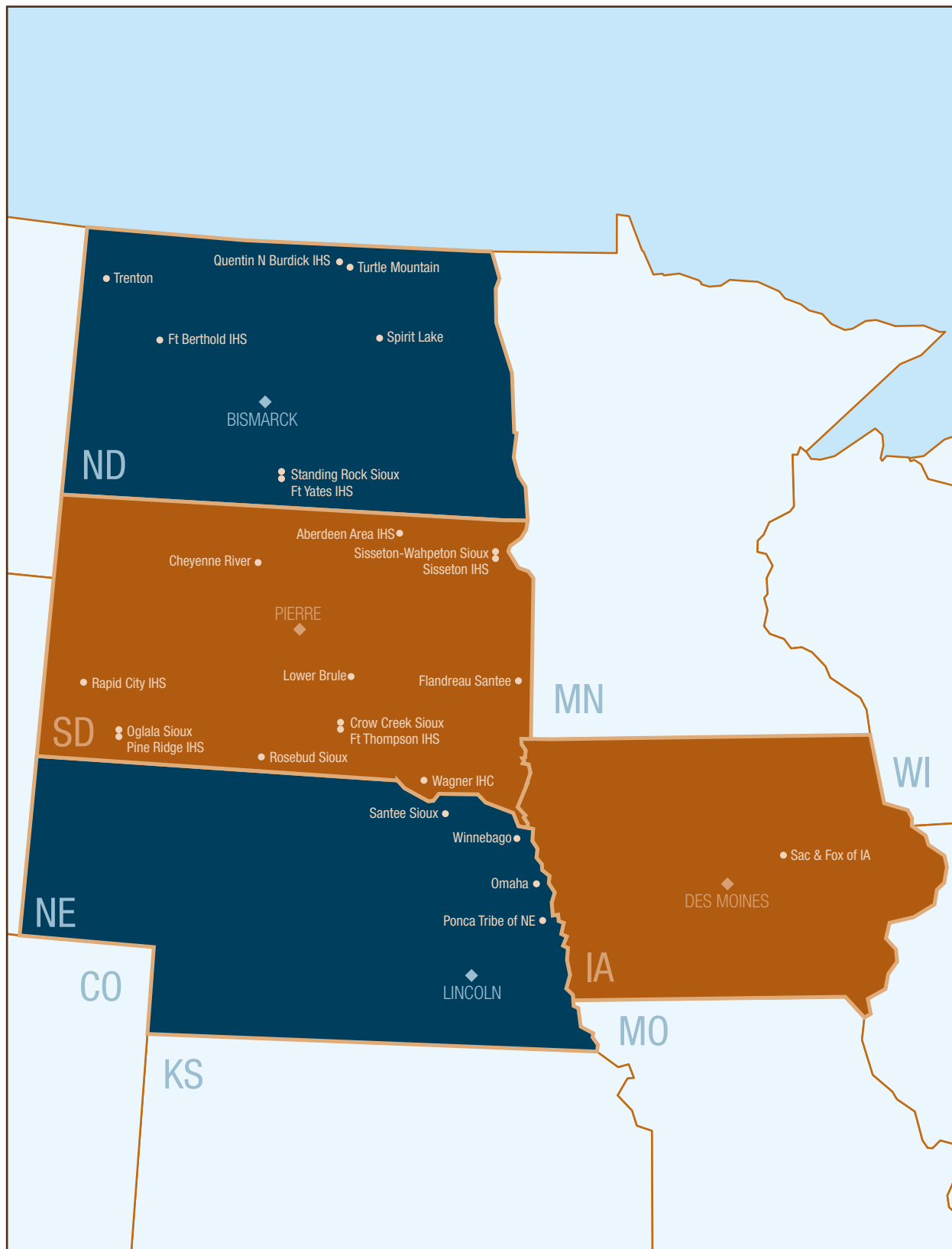
# APPENDIX 3 MAPS AND FUNDING AMOUNTS FOR THE SPECIAL DIABETES PROGRAM FOR INDIANS COMMUNITY-DIRECTED DIABETES PROGRAMS

Appendix 3  
Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
By IHS Area

Area	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
ABERDEEN	\$3,163,974	\$3,163,974	\$3,130,725	\$8,963,221	\$8,665,319	\$8,665,319	\$9,432,052	\$9,432,052	\$9,432,052	\$64,048,688
ALASKA	\$2,816,838	\$2,816,838	\$2,783,589	\$8,080,726	\$8,234,947	\$8,234,947	\$8,963,599	\$8,963,599	\$8,963,599	\$59,858,682
ALBUQUERQUE	\$2,274,460	\$2,274,460	\$2,241,204	\$6,979,237	\$6,724,242	\$6,724,242	\$7,395,069	\$7,319,223	\$7,319,223	\$49,251,360
BEMIDJI	\$2,298,507	\$2,298,507	\$2,298,507	\$7,392,572	\$7,145,000	\$7,145,000	\$7,777,210	\$7,777,210	\$7,777,210	\$51,909,723
BILLINGS	\$1,470,397	\$1,709,497	\$1,671,057	\$4,975,512	\$4,806,401	\$4,806,401	\$5,231,685	\$5,277,397	\$5,301,948	\$35,250,295
CALIFORNIA	\$1,107,729	\$1,570,591	\$1,523,245	\$4,910,618	\$5,238,371	\$5,238,371	\$6,344,378	\$6,338,378	\$6,338,378	\$38,610,059
NASHVILLE	\$1,443,862	\$1,443,862	\$1,410,614	\$4,263,941	\$4,399,740	\$4,399,739	\$5,462,036	\$5,462,036	\$5,461,903	\$33,747,733
NAVAJO	\$4,320,747	\$4,320,747	\$4,287,498	\$12,944,988	\$12,914,263	\$12,914,263	\$14,056,955	\$14,056,955	\$14,056,955	\$93,873,371
OKLAHOMA	\$4,787,735	\$4,787,735	\$4,754,486	\$15,899,979	\$16,615,789	\$16,117,178	\$17,950,277	\$18,908,010	\$18,908,010	\$118,729,199
PHOENIX	\$3,798,793	\$3,798,793	\$3,765,544	\$11,583,796	\$11,523,886	\$11,523,886	\$13,674,139	\$13,674,139	\$13,674,139	\$87,017,115
PORTLAND	\$1,592,172	\$1,592,172	\$1,558,473	\$4,917,519	\$4,972,408	\$4,950,035	\$5,734,543	\$5,734,543	\$5,728,734	\$36,780,599
TUCSON	\$769,542	\$674,156	\$736,293	\$2,281,660	\$2,332,831	\$2,332,831	\$2,539,246	\$2,539,246	\$2,539,246	\$16,745,051
URBAN	\$1,453,125	\$1,500,000	\$1,438,516	\$4,772,637	\$4,848,200	\$5,086,572	\$7,343,512	\$7,343,512	\$7,355,007	\$41,141,081
<b>Total</b>	<b>\$31,297,881</b>	<b>\$31,951,332</b>	<b>\$31,599,751</b>	<b>\$97,966,406</b>	<b>\$98,421,397</b>	<b>\$98,138,784</b>	<b>\$111,904,701</b>	<b>\$112,826,300</b>	<b>\$112,856,404</b>	<b>\$726,962,956</b>

# ***SPECIAL DIABETES PROGRAM FOR INDIANS***

## **COMMUNITY-DIRECTED DIABETES PROGRAMS: ABERDEEN AREA IHS**



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Aberdeen Area IHS**

Grant IT/U <sup>1</sup>	Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL	
			Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>							
I	172	Aberdeen Area IHS	116,153	116,153	82,904	82,904	200,000	200,000	282,904	282,904	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	\$1,763,922	
T	024	Cheyenne River	172,007	172,007	172,007	172,007	341,629	322,151	513,636	494,158	553,400	553,400	553,400	553,400	553,400	553,400	553,400	553,400	553,400	553,400	\$3,678,173	
I	369	Crow Creek Sioux			134,012	134,012	229,562	189,507	363,574	323,519	349,768	349,768	349,768	349,768	349,768	349,768	349,768	349,768	349,768	349,768	349,768	\$2,193,928
T	025	Flandreau Santee	116,058	116,058	116,058	116,058	154,039	150,335	270,097	266,393	279,583	279,583	279,583	279,583	279,583	279,583	279,583	279,583	279,583	279,583	\$1,989,806	
I	155	Ft Berthold IHS	171,753	171,753	171,753	171,753	320,959	303,255	492,752	475,008	518,067	518,067	518,067	518,067	518,067	518,067	518,067	518,067	518,067	518,067	\$3,512,228	
I	408	Ft Thompson IHS	134,012	134,012						30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	\$418,024	
I	416	Ft Yates IHS																			\$185,000	
T	026	Lower Brule	128,911	128,911	128,911	128,911	167,588	162,745	296,499	291,656	305,962	305,962	305,962	305,962	305,962	305,962	305,962	305,962	305,962	305,962	\$2,184,430	
T	028	Oglala Sioux	313,716	313,716	313,716	313,716	771,405	535,785	1,085,121	849,501	1,186,481	1,066,481	1,066,481	1,066,481	1,066,481	1,066,481	1,066,481	1,066,481	1,066,481	1,066,481	\$7,224,714	
T	029	Omaha	135,478	135,478	135,478	135,478	257,933	245,493	393,411	380,971	406,148	406,148	406,148	406,148	406,148	406,148	406,148	406,148	406,148	406,148	\$2,780,231	
I	410	Pine Ridge IHS								180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	\$420,000	
T	027	Ponca Tribe of NE	102,910	102,910	102,910	102,910	151,824	148,307	254,734	251,217	264,069	264,069	264,069	264,069	264,069	264,069	264,069	264,069	264,069	264,069	\$1,858,105	
I	390	Quentin N Burdick IHS					40,000		70,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	\$470,000	
I	101	Rapid City IHS	202,570	202,570	202,570	202,570	412,568	387,124	589,694	589,694	666,393	666,393	666,393	666,393	666,393	666,393	666,393	666,393	666,393	666,393	\$4,401,415	
T	030	Rosebud Sioux	205,122	205,122	205,122	205,122	506,880	473,506	712,002	678,628	767,889	767,889	767,889	767,889	767,889	767,889	767,889	767,889	767,889	767,889	\$4,988,291	
T	154	Sac & Fox of IA	106,141	106,141	106,141	106,141	139,711	137,212	243,353	243,353	254,197	254,197	254,197	254,197	254,197	254,197	254,197	254,197	254,197	254,197	\$1,813,572	
T	031	Santee Sioux	109,026	109,026	109,026	109,026	154,204	150,486	263,230	259,512	267,476	267,476	267,476	267,476	267,476	267,476	267,476	267,476	267,476	267,476	\$1,911,760	
I	407	Sisseton IHS								21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	\$115,000	
T	235	Sisseton-Wahpeton Sioux	153,686	153,686	153,686	153,686	271,764	237,161	425,450	390,847	407,660	407,660	407,660	407,660	407,660	407,660	407,660	407,660	407,660	407,660	\$2,956,182	
T	133	Spirit Lake	174,170	174,170	174,170	174,170	252,794	240,786	426,964	414,956	452,673	452,673	452,673	452,673	452,673	452,673	452,673	452,673	452,673	452,673	\$3,137,405	
T	325	Standing Rock Sioux	259,483	259,483	259,483	259,483	371,976	349,945	631,459	609,428	626,234	626,234	626,234	626,234	626,234	626,234	626,234	626,234	626,234	626,234	\$4,466,466	
T	033	Trenton	110,006	110,006	110,006	110,006	151,257	147,788	261,263	257,794	269,797	269,797	269,797	269,797	269,797	269,797	269,797	269,797	269,797	269,797	\$1,916,260	
T	161	Turtle Mountain	184,562	184,562	184,562	184,562	437,833	346,901	592,395	531,463	579,226	579,226	579,226	579,226	579,226	579,226	579,226	579,226	579,226	579,226	\$4,196,665	
I	102	Wagner IHC	128,180	128,180	128,180	128,180	237,930	227,172	366,110	355,352	384,668	384,668	384,668	384,668	384,668	384,668	384,668	384,668	384,668	384,668	\$2,615,358	
T	278	Winnebago	140,030	140,030	140,030	140,030	280,600	247,935	400,630	387,965	418,361	418,361	418,361	418,361	418,361	418,361	418,361	418,361	418,361	418,361	\$2,851,733	
<b>TOTAL</b>			<b>\$3,163,974</b>	<b>\$3,163,974</b>	<b>\$3,130,725</b>	<b>\$8,963,221</b>	<b>\$8,963,221</b>	<b>\$8,963,221</b>	<b>\$8,963,221</b>	<b>\$8,665,319</b>	<b>\$9,432,052</b>	<b>\$9,432,052</b>	<b>\$9,432,052</b>	<b>\$9,432,052</b>	<b>\$9,432,052</b>	<b>\$9,432,052</b>	<b>\$9,432,052</b>	<b>\$9,432,052</b>	<b>\$9,432,052</b>	<b>\$9,432,052</b>	<b>\$9,432,052</b>	<b>\$64,048,688</b>

<sup>1</sup> I = IHS, T = Tribal, U = Urban

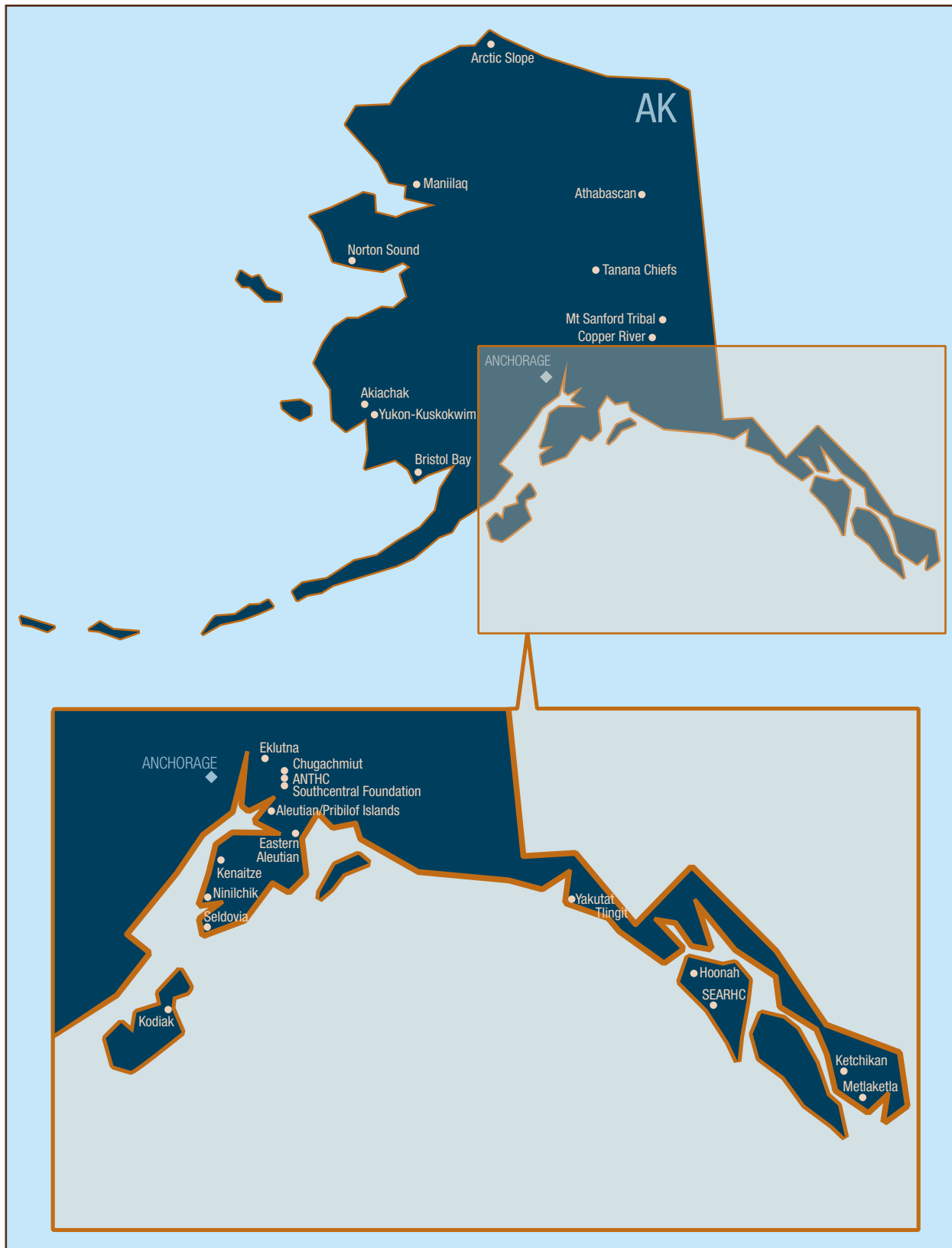
<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

# **SPECIAL DIABETES PROGRAM FOR INDIANS**

## **COMMUNITY-DIRECTED DIABETES PROGRAMS:**

### **ALASKA AREA IHS**



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Alaska Area IHS**

Grant ITJU <sup>1</sup>	Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		TOTAL	2001-2002		TOTAL	2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL		
			Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	Yr 6 CAA <sup>3</sup>		Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>		Yr 9 CAA <sup>3</sup>										
T	063	Akiachak	9,383	9,383	9,272	9,272	9,272				9,272												\$37,310		
I	265	ANTHC	299,601	299,601	296,061	296,061	296,061	296,061	300,000	300,000	596,061	596,061	596,061	596,061	596,061	596,061	648,802	648,802	648,802	648,802	648,802	648,802	648,802	\$4,629,852	
T	146	Aleutian/Phiblof Islands	82,015	82,015	45,264	45,264	45,264	45,264	74,604	74,604	119,868	119,868	114,256	114,256	114,256	114,256	124,366	124,366	124,366	124,366	124,366	124,366	124,366	\$930,772	
T	366	Arctic Slope	91,707	91,707	90,625	90,625	90,625	90,625	181,775	181,775	272,400	272,400	187,762	187,762	278,387	278,387	303,019	303,019	303,019	303,019	303,019	303,019	303,019	\$2,012,270	
T	148	Althabascan	37,143	37,143	36,705	36,705	36,705	36,705	68,305	68,305	105,010	104,609	104,609	104,609	104,609	104,609	113,865	113,865	113,865	113,865	113,865	113,865	113,865	\$766,814	
T	099	Bristol Bay	252,265	252,265	249,288	249,288	249,288	249,288	449,001	449,001	698,289	698,289	438,354	438,354	687,642	687,642	748,487	748,487	748,487	748,487	748,487	748,487	748,487	\$5,072,852	
T	064	Chugachmiut	50,245	50,245	49,652	49,652	49,652	49,652	98,395	98,395	148,047	148,047	101,039	101,039	150,691	150,691	164,025	164,025	164,025	164,025	164,025	164,025	164,025	\$1,091,646	
T	350	Copper River	34,971	34,971	34,558	34,558	34,558	34,558	55,797	55,797	90,355	90,355	34,558	34,558	85,453	85,453	93,014	93,014	93,014	93,014	93,014	93,014	93,014	\$644,803	
T	368	Eastern Aleutian	4,416	4,416	35,783	35,783	35,783	35,783	63,499	63,499	99,282	99,282	35,783	35,783	97,248	97,248	105,853	105,853	105,853	105,853	105,853	105,853	105,853	\$647,120	
T	065	Eklutna	10,120	10,120	4,364	4,364	4,364	4,364	8,257	8,257	12,621	12,621	4,364	4,364	12,646	12,646	13,765	13,765	13,765	13,765	13,765	13,765	13,765	\$92,404	
T	066	Hoahah	26,586	26,586	26,272	26,272	26,272	26,272	54,604	54,604	80,876	80,876	10,001	10,001	27,473	27,473	29,904	29,904	29,904	29,904	29,904	29,904	29,904	\$202,839	
T	338	Kenaitze	34,559	34,559	43,732	43,732	43,216	43,216	84,194	84,194	127,410	127,410	86,727	86,727	128,943	128,943	140,352	140,352	140,352	140,352	140,352	140,352	140,352	\$927,859	
T	067	Ketchikan	73,452	73,452	72,585	72,585	72,585	72,585	142,657	142,657	215,242	215,242	189,884	189,884	218,478	218,478	237,810	237,810	237,810	237,810	237,810	237,810	237,810	\$1,565,117	
T	294	Kodiak	192,152	192,152	189,884	189,884	189,884	189,884	368,152	368,152	558,036	558,036	189,884	189,884	563,823	563,823	613,712	613,712	613,712	613,712	613,712	613,712	613,712	\$4,101,006	
T	342	Manilaq	27,431	27,431	27,107	27,107	27,107	27,107	43,173	43,173	70,280	70,280	27,107	27,107	66,119	66,119	71,969	71,969	71,969	71,969	71,969	71,969	71,969	\$500,394	
T	068	Metlaketta	11,101	11,101	10,970	10,970	10,970	10,970	21,189	21,189	32,159	32,159	10,970	10,970	32,451	32,451	35,322	35,322	35,322	35,322	35,322	35,322	35,322	\$236,199	
T	069	Mt Sanford Tribal	8,121	8,121	8,025	8,025	8,025	8,025	16,367	16,367	24,392	24,392	8,025	8,025	25,066	25,066	27,284	27,284	27,284	27,284	27,284	27,284	27,284	\$180,643	
T	070	Ninilchik	211,718	211,718	209,219	209,219	209,219	209,219	369,402	369,402	578,621	578,621	209,219	209,219	565,737	565,737	615,795	615,795	615,795	615,795	615,795	615,795	615,795	\$4,190,135	
T	274	Norton Sound	294,970	294,970	282,425	282,425	282,425	282,425	506,593	506,593	789,018	789,018	282,425	282,425	775,844	775,844	844,493	844,493	844,493	844,493	844,493	844,493	844,493	\$5,737,377	
T	240	SEARHC	11,405	11,405	11,270	11,270	11,270	11,270	20,210	20,210	31,480	31,480	11,270	11,270	30,951	30,951	33,690	33,690	33,690	33,690	33,690	33,690	33,690	\$228,532	
T	071	Seldovia	206,706	206,706	204,266	204,266	204,266	204,266	834,698	834,698	1,038,964	1,038,964	204,266	204,266	1,278,335	1,278,335	1,450,606	1,450,606	1,450,606	1,450,606	1,450,606	1,450,606	1,450,606	\$8,565,130	
T	293	Southcentral Foundation	299,613	299,613	296,077	296,077	296,077	296,077	550,976	550,976	847,053	847,053	296,077	296,077	843,817	843,817	859,320	859,320	859,320	859,320	859,320	859,320	859,320	\$6,007,950	
T	135	Tanana Chiefs	7,642	7,642	7,552	7,552	7,552	7,552	13,546	13,546	21,098	21,098	7,552	7,552	20,746	20,746	22,582	22,582	22,582	22,582	22,582	22,582	22,582	\$153,172	
T	266	Yakutat Tlingit	539,516	539,516	533,148	533,148	533,148	533,148	953,804	953,804	1,486,952	1,486,952	542,420	542,420	1,446,545	1,446,545	1,574,539	1,574,539	1,574,539	1,574,539	1,574,539	1,574,539	1,574,539	\$10,715,839	
T	362	Yukon-Kuskokwim	\$2,816,838	\$2,816,838	\$2,783,569	\$2,783,569	\$2,783,569	\$2,783,569	\$5,080,726	\$5,080,726	\$8,234,947	\$8,234,947	\$8,234,947	\$8,234,947	\$8,234,947	\$8,234,947	\$8,963,599	\$8,963,599	\$8,963,599	\$8,963,599	\$8,963,599	\$8,963,599	\$8,963,599	\$8,963,599	\$59,858,682
<b>TOTAL</b>			<b>\$2,816,838</b>	<b>\$2,816,838</b>	<b>\$2,783,569</b>	<b>\$2,783,569</b>	<b>\$2,783,569</b>	<b>\$2,783,569</b>	<b>\$5,080,726</b>	<b>\$5,080,726</b>	<b>\$8,234,947</b>	<b>\$8,234,947</b>	<b>\$8,234,947</b>	<b>\$8,234,947</b>	<b>\$8,234,947</b>	<b>\$8,234,947</b>	<b>\$8,963,599</b>	<b>\$8,963,599</b>	<b>\$8,963,599</b>	<b>\$8,963,599</b>	<b>\$8,963,599</b>	<b>\$8,963,599</b>	<b>\$8,963,599</b>	<b>\$8,963,599</b>	<b>\$59,858,682</b>

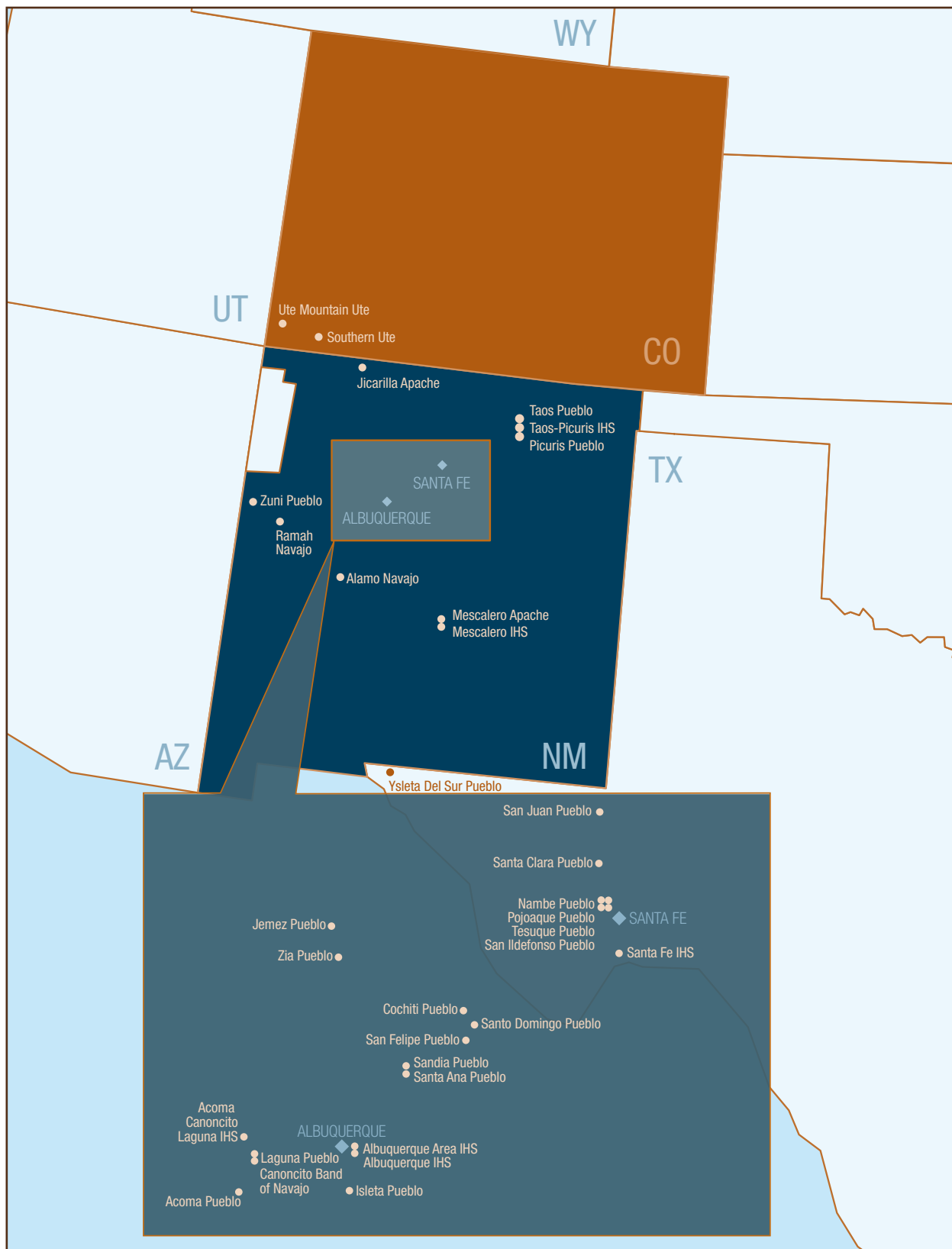
<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

# SPECIAL DIABETES PROGRAM FOR INDIANS

## COMMUNITY-DIRECTED DIABETES PROGRAMS: ALBUQUERQUE AREA IHS



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Albuquerque Area IHS**

Grant IT/U <sup>1</sup>	Grant Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		TOTAL	Yr 5 BBA <sup>2</sup>	2001-2002		TOTAL	2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL	
			Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	Yr 5 CAA <sup>3</sup>	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>			Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>		Yr 9 CAA <sup>3</sup>									
T	168	Acoma Canoncito Laguna IHS	37,537	78,077	109,033	109,033	109,033	109,033	109,033	109,033	37,537	78,077	162,811	90,512	240,888	240,888	240,888	262,924	262,924	262,924	262,924	262,924	262,924	\$630,264	
T	165	Acoma Pueblo	78,077	78,077	78,077	78,077	78,077	78,077	78,077	78,077	78,077	78,077	162,811	240,888	240,888	240,888	240,888	262,924	262,924	262,924	262,924	262,924	262,924	\$1,755,867	
T	125	Alamo Navajo	109,033	109,033	109,033	109,033	109,033	109,033	109,033	109,033	109,033	109,033	109,033	394,634	394,634	394,634	394,634	416,670	416,670	416,670	416,670	416,670	416,670	\$2,777,152	
I	166	Albuquerque Area IHS	116,154	116,154	116,154	116,154	116,154	116,154	116,154	116,154	116,154	116,154	276,369	82,898	82,898	82,898	82,898	82,907	82,907	82,907	82,907	82,907	82,907	\$812,621	
T	145	Albuquerque IHS	255,976	255,976	255,976	255,976	255,976	255,976	255,976	255,976	255,976	255,976	276,369	532,345	532,345	532,345	532,345	150,000	150,000	150,000	150,000	150,000	150,000	\$2,830,928	
T	365	Canoncito Band of Navajo	51,081	51,081	51,081	51,081	51,081	51,081	51,081	51,081	51,081	51,081	130,917	181,998	181,998	181,998	181,998	204,034	204,034	204,034	204,034	204,034	204,034	\$1,309,384	
T	388	Cochiti Pueblo	51,081	51,081	51,081	51,081	51,081	51,081	51,081	51,081	51,081	51,081	86,315	127,037	127,037	127,037	127,037	149,073	149,073	149,073	149,073	149,073	149,073	\$792,249	
T	052	Isleta Pueblo	186,706	186,706	186,706	186,706	186,706	186,706	186,706	186,706	186,706	186,706	488,119	674,825	674,825	674,825	674,825	696,861	696,861	696,861	696,861	696,861	696,861	\$4,703,836	
T	053	Jemez Pueblo	138,415	138,415	138,415	138,415	138,415	138,415	138,415	138,415	138,415	138,415	361,610	500,025	500,025	500,025	500,025	522,061	522,061	522,061	522,061	522,061	522,061	\$3,501,067	
T	055	Jicarilla Apache	78,956	78,956	78,956	78,956	78,956	78,956	78,956	78,956	78,956	78,956	164,569	243,525	243,525	243,525	243,525	265,561	265,561	265,561	265,561	265,561	265,561	\$1,774,326	
T	124	Laguna Pueblo	105,290	105,290	105,290	105,290	105,290	105,290	105,290	105,290	105,290	105,290	218,902	324,192	324,192	324,192	324,192	346,228	346,228	346,228	346,228	346,228	346,228	\$2,377,455	
T	056	Mescalero Apache	78,419	78,419	78,419	78,419	78,419	78,419	78,419	78,419	78,419	78,419	163,495	241,914	241,914	241,914	241,914	263,950	263,950	263,950	263,950	263,950	263,950	\$1,763,049	
I	128	Mescalero IHS	18,451	18,451	18,451	18,451	18,451	18,451	18,451	18,451	18,451	18,451	37,735	56,186	56,186	56,186	56,186	56,186	56,186	56,186	56,186	56,186	56,186	\$393,742	
T	118	Nambe Pueblo	27,263	27,263	27,263	27,263	27,263	27,263	27,263	27,263	27,263	27,263	56,191	83,454	83,454	83,454	83,454	89,580	89,580	89,580	89,580	89,580	89,580	\$675,674	
T	292	Picuris Pueblo	19,626	19,626	19,626	19,626	19,626	19,626	19,626	19,626	19,626	19,626	51,119	75,846	75,846	75,846	75,846	97,882	97,882	97,882	97,882	97,882	97,882	\$582,611	
T	119	Pojoaque Pueblo	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	21,457	53,949	80,507	80,507	80,507	80,507	102,543	102,543	102,543	102,543	102,543	102,543	\$614,794	
T	060	Ramah Navajo	69,973	69,973	69,973	69,973	69,973	69,973	69,973	69,973	69,973	69,973	144,938	214,911	214,911	214,911	214,911	236,947	236,947	236,947	236,947	236,947	236,947	\$1,573,144	
T	126	San Felipe Pueblo	62,750	62,750	62,750	62,750	62,750	62,750	62,750	62,750	62,750	62,750	160,723	237,756	237,756	237,756	237,756	259,792	259,792	259,792	259,792	259,792	259,792	\$1,691,094	
T	415	San Ildefonso Pueblo	62,750	62,750	62,750	62,750	62,750	62,750	62,750	62,750	62,750	62,750	160,723	237,756	237,756	237,756	237,756	259,792	259,792	259,792	259,792	259,792	259,792	\$1,691,094	
T	377	San Juan Pueblo	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	123,796	183,198	183,198	183,198	183,198	205,234	205,234	205,234	205,234	205,234	205,234	\$1,172,947	
T	054	Sandia Pueblo	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	104,922	144,811	144,811	144,811	144,811	166,847	166,847	166,847	166,847	166,847	166,847	\$1,060,991	
T	427	Santa Ana Pueblo	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	104,922	144,811	144,811	144,811	144,811	166,847	166,847	166,847	166,847	166,847	166,847	\$1,060,991	
T	401	Santa Clara Pueblo	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	39,889	104,922	144,811	144,811	144,811	144,811	166,847	166,847	166,847	166,847	166,847	166,847	\$1,060,991	
I	062	Santa Fe IHS	274,658	274,658	274,658	274,658	274,658	274,658	274,658	274,658	274,658	274,658	258,873	419,038	419,038	419,038	419,038	483,336	483,336	483,336	483,336	483,336	483,336	\$579,900	
T	163	Santo Domingo Pueblo	83,935	83,935	83,935	83,935	83,935	83,935	83,935	83,935	83,935	83,935	214,960	318,279	318,279	318,279	318,279	340,315	340,315	340,315	340,315	340,315	340,315	\$807,768	
T	058	Southern Ute	61,907	61,907	61,907	61,907	61,907	61,907	61,907	61,907	61,907	61,907	128,806	190,713	190,713	190,713	190,713	212,749	212,749	212,749	212,749	212,749	212,749	\$1,403,758	
T	057	Taos Pueblo	49,040	49,040	49,040	49,040	49,040	49,040	49,040	49,040	49,040	49,040	126,376	185,778	185,778	185,778	185,778	207,814	207,814	207,814	207,814	207,814	207,814	\$1,335,547	
I	424	Taos-Picuris IHS	49,040	49,040	49,040	49,040	49,040	49,040	49,040	49,040	49,040	49,040	126,376	185,778	185,778	185,778	185,778	207,814	207,814	207,814	207,814	207,814	207,814	\$1,335,547	
T	414	Tesuque Pueblo	84,231	84,231	84,231	84,231	84,231	84,231	84,231	84,231	84,231	84,231	175,119	259,350	259,350	259,350	259,350	281,386	281,386	281,386	281,386	281,386	281,386	\$75,846	
T	127	Ute Mountain Ute	84,231	84,231	84,231	84,231	84,231	84,231	84,231	84,231	84,231	84,231	175,119	259,350	259,350	259,350	259,350	281,386	281,386	281,386	281,386	281,386	281,386	\$75,846	
T	059	Ysleta Del Sur Pueblo	31,090	31,090	31,090	31,090	31,090	31,090	31,090	31,090	31,090	31,090	63,845	94,935	94,935	94,935	94,935	116,971	116,971	116,971	116,971	116,971	116,971	\$441,452	
T	426	Zia Pueblo	194,546	194,546	194,546	194,546	194,546	194,546	194,546	194,546	194,546	194,546	404,071	598,617	598,617	598,617	598,617	620,653	620,653	620,653	620,653	620,653	620,653	\$1,885,101	
T	061	Zuni Pueblo	194,546	194,546	194,546	194,546	194,546	194,546	194,546	194,546	194,546	194,546	404,071	598,617	598,617	598,617	598,617	620,653	620,653	620,653	620,653	620,653	620,653	\$731,537	
<b>TOTAL</b>			<b>\$2,274,460</b>	<b>\$2,274,460</b>	<b>\$2,241,204</b>	<b>\$2,241,204</b>	<b>\$2,241,204</b>	<b>\$2,241,204</b>	<b>\$2,241,204</b>	<b>\$2,241,204</b>	<b>\$6,979,237</b>	<b>\$6,979,237</b>	<b>\$6,979,237</b>	<b>\$6,724,242</b>	<b>\$6,724,242</b>	<b>\$6,724,242</b>	<b>\$6,724,242</b>	<b>\$7,319,223</b>	<b>\$7,319,223</b>	<b>\$7,319,223</b>	<b>\$7,319,223</b>	<b>\$7,319,223</b>	<b>\$7,319,223</b>	<b>\$7,319,223</b>	<b>\$49,251,360</b>

<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

# SPECIAL DIABETES PROGRAM FOR INDIANS

## COMMUNITY-DIRECTED DIABETES PROGRAMS: BEMIDJI AREA IHS





**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Bemidji Area IHS**

IT/UT	Grant Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL
			Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>						
T	255	Bad River Band	42,580	42,930	42,930	41,750	96,840	138,590	41,019	88,361	129,380	128,210	136,380	131,590	130,100						\$922,690
T	137	Bay Mills	38,150	38,410	38,410	37,400	78,260	115,660	30,445	65,585	96,030	98,740	105,880	105,580	106,600						\$743,460
I	085	Bemidji Area IHS	133,742	115,987	115,987	114,595	43,660	158,255	26,283	56,617	82,900	82,898	90,166	90,166	90,166						\$960,267
T	326	Boise Forte	37,190	37,440	37,440	36,460	70,950	107,410	31,276	67,374	98,650	94,680	104,760	104,520	106,310						\$728,400
T	109	Fond Du Lac	137,690	138,940	138,940	135,000	364,680	499,680	155,899	335,831	491,730	444,370	473,560	463,320	452,430						\$3,240,660
T	337	Forest County Potawatomi	34,300	34,500	34,500	33,630	71,520	105,150	31,244	67,306	98,550	103,780	116,910	129,910	119,830						\$777,430
T	254	Grand Portage	31,000	31,140	31,140	30,390	43,620	74,010	16,767	36,123	52,890	52,900	54,800	53,980	52,850						\$434,710
T	108	Grand Traverse Band	42,290	42,620	42,620	41,460	80,700	122,160	41,929	90,321	132,250	136,760	144,490	136,660	113,810						\$913,660
T	403	Gun Lake Band Potawatomi				28,333	32,009	60,342	12,663	27,277	39,940	39,652	40,744	40,020	39,620						\$260,318
T	037	Hannahville/Mi Potawatomi	35,700	35,920	35,920	35,000	67,200	102,200	27,389	59,001	86,390	84,350	89,860	118,230	88,440						\$677,010
T	034	Ho-Chunk	61,000	61,560	61,560	59,810	170,420	230,230	80,132	172,618	252,750	262,520	284,000	286,250	286,940						\$1,786,810
T	268	Huron Potawatomi	31,800	31,950	31,950	31,170	47,610	78,780	18,033	38,847	56,880	56,260	58,460	57,080	56,210						\$459,370
T	107	Kaweenaw Bay/L'Anse	46,070	46,460	46,460	46,460	98,970	145,430	43,435	93,565	137,000	139,290	152,770	154,900	156,470						\$1,024,850
T	346	Lac Courte Oreilles	70,740	71,380	71,380	69,350	167,970	237,320	75,497	162,633	238,130	236,130	255,940	247,590	244,320						\$1,672,930
T	140	Lac du Flambeau	54,930	55,420	55,420	53,850	145,090	198,940	61,313	132,077	193,390	195,410	213,640	214,030	213,270						\$1,394,450
T	259	Lac Vieux Desert	30,040	30,160	30,160	29,450	44,820	74,270	16,033	34,537	50,570	51,420	55,230	55,910	56,850						\$434,610
T	248	Leech Lake	185,365	187,050	187,050	181,740	468,350	650,090	212,341	457,419	669,760	684,530	748,220	753,330	758,540						\$4,823,935
T	250	Little River Ottawa	30,840	30,970	30,970	34,450	61,310	95,760	19,200	41,360	60,560	59,870	69,330	67,850	67,860						\$418,250
T	347	Little Traverse Odawa	35,140	35,350	35,350	34,450	44,330	44,330	24,558	52,902	77,460	81,430	92,620	97,710	101,420						\$652,240
T	385	Lower Sioux							17,551	37,809	55,360	55,970	60,480	61,450	63,410						\$341,000
T	105	Menominee	140,360	141,630	141,630	137,620	359,740	497,360	161,244	347,346	508,590	513,630	560,300	556,990	558,970						\$3,619,460
T	181	Millie Lacs	47,090	47,510	47,510	46,170	155,150	201,320	70,225	151,275	221,500	216,810	245,350	247,770	255,360						\$1,530,220
T	267	Oneida	159,640	161,090	161,090	156,510	426,210	582,720	189,305	407,795	597,100	597,990	656,180	658,690	667,180						\$4,241,660
T	296	Pokagon Potawatomi	39,450	39,730	39,730	38,680	78,970	117,650	101,680	530,372	101,680	100,170	105,560	102,180	100,040						\$746,190
T	256	Prairie Island	29,230	29,350	29,350	28,660	45,530	74,190	16,369	35,261	51,630	47,260	51,510	53,320	54,130						\$419,970
T	260	Red Cliff	40,040	40,340	40,340	39,260	82,710	121,970	34,811	74,989	109,800	110,360	115,270	113,960	116,130						\$608,210
T	103	Red Lake	150,040	151,400	151,400	147,100	382,890	529,990	189,506	365,144	534,650	528,730	568,120	543,800	543,660						\$3,701,790
T	258	Saginaw Chippewa	47,580	48,000	48,000	46,650	106,020	152,670	47,994	103,386	151,380	157,830	179,470	187,530	210,190						\$1,182,650
T	038	Sault Ste Marie Chippewa	258,540	260,880	260,880	253,480	548,550	802,030	246,208	530,372	776,580	768,410	831,370	832,994	846,424						\$5,638,108
T	382	Shakopee Sioux				30,180	49,200	79,380	16,816	36,224	53,040	54,380	55,660	60,330	64,550						\$367,540
T	106	Sokaogon	30,940	31,070	31,070	30,330	42,950	73,280	15,120	32,570	47,690	45,530	47,270	46,920	48,260						\$402,030
T	336	St Croix	41,540	41,860	41,860	40,730	95,880	136,610	39,132	84,298	123,430	124,990	140,350	138,900	141,600						\$931,140
T	257	Stockbridge-Munsee	47,150	47,570	47,570	47,570	96,130	143,700	41,066	88,464	129,530	138,100	156,690	145,300	146,430						\$1,002,040
T	036	Upper Sioux	29,450	29,570	29,570	29,045	37,940	66,985	13,969	30,091	44,060	44,390	45,620	45,600	44,710						\$379,955
T	104	White Earth	158,890	160,320	160,320	155,780	418,330	574,110	188,249	405,521	593,770	607,250	670,050	672,850	674,130						\$4,271,690
		<b>TOTAL</b>	<b>\$2,298,507</b>	<b>\$2,298,507</b>	<b>\$2,298,507</b>	<b>\$2,298,507</b>	<b>\$7,392,572</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$7,145,000</b>	<b>\$51,909,723</b>

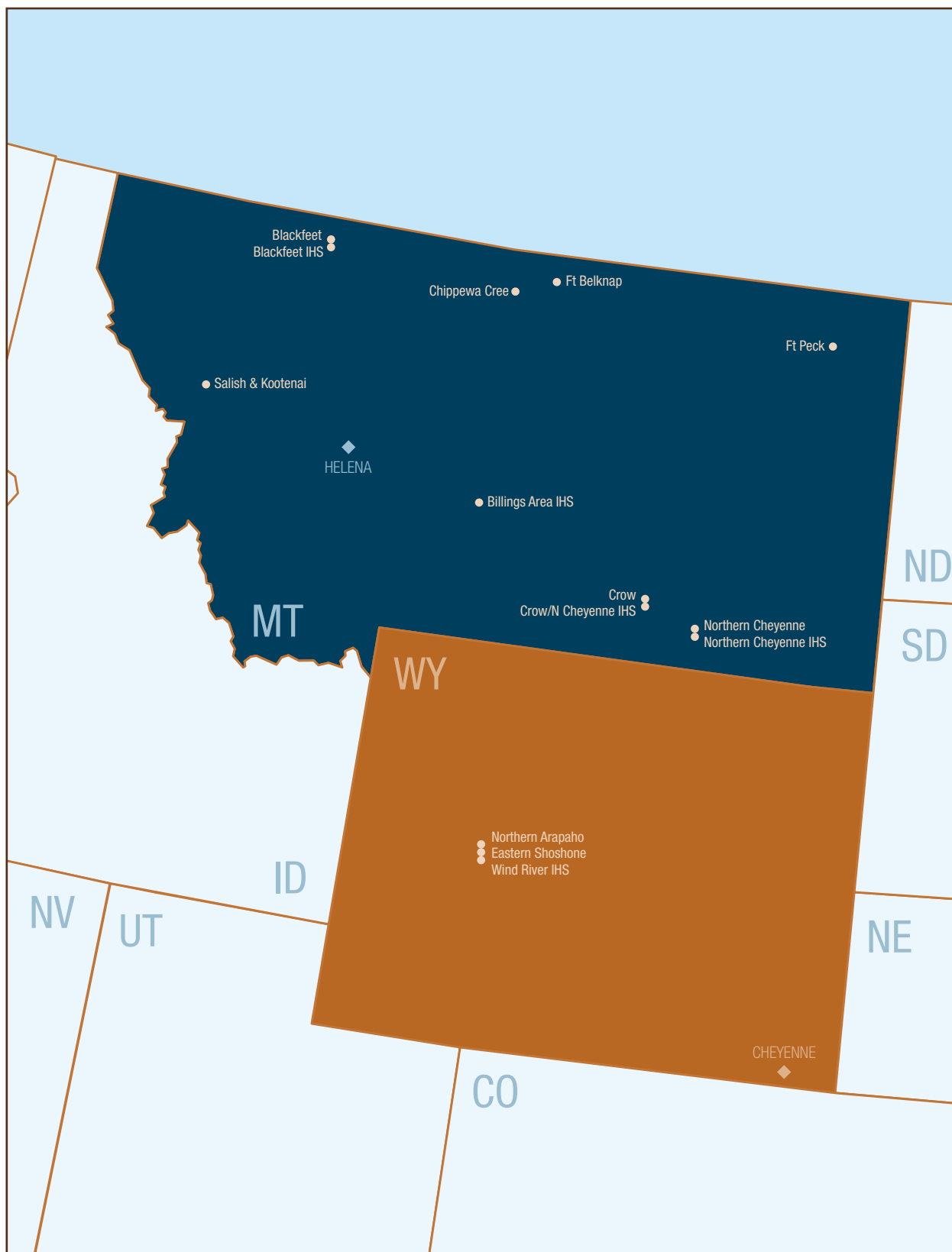
<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

# **SPECIAL DIABETES PROGRAM FOR INDIANS**

## **COMMUNITY-DIRECTED DIABETES PROGRAMS: BILLINGS AREA IHS**



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Billings Area IHS**

Grant Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL
		Yr 1 BBA <sup>2</sup>	Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>			
I 100	Billings Area IHS	116,197	116,197	116,197	71,531	76,724	76,724													\$380,649
T 253	Blackfeet	271,300	271,300	271,300	379,848	589,148	271,300	382,484	653,784	576,696	626,015	626,015	626,015	626,015	626,015	626,015	626,015	626,015	626,015	\$4,511,573
I 386	Blackfeet IHS				167,507	229,507	143,608	143,608	143,608	220,696	241,933	241,933	241,933	241,933	241,933	241,933	241,933	241,933	241,933	\$1,319,610
T 129	Chippewa Cree	100,100	100,100	100,100	227,159	327,259	100,100	230,828	330,928	330,928	360,209	360,209	360,209	360,209	360,209	360,209	360,209	360,209	360,209	\$2,370,042
T 138	Crow	264,500	264,500	264,500	353,988	618,488	561,086	561,086	561,086	489,286	822,486	895,262	895,262	895,262	895,262	895,262	895,262	895,262	895,262	\$5,029,658
I 391	Crow/N Cheyenne IHS					210,592	210,592	210,592	261,400	261,400	72,776	45,712	115,975	115,975	115,975	115,975	115,975	115,975	115,975	\$1,039,655
T 373	Eastern Shoshone				85,001	249,554	85,001	154,753	239,754	239,754	232,141	260,424	260,424	260,424	260,424	260,424	260,424	260,424	260,424	\$1,652,053
T 087	Fl Belknap	119,400	119,400	119,400	125,624	378,872	119,400	249,534	368,934	368,934	401,578	401,578	401,578	401,578	401,578	401,578	401,578	401,578	401,578	\$2,685,900
T 279	Fl Peck	210,700	210,700	210,700	427,049	637,749	210,700	411,429	622,129	622,129	677,177	677,177	677,177	677,177	677,177	677,177	677,177	677,177	677,177	\$4,545,638
T 349	Northern Arapaho	154,099	154,099	154,099	461,180	461,180	154,099	293,230	447,329	447,329	487,454	487,454	487,454	487,454	487,454	487,454	487,454	487,454	487,454	\$3,126,398
T 277	Northern Cheyenne	162,100	162,100	162,100	166,149	328,249	162,100	144,649	306,749	297,976	341,242	532,242	532,242	532,242	532,242	532,242	532,242	532,242	532,242	\$2,795,000
I 392	Northern Cheyenne IHS				169,500	169,500	169,500	182,227	182,227	182,227	191,000	191,000	191,000	191,000	191,000	191,000	191,000	191,000	191,000	\$763,727
T 297	Salish & Kootenai	226,100	226,100	226,100	472,590	698,690	226,100	462,373	688,473	688,473	749,391	749,391	749,391	749,391	749,391	749,391	749,391	749,391	749,391	\$5,002,109
I 384	Wind River IHS										28,283	28,283	28,283	28,283	28,283	28,283	28,283	28,283	28,283	\$28,283
	<b>TOTAL</b>	<b>\$1,470,397</b>	<b>\$1,709,497</b>	<b>\$1,671,057</b>	<b>\$4,975,512</b>	<b>\$4,975,512</b>	<b>\$4,975,512</b>	<b>\$4,806,401</b>	<b>\$4,806,401</b>	<b>\$5,231,665</b>	<b>\$5,277,397</b>	<b>\$5,277,397</b>	<b>\$5,301,948</b>	<b>\$5,301,948</b>	<b>\$5,301,948</b>	<b>\$5,301,948</b>	<b>\$5,301,948</b>	<b>\$5,301,948</b>	<b>\$5,301,948</b>	<b>\$35,250,295</b>

<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

# SPECIAL DIABETES PROGRAM FOR INDIANS

## COMMUNITY-DIRECTED DIABETES PROGRAMS: CALIFORNIA AREA IHS



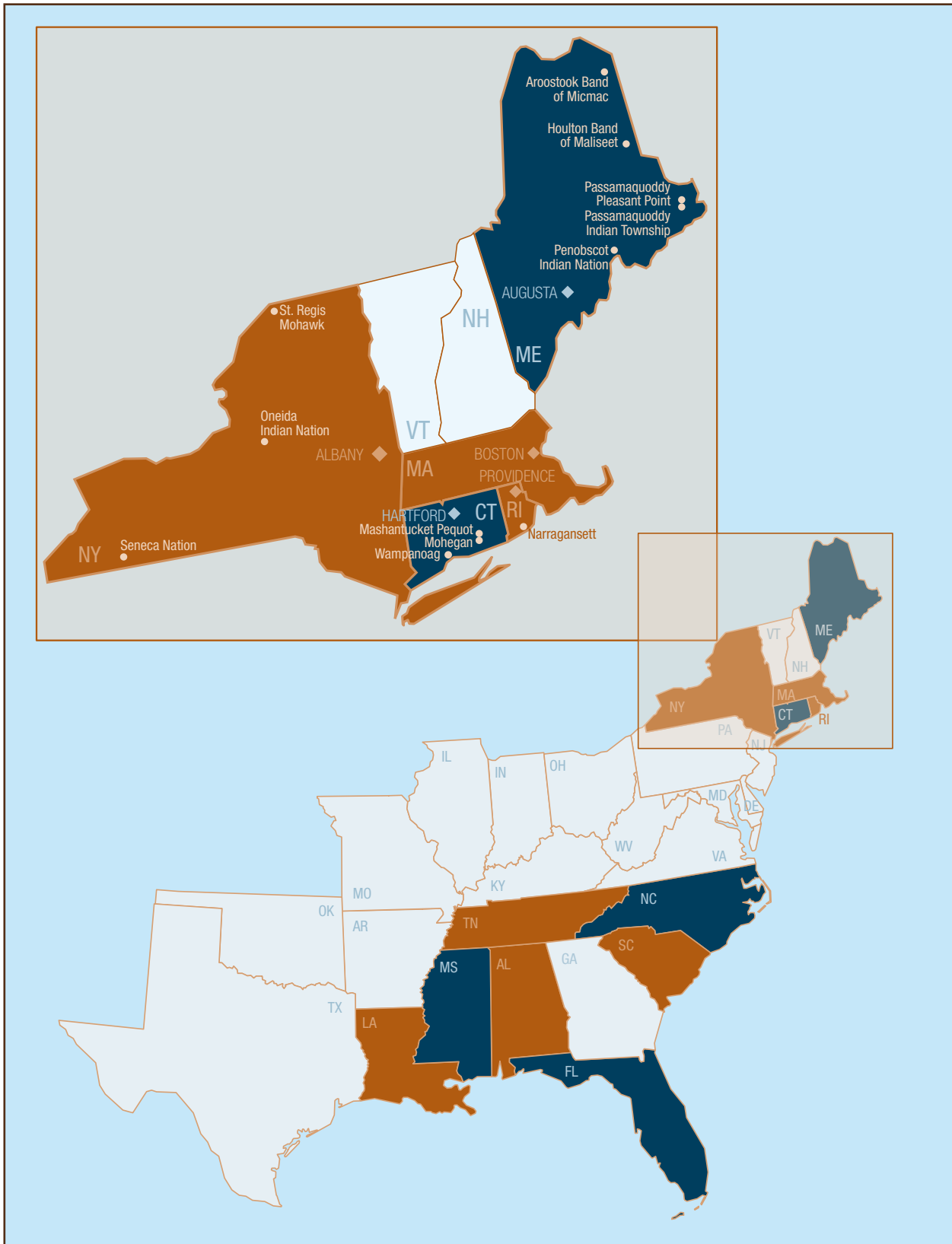
**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
California Area IHS**

Grant IT/U <sup>1</sup> / Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL	
		Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>						
T 081	Cabazon	1,500	1,586	1,500	1,500	3,500	5,000	1,500	4,500	6,000	6,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	\$21,586	
I 182	California Area IHS	135,829	118,028	82,905	82,903	100,002	182,905	82,903	100,000	182,903	182,903	439,199	439,199	439,199	439,199	439,199	439,199	439,199	439,199	\$1,485,473	
T 367	Central Valley	76,275	111,965	111,031	110,916	263,874	374,790	110,916	290,212	401,128	401,128	274,673	274,673	274,673	274,673	274,673	274,673	274,673	274,673	\$2,793,914	
T 120	Chappa-De	56,817	83,403	82,708	82,622	158,804	241,426	82,622	174,655	257,277	257,277	18,126	18,126	18,126	18,126	18,126	18,126	18,126	18,126	\$1,802,927	
T 016	Colusa	1,524	2,237	2,218	2,716	13,850	16,566	2,216	14,684	16,900	16,900	184,201	184,201	184,201	184,201	184,201	184,201	184,201	184,201	\$110,723	
T 348	Consolidated Tribal Health	39,585	58,107	57,623	57,563	115,144	172,707	57,563	126,638	184,201	184,201									\$1,348,948	
T 353	CRHIB Inc.																				
T *353	Fl Bidwell - Warner Mtn.	1,500	2,135	1,974	1,972	14,564	16,536	1,972	15,620	17,592	17,592	32,068	32,068	32,068	32,068	32,068	32,068	32,068	32,068	\$153,533	
T *353	MACT Tuolumne	25,719	37,753	37,439	37,400	77,537	114,937	37,400	85,277	122,677	122,677	154,765	154,765	154,765	154,765	154,765	154,765	154,765	154,765	\$925,497	
T *353	Shingle Springs	10,119	14,803	14,572	14,557	30,416	44,973	14,577	33,432	48,009	48,009	48,009	48,009	48,009	48,009	48,009	48,009	48,009	48,009	\$324,512	
T *353	Sonoma County	60,200	88,368	87,632	87,541	245,519	333,060	87,541	270,026	357,567	357,567	454,487	454,487	454,487	454,487	454,487	454,487	454,487	454,487	\$2,518,333	
T *353	United Indian Health Services	90,000	132,163	131,171	131,034	294,098	425,132	131,034	323,453	454,487	454,487	383,427	383,427	383,427	383,427	383,427	383,427	383,427	383,427	\$3,050,901	
T 121	Feather River	46,243	67,881	67,315	67,245	150,257	217,502	67,245	165,255	232,500	232,500	88,036	88,036	88,036	88,036	88,036	88,036	88,036	88,036	\$2,014,222	
T 320	Greenville Rancheria	42,617	62,558	62,037	61,972	140,454	202,426	61,972	158,874	220,846	220,846	235,634	235,634	235,634	235,634	235,634	235,634	235,634	235,634	\$570,878	
T 122	Hoopa Valley	64,588	94,810	94,020	93,922	208,049	301,971	93,922	228,815	322,737	322,737	365,302	365,302	365,302	365,302	365,302	365,302	365,302	365,302	\$1,518,232	
T 156	Indian Health Council	30,031	44,083	43,716	43,671	79,196	122,867	43,671	87,100	130,771	130,771	157,554	157,554	157,554	157,554	157,554	157,554	157,554	157,554	\$2,296,769	
T 231	Karuk	17,461	25,631	25,418	25,391	72,374	97,765	25,391	79,599	104,990	104,990	209,142	209,142	209,142	209,142	209,142	209,142	209,142	209,142	\$974,901	
T 157	Lake County	3,200	4,697	4,658	5,153	16,849	22,002	5,153	17,683	22,336	22,336	25,097	25,097	25,097	25,097	25,097	25,097	25,097	25,097	\$1,003,681	
T 123	Modoc	18,863	27,689	27,458	27,430	91,843	119,273	27,430	101,011	128,441	128,441	174,285	174,285	174,285	174,285	174,285	174,285	174,285	174,285	\$154,520	
T 170	Northern Valley	12,738	18,698	18,542	18,523	43,611	62,134	18,523	47,966	66,489	66,489	103,177	103,177	103,177	103,177	103,177	103,177	103,177	103,177	\$973,020	
T 018	Pit River	66,066	96,979	96,171	96,071	189,975	286,046	96,071	208,939	305,010	305,010	373,667	373,667	373,667	373,667	373,667	373,667	373,667	373,667	\$554,621	
T 019	Redding	139,128	204,227	202,523	202,311	498,876	701,187	202,311	542,671	744,982	744,982	938,351	938,351	938,351	938,351	938,351	938,351	938,351	938,351	\$2,276,283	
T 233	Riverside San Bernardino	15,633	22,948	22,756	22,733	67,563	90,316	22,733	74,329	97,062	97,062	112,937	112,937	112,937	112,937	112,937	112,937	112,937	112,937	\$5,552,082	
T 158	Round Valley	7,771	11,407	11,312	11,300	21,956	33,256	11,300	24,149	35,449	35,449	49,223	49,223	49,223	49,223	49,223	49,223	49,223	49,223	\$684,588	
T 020	Santa Ynez	47,386	69,558	68,979	68,907	117,966	186,873	68,907	129,740	198,647	198,647	216,114	216,114	216,114	216,114	216,114	216,114	216,114	216,114	\$270,313	
T 021	Southern Indian Health Council	11,367	16,686	16,546	16,529	42,756	59,285	16,529	47,024	63,553	63,553	104,571	104,571	104,571	104,571	104,571	104,571	104,571	104,571	\$1,418,432	
T 017	Susanville	2,249	2,329	2,329	2,826	13,242	16,068	2,826	14,074	16,400	16,400	12,549	12,549	12,549	12,549	12,549	12,549	12,549	12,549	\$544,703	
T 333	Sycuan Band	43,516	63,878	63,345	63,279	141,042	204,321	63,279	155,121	218,400	218,400	306,742	306,742	306,742	306,742	306,742	306,742	306,742	306,742	\$137,104	
T 372	Table Mtn. Rancheria	42,053	61,730	61,216	61,152	114,409	175,561	61,152	125,829	186,981	186,981	210,536	210,536	210,536	210,536	210,536	210,536	210,536	210,536	\$51,147	
T 234	Toiyabe																				\$1,732,086
T 196	Tule River																				\$1,346,130
<b>TOTAL</b>		<b>\$1,107,729</b>	<b>\$1,570,591</b>	<b>\$1,523,245</b>	<b>\$1,523,245</b>	<b>\$4,910,618</b>	<b>\$5,238,371</b>	<b>\$5,238,371</b>	<b>\$5,238,371</b>	<b>\$5,238,371</b>	<b>\$5,238,371</b>	<b>\$6,338,378</b>	<b>\$6,338,378</b>	<b>\$6,338,378</b>	<b>\$6,338,378</b>	<b>\$6,338,378</b>	<b>\$6,338,378</b>	<b>\$6,338,378</b>	<b>\$6,338,378</b>	<b>\$6,338,378</b>	<b>\$38,610,059</b>

<sup>1</sup> I = IHS, T = Tribal, U = Urban  
<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997  
<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

\* Indicates that program receives funds indirectly through the program with this grant number

**SPECIAL DIABETES PROGRAM FOR INDIANS**  
**COMMUNITY-DIRECTED DIABETES PROGRAMS:**  
**NASHVILLE AREA IHS (PART 1)**



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Nashville Area IHS (Part 1)**

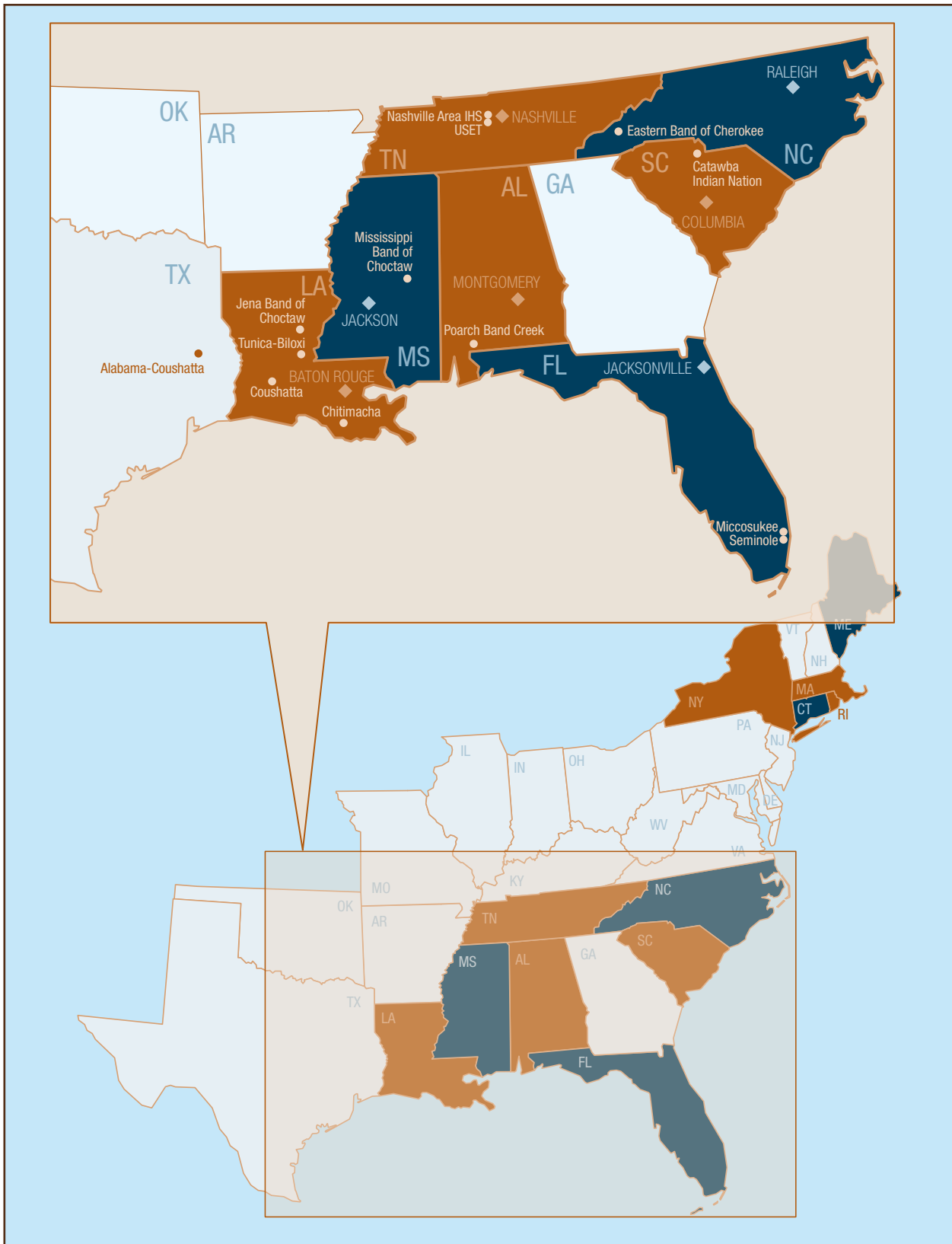
Grant I/T/U <sup>1</sup> Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL
		Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>				
T	*241 Aroostook Band of Micmac	23,977	26,335	23,080	23,488	44,871	68,359	23,488	27,435	50,923	60,503	60,503	60,503	78,017	60,503	78,017	\$442,620			
T	*241 Houlton Band of Maliseet	22,830	23,937	22,300	23,729	43,631	67,360	21,701	33,317	55,018	66,817	68,817	68,817	66,324	68,817	66,324	\$452,421			
T	*241 Mashantucket Pequot	27,434	31,041	29,716	30,957	67,220	98,177	30,957	45,723	76,680	94,792	94,792	94,792	104,961	94,792	104,961	\$634,273			
T	*241 Mohegan	36,903	40,101	32,120	32,733	67,434	100,167	32,732	71,278	104,010	133,809	133,809	133,809	117,274	133,809	117,274	\$802,203			
T	*241 Narragansett	26,513	28,888	27,986	26,506	54,976	81,482	26,506	60,185	86,691	103,452	103,452	103,452	114,858	103,452	114,858	\$660,013			
T	*241 Oneida Indian Nation	38,310	43,254	45,107	40,073	98,100	138,173	40,072	94,794	134,866	160,854	160,854	160,854	184,203	160,854	184,203	\$1,040,487			
T	*241 Passamaquoddy Indian Township	29,397	33,740	30,640	31,788	67,134	98,922	31,788	40,824	72,612	85,564	85,564	85,564	88,740	85,564	88,740	\$597,791			
T	*241 Passamaquoddy Pleasant Point	32,629	37,123	30,744	29,007	64,605	93,612	29,007	47,058	76,065	88,947	88,947	88,947	100,089	88,947	100,089	\$624,221			
T	*241 Penobscot Indian Nation	39,491	42,368	32,373	30,117	66,673	98,790	30,117	41,671	71,788	90,244	90,244	90,244	94,527	90,244	94,527	\$631,613			
T	*241 Seneca Nation	118,797	128,485	119,423	105,420	252,588	358,008	105,419	387,299	492,718	758,383	758,383	758,383	546,540	758,383	546,540	\$3,773,455			
T	*241 St. Regis Mohawk	94,765	96,192	85,261	86,011	220,152	306,163	86,011	161,440	247,451	274,269	274,269	274,269	285,825	274,269	285,825	\$1,911,646			
T	*241 Wampanoag	21,958	24,893	19,757	21,503	38,595	60,098	21,502	28,350	49,852	60,820	60,820	60,820	61,700	60,820	61,700	\$409,750			

<sup>1</sup> | = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001  
 \* Indicates that program receives funds indirectly through the program with this grant number

**SPECIAL DIABETES PROGRAM FOR INDIANS**  
**COMMUNITY-DIRECTED DIABETES PROGRAMS:**  
**NASHVILLE AREA IHS (PART 2)**





**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Nashville Area IHS (Part 2)**

Grant IT/UT Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL	
		Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>							
T 241	USET	85,268	85,230	83,691	84,607	84,607	84,609	84,609	84,609	84,609	84,609	84,609	84,609	84,609	84,609	84,609	84,609	84,609	84,609	\$761,841	
T *241	Alabama-Coushatta	30,301	33,562	32,577	31,949	31,949	99,244	31,949	67,854	99,803	99,803	99,803	99,803	126,180	126,180	126,180	126,180	152,442	152,442	\$800,112	
T *241	Calawba Indian Nation	72,971	79,084	27,260	31,438	89,681	101,119	31,438	61,561	92,999	92,999	92,999	92,999	112,544	112,544	112,544	112,544	120,669	120,669	\$812,189	
T *241	Chitimacha	23,994	26,670	24,045	25,608	48,249	73,857	25,608	38,646	64,254	64,254	64,254	64,254	80,971	80,971	80,971	80,971	83,164	83,164	\$522,180	
T *241	Coushatta	21,053	22,403	24,679	25,065	46,777	71,842	25,065	46,672	71,737	71,737	71,737	71,737	94,040	94,040	94,040	94,040	96,250	96,250	\$567,781	
T 280	Eastern Band of Cherokee	244,313	266,682	264,784	253,143	601,551	854,594	253,143	811,236	1,064,379	1,064,379	1,064,379	1,064,379	1,175,894	1,175,894	1,175,894	1,175,894	1,143,625	1,143,625	\$7,254,644	
T *241	Jena Band of Choctaw	15,461	16,878	13,914	21,335	36,040	57,375	21,336	31,299	52,635	52,635	52,635	52,635	64,130	64,130	64,130	64,130	63,728	63,728	\$400,886	
T *241	Micosukee	27,104	29,525	28,711	29,293	59,894	89,187	29,294	60,857	90,151	90,151	90,151	90,151	116,654	116,654	116,654	116,654	98,866	98,866	\$687,002	
T *241	Mississippi Band of Choctaw	171,700	190,091	203,720	205,018	500,654	705,672	205,018	587,484	792,502	792,502	792,502	792,502	1,057,598	1,057,598	1,057,598	1,057,598	1,209,079	1,209,079	\$6,180,462	
I 167	Nashville Area IHS	116,154		82,905	82,905		82,905														\$281,964
T *241	Poarch Band Creek	49,655	57,977	44,442	40,494	105,181	145,675	40,494	98,554	139,048	139,048	139,048	139,048	158,046	158,046	158,046	158,046	186,868	186,868	\$1,078,805	
T *241	Seminole	58,081	63,434	66,535	77,175	191,064	268,239	77,175	197,710	274,885	274,885	274,885	274,885	343,366	343,366	343,366	343,366	312,784	312,784	\$2,005,575	
T *241	Tunica-Biloxi	14,803	15,949	14,844	21,249	38,965	60,214	21,249	32,815	54,064	54,064	54,064	54,064	67,550	67,550	67,550	67,550	64,761	64,761	\$413,799	
	<b>TOTAL</b>	<b>\$1,443,862</b>	<b>\$1,443,862</b>	<b>\$1,410,614</b>		<b>\$4,263,941</b>	<b>\$4,399,740</b>			<b>\$4,399,739</b>	<b>\$5,462,036</b>	<b>\$5,462,036</b>	<b>\$5,462,036</b>	<b>\$5,462,036</b>	<b>\$5,462,036</b>	<b>\$5,462,036</b>	<b>\$5,462,036</b>	<b>\$5,461,903</b>	<b>\$5,461,903</b>	<b>\$33,747,733</b>	

<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001  
\* Indicates that program receives funds indirectly through the program with this grant number

**SPECIAL DIABETES PROGRAM FOR INDIANS**  
**COMMUNITY-DIRECTED DIABETES PROGRAMS:**  
**NAVAJO AREA IHS**



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Navajo Area IHS**

Grant I/T/U <sup>1</sup>	Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL	
			Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>			
I	132	Navajo Area IHS	2,920,874	2,820,874	2,937,797	2,787,797	2,744,053	5,531,850	2,211,982	5,161,293	7,373,275	5,601,275	5,961,374	5,961,374	5,961,374	5,961,374	5,961,374	5,961,374	5,961,374	5,961,374	\$45,070,067	
T	242	Navajo Nation	1,344,873	1,444,873	1,264,701	1,444,701	5,838,437	7,283,138	1,623,296	3,787,692	5,410,988	6,443,988	6,806,788	6,806,788	6,806,788	6,806,788	6,806,788	6,806,788	6,806,788	6,806,788	\$43,290,125	
T	969	Sage Memorial Hospital																		250,000	\$250,000	
T	243	San Juan Southern Paiute	55,000	55,000	85,000	55,000	75,000	130,000	39,000	91,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	\$975,000	
T	409	Tuba City										454,500	542,212	542,212	542,212	542,212	542,212	542,212	542,212	542,212	\$2,081,136	
T	425	Utah Navajo Health System											258,000	258,000	258,000	258,000	258,000	258,000	258,000	258,000	\$846,800	
T	411	Winslow IHS										284,500	358,581	358,581	358,581	358,581	358,581	358,581	358,581	358,581	\$1,360,243	
		<b>TOTAL</b>	<b>\$4,320,747</b>	<b>\$4,320,747</b>	<b>\$4,287,498</b>	<b>\$12,944,988</b>	<b>\$12,914,263</b>	<b>\$12,914,263</b>	<b>\$12,914,263</b>	<b>\$12,914,263</b>	<b>\$12,914,263</b>	<b>\$12,914,263</b>	<b>\$14,056,955</b>	<b>\$14,056,955</b>	<b>\$14,056,955</b>	<b>\$14,056,955</b>	<b>\$14,056,955</b>	<b>\$14,056,955</b>	<b>\$14,056,955</b>	<b>\$14,056,955</b>	<b>\$14,056,955</b>	<b>\$93,873,371</b>

<sup>1</sup> I = IHS, T = Tribal, U = Urban

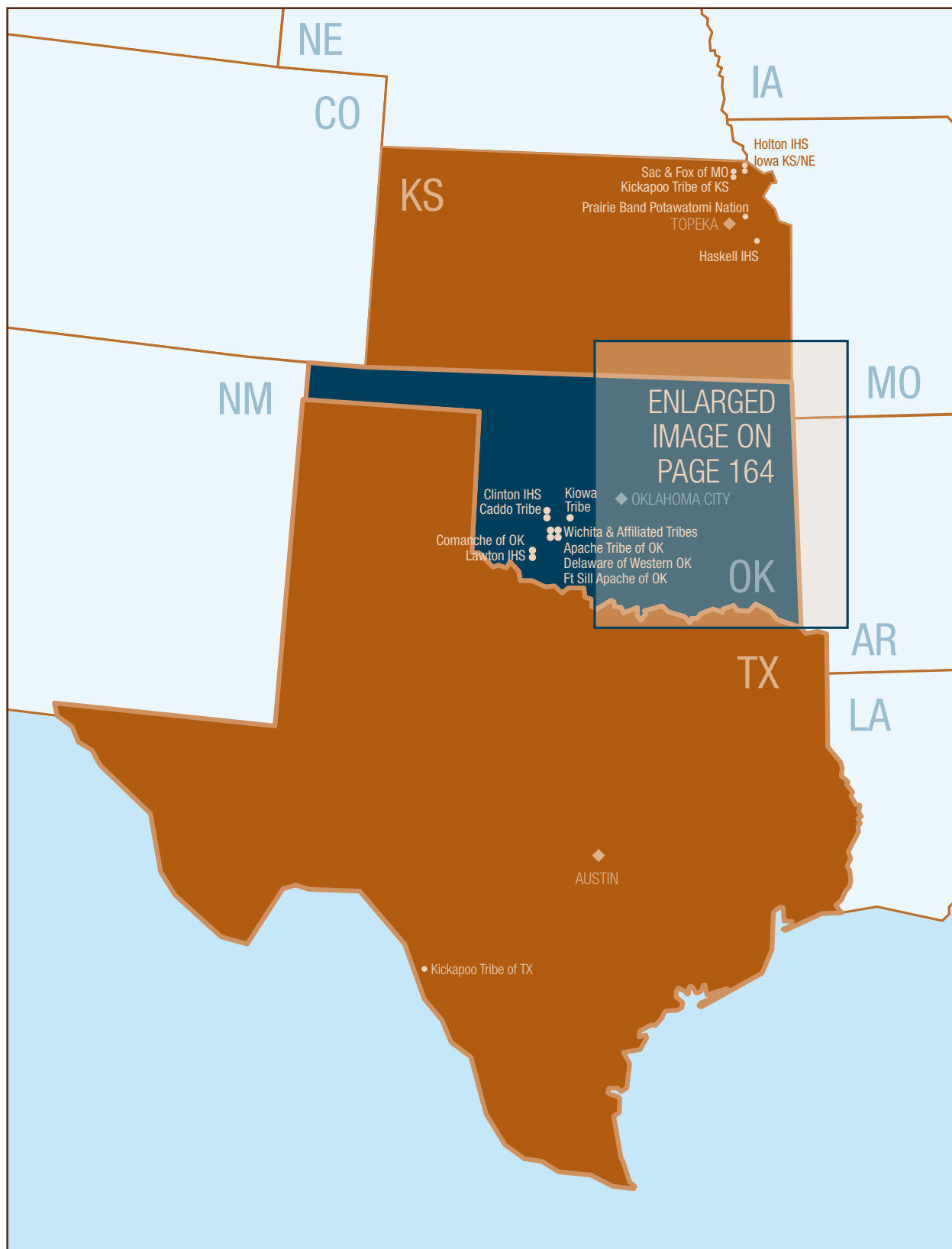
<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

# **SPECIAL DIABETES PROGRAM FOR INDIANS**

## **COMMUNITY-DIRECTED DIABETES PROGRAMS:**

### **OKLAHOMA AREA IHS (PART 1)**



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Oklahoma Area IHS (Part 1)**

Grant IT/U <sup>1</sup>	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL
		Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>						
T	Apache Tribe of OK	49,205	47,482	48,197	46,475	48,197	46,475	59,307	52,272	107,504	10,750	121,498	121,498	111,601	111,601	121,498	111,601	100,000	100,000	\$613,808
T	Caddo Tribe	47,482	47,482	46,475	46,475	46,475	46,475	57,754	50,845	98,747	9,875	111,601	111,601	111,601	111,601	111,601	111,601	100,000	100,000	\$570,563
I	Clinton IHS										150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	\$500,000
T	Comanche of OK	124,823	124,823	123,815	123,815	123,815	123,815	252,814	252,814	382,150	382,150	431,894	431,894	431,894	431,894	431,894	431,894	431,894	431,894	\$2,810,072
T	Delaware of Western OK	34,717	34,717	33,709	33,709	33,709	33,709	16,769	16,769	51,218	5,122	57,885	57,885	57,885	57,885	57,885	57,885	57,885	57,885	\$325,731
T	FLSII Apache of OK	31,053	31,053	30,045	30,045	30,045	30,045	6,241	6,241	36,815	36,815	41,607	41,607	41,607	41,607	41,607	41,607	41,607	41,607	\$326,888
I	Haskell IHS	53,388	53,388	52,380	52,380	52,380	52,380	131,572	131,572	186,649	186,649	210,945	210,945	210,945	210,945	210,945	210,945	210,945	210,945	\$1,349,241
I	Holton IHS	3,520	3,520	2,512	2,512	2,512	2,512													\$316,576
I	Iowa KS/NE	30,695	30,695	30,695	30,695	30,695	30,695	20,355	20,355	51,050	51,050	51,050	51,050	51,050	51,050	51,050	51,050	51,050	51,050	\$194,185
T	Kickapoo Tribe of KS	35,681	35,681	34,673	34,673	34,673	34,673	19,687	19,687	55,157	55,157	62,337	62,337	62,337	62,337	62,337	62,337	62,337	62,337	\$457,720
T	Kickapoo Tribe of TX	35,539	35,539	34,532	34,532	34,532	34,532	17,675	17,675	52,207	52,207	59,867	59,867	59,867	59,867	59,867	59,867	59,867	59,867	\$443,362
T	Kiowa Tribe	140,353	140,353	139,345	139,345	139,345	139,345	300,775	300,775	446,572	446,572	633,637	633,637	633,637	633,637	633,637	633,637	633,637	633,637	\$2,360,802
I	Lawton IHS					270,659	270,659	270,659	270,659	561,040	561,040	724,595	724,595	724,595	724,595	724,595	724,595	724,595	724,595	\$3,781,301
T	Prairie Band Potawatomi Nation	39,167	39,167	39,167	39,167	39,167	39,167	43,722	43,722	82,889	82,889	93,679	93,679	93,679	93,679	93,679	93,679	93,679	93,679	\$564,316
T	Sac & Fox of MO	25,938	25,938	25,938	25,938	25,938	25,938	5,583	5,583	31,521	31,521	35,624	35,624	35,624	35,624	35,624	35,624	35,624	35,624	\$279,249
T	Wichita & Affiliated Tribes	44,706	44,706	43,698	43,698	43,698	43,698	45,981	45,981	89,679	89,679	102,839	102,839	102,839	102,839	102,839	102,839	102,839	102,839	\$713,294

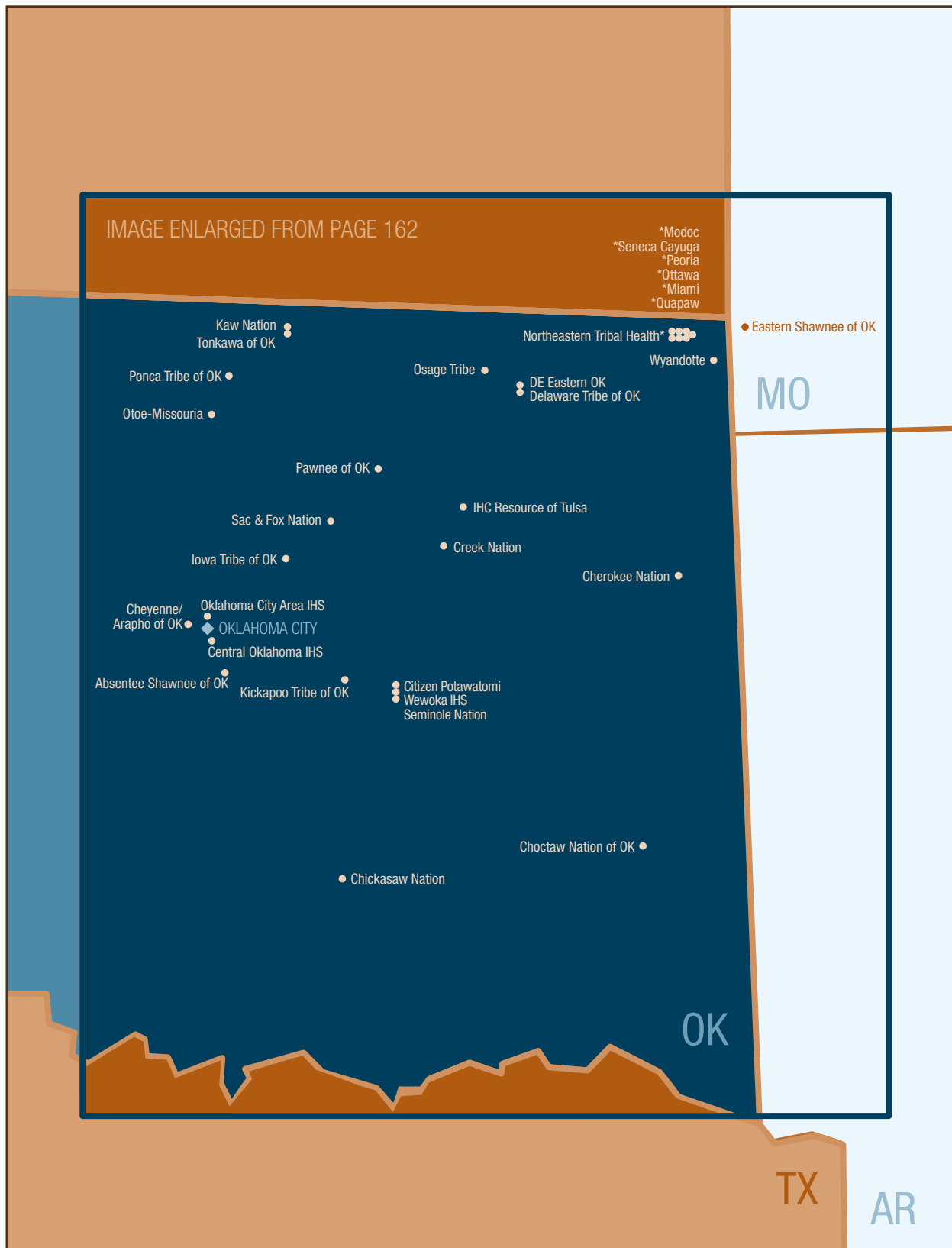
<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001  
\* Indicates that program receives funds indirectly through the program with this grant number

# SPECIAL DIABETES PROGRAM FOR INDIANS

## COMMUNITY-DIRECTED DIABETES PROGRAMS: OKLAHOMA AREA IHS (PART 2)



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Oklahoma Area IHS (Part 2)**

Grant IT/UT <sup>1</sup> Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL	
		Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>							
T 183	Absentee Shawnee of OK	109,268	109,268	108,260	108,260	149,851	258,111	108,280	153,635	261,895	295,985	295,985	295,985	295,985	295,985	295,985	295,985	295,985	295,985	\$1,996,682	
I 143	Central Oklahoma IHS	105,711	105,711	104,703	104,703	241,217	345,920	104,703	246,288	350,991	396,679	396,679	396,679	396,679	396,679	396,679	396,679	396,679	396,679	\$2,554,064	
T 039	Cherokee Nation	1,381,059	1,381,059	1,380,051	1,380,051	3,942,065	5,322,116	1,380,051	4,020,083	5,400,134	6,103,057	6,103,057	6,103,057	6,103,057	6,103,057	6,103,057	6,103,057	6,103,057	6,103,057	\$38,573,721	
T 287	Cheyenne/Arapaho of OK	159,830	159,830	158,822	158,822	383,649	542,471	158,822	391,601	550,423	472,071	522,071	522,071	522,071	522,071	522,071	522,071	522,071	522,071	\$3,488,012	
T 044	Chickasaw Nation	203,090	203,090	202,082	202,082	532,694	734,776	202,082	543,465	745,547	842,594	842,594	842,594	842,594	842,594	842,594	842,594	842,594	842,594	\$5,361,914	
T 117	Choctaw Nation of OK	547,434	547,434	546,426	546,426	1,604,053	2,150,479	546,426	1,635,577	2,182,003	2,466,031	2,466,031	2,466,031	2,466,031	2,466,031	2,466,031	2,466,031	2,466,031	2,466,031	\$15,563,872	
T 115	Citizen Potawatomi	146,524	146,524	145,516	145,516	401,022	546,538	145,516	409,034	554,550	626,735	626,735	626,735	626,735	626,735	626,735	626,735	626,735	626,735	\$3,974,407	
T 040	Creek Nation	382,262	382,262	381,254	381,254	1,045,232	1,426,486	381,254	1,066,144	1,447,398	1,635,803	1,635,803	1,635,803	1,635,803	1,635,803	1,635,803	1,635,803	1,635,803	1,635,803	\$10,374,469	
I *159	DE Eastern OK																				
T 421	Delaware Tribe of OK																				
T 047	Eastern Shawnee of OK	35,539	35,539	34,532	34,532	16,702	51,234	34,532	51,234	51,234	33,088	33,088	33,088	33,088	33,088	33,088	33,088	33,088	33,088	\$99,264	
T 239	IHC Resource of Tulsa	105,711	105,711	104,703	104,703	241,217	345,920	104,703	246,288	350,991	396,679	396,679	396,679	396,679	396,679	396,679	396,679	396,679	396,679	\$2,008,078	
T 041	Iowa Tribe of OK	36,902	36,902	35,894	35,894	43,365	79,259	35,894	44,527	80,421	90,889	90,889	90,889	90,889	90,889	90,889	90,889	90,889	90,889	\$622,466	
T 042	Kaw Nation	37,545	37,545	36,537	36,537	34,444	70,981	36,537	35,485	72,022	81,397	81,397	81,397	81,397	81,397	81,397	81,397	81,397	81,397	\$570,843	
T 043	Kickapoo Tribe of OK	91,115	91,115	90,107	90,107	193,887	283,994	90,107	196,050	288,157	325,666	325,666	325,666	325,666	325,666	325,666	325,666	325,666	325,666	\$2,109,643	
I 379	Northeastern Tribal Health System	187,965	187,965	186,965	186,965	140,207	438,503	302,671	302,671	302,671	342,070	342,070	342,070	342,070	342,070	342,070	342,070	342,070	342,070	\$2,632,950	
I *379	Miami																				
I *379	Modoc																				
I *379	Ottawa																				
I *379	Peoria																				
I *379	Quapaw																				
I *379	Seneca Cayuga																				
I 394	Oklahoma City Area IHS							88,010	88,010	88,010	99,462	99,462	99,462	99,462	99,462	99,462	99,462	99,462	99,462	\$474,406	
T 159	Osage Tribe	93,622	93,622	92,614	92,614	308,311	308,311	312,832	29,277	342,109	320,465	320,465	320,465	320,465	320,465	320,465	320,465	320,465	320,465	\$2,204,505	
T 046	Otoe-Missouria	51,995	51,995	50,987	50,987	66,641	117,628	50,987	68,365	119,352	134,888	134,888	134,888	134,888	134,888	134,888	134,888	134,888	134,888	\$915,973	
T 050	Pawnee of OK	58,937	58,937	57,929	57,929	83,042	140,971	57,929	85,109	143,038	161,657	161,657	161,657	161,657	161,657	161,657	161,657	161,657	161,657	\$1,087,821	
T 142	Ponca Tribe of OK	78,786	78,786	77,779	77,779	139,890	217,669	77,779	143,081	220,860	249,609	249,609	249,609	249,609	249,609	249,609	249,609	249,609	249,609	\$1,643,567	
T 238	Sac & Fox Nation	111,505	111,505	110,497	110,497	297,857	408,354	110,497	303,843	414,340	468,274	468,274	468,274	468,274	468,274	468,274	468,274	468,274	468,274	\$2,975,363	
T 378	Seminole Nation						98,222	98,222		98,222											\$98,222
T 048	Tonkawa of OK	33,097	33,097	32,089	32,089	12,778	44,867	32,089	13,436	45,525	51,451	51,451	51,451	51,451	51,451	51,451	51,451	51,451	51,451	\$388,553	
T 141	Wewoka IHS	99,227	99,227	98,222	98,222			98,222	225,904	324,126	366,317	366,317	366,317	366,317	366,317	366,317	366,317	366,317	366,317	\$2,043,879	
T 113	Wyandotte	34,344	34,344	33,336	33,336	10,732	44,068	33,336	11,378	44,714	109,286	109,286	109,286	109,286	109,286	109,286	109,286	109,286	109,286	\$615,363	
	<b>TOTAL</b>	<b>\$4,787,735</b>	<b>\$4,787,735</b>	<b>\$4,754,486</b>	<b>\$4,754,486</b>		<b>\$15,899,979</b>			<b>\$16,615,789</b>	<b>\$17,950,277</b>	<b>\$18,908,010</b>	<b>\$18,908,010</b>	<b>\$18,908,010</b>	<b>\$18,908,010</b>	<b>\$18,908,010</b>	<b>\$18,908,010</b>	<b>\$18,908,010</b>	<b>\$18,908,010</b>	<b>\$18,908,010</b>	<b>\$118,729,199</b>

<sup>1</sup> I = IHS, T = Tribal, U = Urban

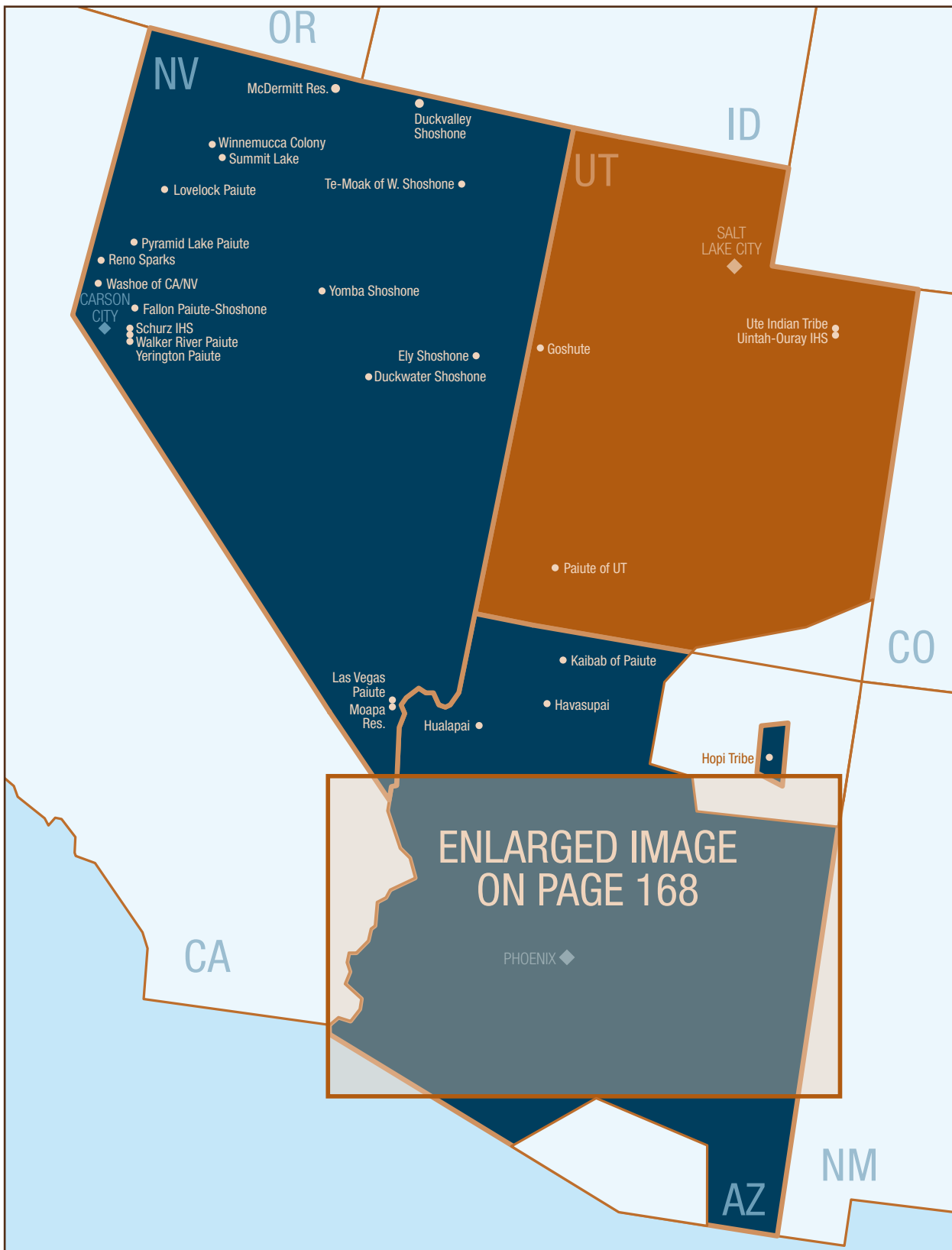
<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

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<sup>4</sup> Indicates that program receives funds indirectly through the program with this grant number

# SPECIAL DIABETES PROGRAM FOR INDIANS

## COMMUNITY-DIRECTED DIABETES PROGRAMS: PHOENIX AREA IHS (PART 1)





**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Phoenix Area IHS (Part 1)**

Grant IT/UT <sup>1</sup>	Grant Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL
			Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>						
T	008	Duckvalley Shoshone	59,217	59,217	59,217	59,217	138,126	197,343	197,343	137,412	196,322	196,322	234,193	234,193	234,193	234,193	234,193	234,193	234,193	234,193	\$1,470,217
T	110	Duckwater Shoshone	19,422	19,422	19,422	19,422	67,636	87,058	87,058	67,286	86,608	86,608	97,921	97,921	97,921	97,921	97,921	97,921	97,921	97,921	\$612,303
T	246	Ely Shoshone	23,051	23,051	23,051	23,051	77,249	100,300	100,300	76,849	99,781	99,781	114,677	114,677	114,677	114,677	114,677	114,677	114,677	114,677	\$713,046
T	150	Fallon Paiute-Shoshone	53,728	53,728	53,728	53,728	133,216	186,944	186,944	132,527	185,977	185,977	225,108	225,108	225,108	225,108	225,108	225,108	225,108	225,108	\$1,395,406
T	096	Goshute	18,263	18,263	18,263	18,263	71,306	89,569	89,569	70,937	89,106	89,106	108,620	108,620	108,620	108,620	108,620	108,620	108,620	108,620	\$648,430
T	151	Havasupai	28,966	28,966	28,966	28,966	85,569	114,535	114,535	85,126	113,943	113,943	130,222	130,222	130,222	130,222	130,222	130,222	130,222	130,222	\$819,985
T	309	Hopi Tribe	204,127	204,127	204,127	204,127	404,165	608,292	608,292	402,075	605,146	605,146	674,906	674,906	674,906	674,906	674,906	674,906	674,906	674,906	\$4,455,683
T	010	Hualapai	68,152	68,152	68,152	68,152	156,833	224,985	224,985	156,022	223,821	223,821	273,055	273,055	273,055	273,055	273,055	273,055	273,055	273,055	\$1,696,248
T	152	Kaibab of Paiute	16,860	16,860	16,860	16,860	66,241	83,101	83,101	65,898	82,671	82,671	99,132	99,132	99,132	99,132	99,132	99,132	99,132	99,132	\$596,419
T	011	Las Vegas Paiute	58,451	58,451	58,451	58,451	175,736	234,187	234,187	174,827	232,976	232,976	301,831	301,831	301,831	301,831	301,831	301,831	301,831	301,831	\$1,780,985
T	*011	Moapa Res.																			
T	203	Lovelock Paiute	21,526	21,526	21,526	21,526	70,769	92,315	92,315	70,423	91,838	91,838	105,289	105,289	105,289	105,289	105,289	105,289	105,289	105,289	\$656,436
T	355	Paiute of UT	30,339	30,339	30,339	30,339	80,143	110,482	110,482	79,729	109,911	109,911	167,672	167,672	167,672	167,672	167,672	167,672	167,672	167,672	\$924,337
T	252	Pyramid Lake Paiute	57,723	57,723	57,723	57,723	146,859	204,582	204,582	146,099	203,524	203,524	254,482	254,482	254,482	254,482	254,482	254,482	254,482	254,482	\$1,548,245
T	012	Reno Sparks	109,289	109,289	109,289	109,289	230,991	340,280	340,280	229,796	338,520	338,520	418,715	418,715	418,715	418,715	418,715	418,715	418,715	418,715	\$2,601,332
I	093	Schurz IHS	67,535	67,535	67,535	67,535	218,311	285,946	285,946	217,180	284,365	284,365	319,502	319,502	319,502	319,502	319,502	319,502	319,502	319,502	\$2,015,687
I	*093	McDermitt Res.																			
I	*093	Summit Lake																			
I	*093	Winnemucca Colony																			
T	177	Te-Moak of W. Shoshone	71,628	71,628	71,628	71,628	157,970	229,598	229,598	157,153	228,411	228,411	266,191	266,191	266,191	266,191	266,191	266,191	266,191	266,191	\$1,699,877
I	147	Uintah-Ourey IHS	152,740	152,740	152,740	152,740	326,741	479,481	479,481	265,733	477,002	477,002	89,341	89,341	89,341	89,341	89,341	89,341	89,341	89,341	\$1,757,816
T	420	Ute Indian Tribe	44,915	44,915	44,915	44,915	111,873	156,788	156,788	111,294	155,977	155,977	176,656	176,656	176,656	176,656	176,656	176,656	176,656	176,656	\$1,850,048
T	094	Walker River Paiute	79,587	79,587	79,587	79,587	174,352	253,939	253,939	173,450	252,626	252,626	305,962	305,962	305,962	305,962	305,962	305,962	305,962	305,962	\$1,133,455
T	175	Washoe of CA/NV	31,254	31,254	31,254	31,254	91,925	123,179	123,179	91,450	122,542	122,542	145,262	145,262	145,262	145,262	145,262	145,262	145,262	145,262	\$897,811
T	199	Yerington Paiute	18,019	18,019	18,019	18,019	64,071	82,090	82,090	63,740	81,665	81,665	93,580	93,580	93,580	93,580	93,580	93,580	93,580	93,580	\$580,217
T	015	Yomba Shoshone	18,019	18,019	18,019	18,019	64,071	82,090	82,090	63,740	81,665	81,665	93,580	93,580	93,580	93,580	93,580	93,580	93,580	93,580	\$580,217

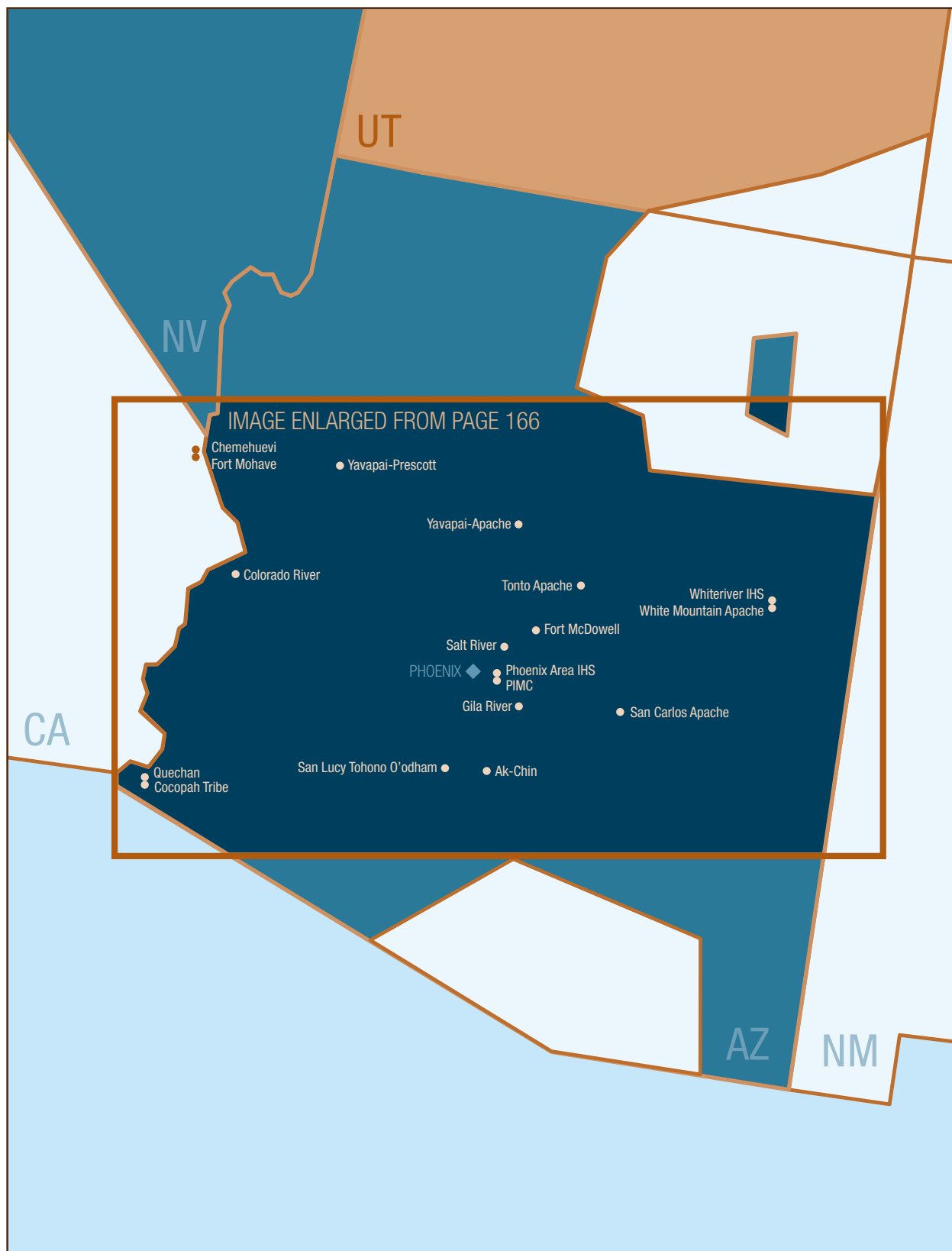
<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

\* Indicates that program receives funds indirectly through the program with this grant number

**SPECIAL DIABETES PROGRAM FOR INDIANS**  
**COMMUNITY-DIRECTED DIABETES PROGRAMS:**  
**PHOENIX AREA IHS (PART 2)**



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Phoenix Area IHS (Part 2)**

Grant IT/UT <sup>1</sup>	Grant Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL	
			Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>							
T	402	Ak-Chin																				
T	307	Chemehuevi	21,312	21,312	21,312	21,312	69,859	91,171	91,171	91,171	91,171	91,171	91,171	91,171	91,171	91,171	91,171	91,171	91,171	91,171	91,171	\$682,597
T	007	Cocopah Tribe	33,785	33,785	33,785	33,785	91,718	125,503	125,503	125,503	125,503	125,503	125,503	125,503	125,503	125,503	125,503	125,503	125,503	125,503	125,503	\$657,823
T	247	Colorado River	123,774	123,774	123,774	123,774	264,582	388,356	388,356	388,356	388,356	388,356	388,356	388,356	388,356	388,356	388,356	388,356	388,356	388,356	388,356	\$912,655
T	164	Fort McDowell	35,126	35,126	35,126	35,126	107,067	142,193	142,193	142,193	142,193	142,193	142,193	142,193	142,193	142,193	142,193	142,193	142,193	142,193	142,193	\$2,917,219
T	358	Fort Mohave	37,993	37,993	37,993	37,993	110,116	148,109	148,109	148,109	148,109	148,109	148,109	148,109	148,109	148,109	148,109	148,109	148,109	148,109	148,109	\$1,079,835
T	009	Gila River	585,365	585,365	585,365	585,365	1,133,334	1,718,700	1,718,700	1,718,700	1,718,700	1,718,700	1,718,700	1,718,700	1,718,700	1,718,700	1,718,700	1,718,700	1,718,700	1,718,700	1,718,700	\$11,133,377
I	186	Phoenix Area IHS	116,152	116,152	116,152	116,152	172,002	254,905	254,905	254,905	254,905	254,905	254,905	254,905	254,905	254,905	254,905	254,905	254,905	254,905	254,905	\$12,533,671
I	171	PIMC	492,524	492,524	492,524	492,524	508,186	1,000,710	1,000,710	1,000,710	1,000,710	1,000,710	1,000,710	1,000,710	1,000,710	1,000,710	1,000,710	1,000,710	1,000,710	1,000,710	1,000,710	\$968,006
T	359	Quechan	99,836	99,836	99,836	99,836	219,519	319,355	319,355	319,355	319,355	319,355	319,355	319,355	319,355	319,355	319,355	319,355	319,355	319,355	319,355	\$7,987,926
T	311	Salt River	150,705	150,705	150,705	150,705	335,222	485,927	485,927	485,927	485,927	485,927	485,927	485,927	485,927	485,927	485,927	485,927	485,927	485,927	485,927	\$2,426,228
T	013	San Carlos Apache	337,601	337,601	337,601	337,601	666,691	1,004,292	1,004,292	1,004,292	1,004,292	1,004,292	1,004,292	1,004,292	1,004,292	1,004,292	1,004,292	1,004,292	1,004,292	1,004,292	1,004,292	\$3,518,048
T	095	San Lucy Tohono O'odham	16,863	16,863	16,863	16,863	28,010	44,873	44,873	44,873	44,873	44,873	44,873	44,873	44,873	44,873	44,873	44,873	44,873	44,873	44,873	\$7,649,533
T	176	Tonto Apache	18,812	18,812	18,812	18,812	62,830	81,642	81,642	81,642	81,642	81,642	81,642	81,642	81,642	81,642	81,642	81,642	81,642	81,642	81,642	\$760,180
T	014	White Mountain Apache	436,647	436,647	436,647	436,647	830,563	1,267,210	1,267,210	1,267,210	1,267,210	1,267,210	1,267,210	1,267,210	1,267,210	1,267,210	1,267,210	1,267,210	1,267,210	1,267,210	1,267,210	\$588,224
I	405	Whiteriver IHS						545,924	545,924	545,924	545,924	545,924	545,924	545,924	545,924	545,924	545,924	545,924	545,924	545,924	545,924	\$545,924
T	200	Yavapai-Apache	31,589	31,589	31,589	31,589	91,150	122,739	122,739	122,739	122,739	122,739	122,739	122,739	122,739	122,739	122,739	122,739	122,739	122,739	122,739	\$909,008
T	092	Yavapai-PreScott	25,917	25,917	25,917	25,917	77,300	103,217	103,217	103,217	103,217	103,217	103,217	103,217	103,217	103,217	103,217	103,217	103,217	103,217	103,217	\$747,930
		<b>TOTAL</b>	<b>\$3,798,793</b>	<b>\$3,798,793</b>	<b>\$3,765,544</b>	<b>\$3,765,544</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$11,583,796</b>	<b>\$87,017,115</b>

<sup>1</sup> I = IHS, T = Tribal, U = Urban

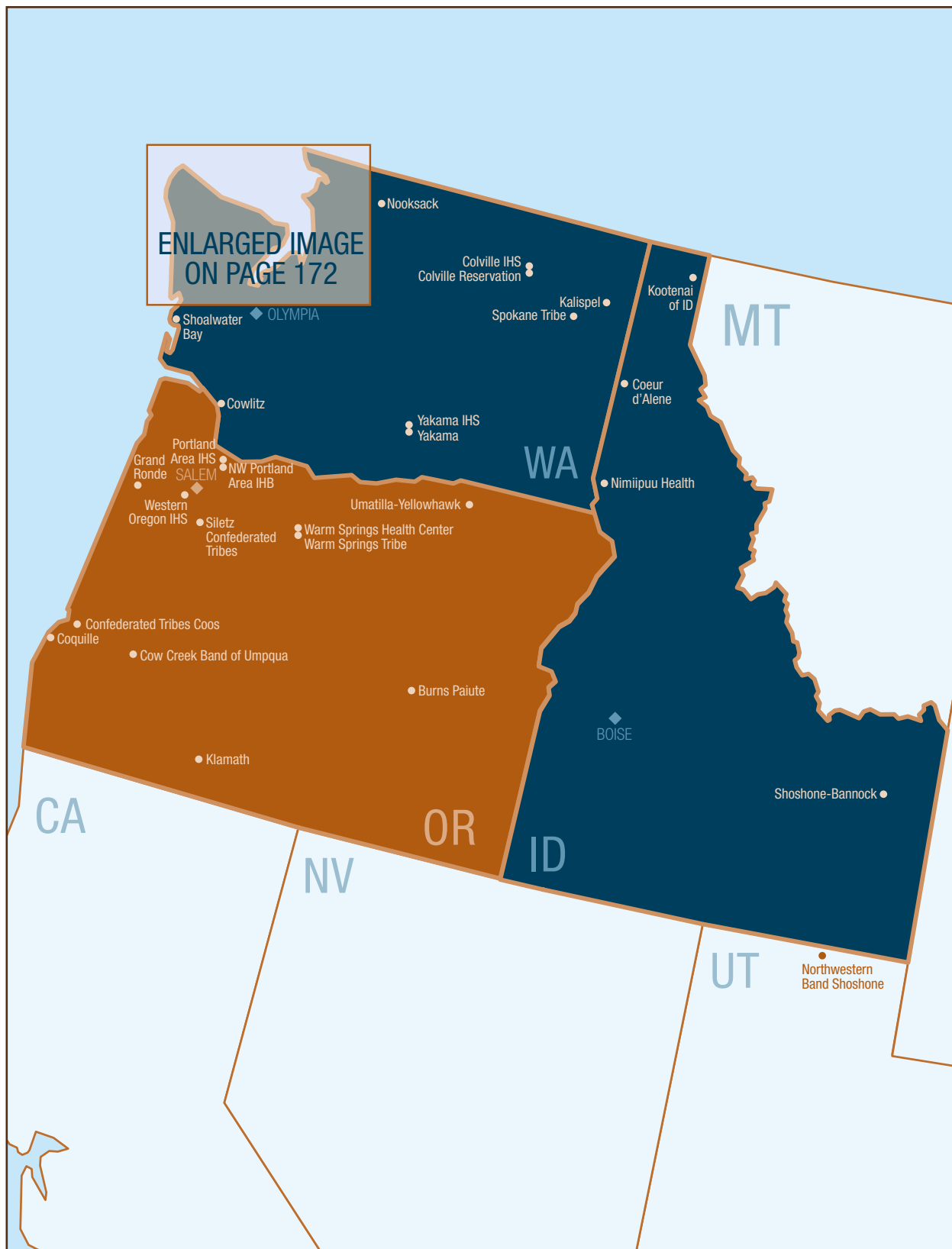
<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

\* Indicates that program receives funds indirectly through the program with this grant number

# SPECIAL DIABETES PROGRAM FOR INDIANS

## COMMUNITY-DIRECTED DIABETES PROGRAMS: PORTLAND AREA IHS (PART 1)



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Portland Area IHS (Part 1)**

Grant IT/UT <sup>1</sup>	Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL
			Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>						
T	184	Burns Paiute	13,295	13,295	13,295	13,295	13,295	13,295	13,451	26,746	26,746	28,774	28,774	28,445	28,774	28,774	28,774	28,445	28,445	\$205,960	
T	173	Coeur d'Alene	48,986	48,986	48,986	48,986	48,986	48,986	119,208	168,194	168,194	194,915	194,915	196,563	194,915	194,915	194,915	196,563	196,563	\$1,235,618	
I	198	Colville IHS	95,140	95,140	95,140	95,140	95,140	275,461	280,916	376,056	376,056	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	\$1,708,133	
I	430	Colville Reservation										336,646	336,646	335,895	336,646	336,646	336,646	335,895	335,895	\$1,009,187	
T	339	Confederated Tribes Coos	17,377	17,377	17,377	17,377	17,377	17,377	17,663	35,040	35,040	41,389	41,389	39,974	41,389	41,389	41,389	39,974	39,974	\$279,717	
T	072	Coquille	17,716	17,716	17,716	17,716	17,716	31,678	32,305	50,021	50,021	56,651	56,651	56,068	56,651	56,651	56,651	56,068	56,068	\$371,954	
T	180	Cow Creek Band of Umpqua	20,296	20,296	20,296	20,296	20,296	35,233	35,931	56,227	56,227	67,963	67,963	69,717	67,963	67,963	67,963	69,717	69,717	\$434,514	
T	423	Cowlitz										20,000	20,000	50,000	20,000	20,000	20,000	50,000	50,000	\$90,000	
T	073	Grand Ronde	61,026	61,026	61,026	61,026	61,026	98,872	100,830	161,856	161,856	182,687	182,687	180,590	182,687	182,687	182,687	180,590	180,590	\$1,212,652	
T	153	Kallispel	12,942	12,942	12,942	12,942	12,942	12,942	13,099	26,041	26,041	27,906	27,906	28,289	27,906	27,906	27,906	28,289	28,289	\$200,893	
T	273	Klamath	36,069	36,069	36,069	36,069	36,069	77,225	78,754	114,823	114,823	132,413	132,413	134,276	132,413	132,413	132,413	134,276	134,276	\$850,249	
T	090	Kootenai of ID	12,116	12,116	12,116	12,116	12,116	12,116	12,228	24,344	24,344	25,595	25,595	25,782	25,595	25,595	25,595	25,782	25,782	\$186,240	
T	097	Nimipuu Health	50,715	50,715	50,715	50,715	50,715	126,256	128,756	179,471	179,471	204,875	204,875	205,662	204,875	204,875	204,875	205,662	205,662	\$1,303,470	
T	074	Nooksack	21,812	21,812	21,812	21,812	21,812	26,891	27,424	49,236	49,236	55,852	55,852	55,981	55,852	55,852	55,852	55,981	55,981	\$380,296	
T	160	Northwestern Band Shoshone	13,231	13,231	13,231	13,231	13,231	13,231	13,265	26,496	26,496	27,325	27,325	26,848	27,325	27,325	27,325	26,848	26,848	\$200,645	
T	389	NW Portland Area IHB						195,888	148,893	231,798	231,798	286,727	286,727	256,727	286,727	286,727	286,727	256,727	256,727	\$1,489,665	
I	084	Portland Area IHS	116,154	127,768	82,905	114,966															\$441,793
T	341	Shoalwater Bay	14,045	14,045	14,045	14,045	14,045	14,045	14,288	28,333	28,333	31,315	31,315	31,343	31,315	31,315	31,315	31,343	31,343	\$220,864	
T	179	Shoshone-Bannock	79,655	79,655	79,655	79,655	79,655	206,578	210,669	290,324	290,324	333,421	333,421	331,464	333,421	333,421	333,421	331,464	331,464	\$2,104,152	
T	174	Siletz Confederated Tribes	78,490	78,490	78,490	78,490	78,490	171,803	175,205	263,695	263,695	287,091	287,091	289,761	287,091	287,091	287,091	289,761	289,761	\$1,857,096	
T	315	Spokane Tribe	42,484	42,484	42,484	42,484	42,484	73,811	75,273	117,757	117,757	132,579	132,579	130,197	132,579	132,579	132,579	130,197	130,197	\$874,616	
T	316	Umatilla-Yellowhawk	44,639	44,639	44,639	44,639	44,639	98,731	100,686	145,325	145,325	165,593	165,593	164,658	165,593	165,593	165,593	164,658	164,658	\$1,063,781	
T	197	Warm Springs Health Center	64,684	64,684	64,684	64,684	64,684	174,444	177,899	242,583	242,583	88,145	88,145	88,145	88,145	88,145	88,145	88,145	88,145	\$1,182,781	
T	429	Warm Springs Tribe										194,212	194,212	192,999	194,212	194,212	194,212	192,999	192,999	\$581,423	
I	387	Western Oregon IHS						40,000	41,927	41,927	41,927	60,508	60,508	61,443	60,508	60,508	60,508	61,443	61,443	\$306,313	
T	286	Yakama	151,717	151,717	151,717	151,717	151,717	411,819	399,975	563,536	563,536	659,292	659,292	656,432	659,292	659,292	659,292	656,432	656,432	\$4,117,087	
I	399	Yakama IHS								20,000	20,000									\$20,000	

<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

# **SPECIAL DIABETES PROGRAM FOR INDIANS**

## **COMMUNITY-DIRECTED DIABETES PROGRAMS: PORTLAND AREA IHS (PART 2)**



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Portland Area IHS (Part 2)**

Grant IT/UT <sup>1</sup> Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL
		Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>						
T 356	Chehalis Confederated Tribes	20,046	20,046	20,046	20,046	36,641	56,687	20,046	37,367	57,413	65,449	65,449	65,449	64,363						\$426,912
T 098	Hoh	11,614	11,614	11,614	11,614		11,164													\$33,942
T 236	Jamestown SKlallam	14,809	14,809	14,809	14,809	14,809	29,618	14,809	14,969	29,778	33,071	33,071	33,071	32,950						\$232,693
T 285	Lower Elwha Klallam	22,589	22,589	22,589	22,589	29,461	52,050	22,589	30,044	52,633	58,427	58,427	58,427	58,321						\$400,258
T 335	Lummi	59,998	59,998	59,998	59,998	162,862	222,860	59,998	166,087	226,085	255,403	255,403	255,403	257,309						\$1,623,139
T 237	Makah	29,542	29,542	29,542	29,542	65,821	95,363	29,542	67,125	96,667	110,505	110,505	110,505	110,235						\$708,568
T 149	Muckleshoot	42,384	42,384	42,384	42,384	103,800	146,184	42,384	105,856	148,240	171,513	171,513	171,513	170,858						\$1,083,700
T 352	Nisqually	24,193	24,193	24,193	24,193	28,616	52,809	24,193	29,183	53,376	60,724	60,724	60,724	61,467						\$415,055
T 328	Port Gamble SKlallam	20,960	20,960	20,960	20,960	36,817	57,777	20,960	37,546	58,506	67,371	67,371	67,371	68,007						\$440,418
T 251	Puyallup	92,509	92,509	92,509	92,509	255,574	348,083	92,509	260,636	353,145	411,086	411,086	411,086	409,812						\$2,563,884
T 321	Quileute	17,515	17,515	17,515	17,515	18,057	35,572	35,930	22,373	58,303	62,935	62,935	62,935	62,948						\$371,168
T 340	Quinault	42,108	42,108	42,108	42,108	86,200	128,308	42,108	87,907	130,015	147,671	147,671	147,671	147,917						\$957,921
T 371	Samish	12,304	12,304	12,304	12,304	12,304	24,608	12,353	12,353	24,706	27,118	27,118	27,118	27,398						\$192,566
T 357	Sauk-Suiattle	12,992	12,992	12,992	12,992	12,992	25,984	12,992	13,097	26,089	27,303	27,303	27,303	27,245						\$198,989
T 313	Skokomish	21,800	21,800	21,800	21,800	35,128	56,928	21,800	35,824	57,624	63,477	63,477	63,477	63,805						\$428,335
T 400	Snoqualmie																			\$115,017
T 178	Squaxin Island	20,447	20,447	20,447	20,447	24,639	24,639	20,447	25,127	45,574	50,547	50,547	50,547	49,824						\$328,046
T 075	Stllagamish	12,667	12,667	12,667	12,667	12,667	25,334	12,667	12,780	25,447	26,483	26,483	26,483	26,229						\$193,424
T 334	Suquamish	16,300	16,300	16,300	16,300	16,300	32,600	16,300	16,493	32,793	39,039	39,039	39,039	36,056						\$260,220
T 076	Swinomish	20,535	20,535	20,535	20,535	32,734	53,269	20,535	33,382	53,917	61,709	61,709	61,709	60,923						\$407,049
T 324	Tulalip Tribes	48,685	48,685	48,685	48,685	117,421	166,106	48,685	119,746	168,431	193,198	193,198	193,198	196,271						\$1,231,690
T 077	Upper Skagit	15,586	15,586	15,586	15,586		15,586	15,586	17,697	33,283	36,324	36,324	36,324	36,948						\$238,506
	<b>TOTAL</b>	<b>\$1,592,172</b>	<b>\$1,592,172</b>	<b>\$1,558,473</b>	<b>\$1,558,473</b>		<b>\$4,917,519</b>			<b>\$4,950,035</b>	<b>\$5,734,543</b>	<b>\$5,734,543</b>	<b>\$5,734,543</b>	<b>\$5,728,734</b>						<b>\$36,780,599</b>

<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

**SPECIAL DIABETES PROGRAM FOR INDIANS**  
COMMUNITY-DIRECTED DIABETES PROGRAMS:  
TUCSON AREA IHS





**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Tucson Area IHS**

Grant I/T/U <sup>1</sup>	Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL
			Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>				
T	023	Pasqua Yaqui of AZ	116,822	137,590	152,413	152,413	319,892	472,305	152,413	330,483	482,896	480,563	609,419	609,419	609,419	609,419	609,419	609,419	609,419	609,419	\$3,670,846
T	022	Tohono O'odham	652,720	536,566	583,880	583,880	1,225,475	1,809,355	583,880	1,266,055	1,849,935	1,852,268	1,929,827	1,929,827	1,929,827	1,929,827	1,929,827	1,929,827	1,929,827	1,929,827	\$13,074,205
<b>TOTAL</b>			<b>\$769,542</b>	<b>\$674,156</b>	<b>\$736,293</b>	<b>\$2,281,660</b>	<b>\$2,281,660</b>	<b>\$2,281,660</b>	<b>\$2,281,660</b>	<b>\$2,332,831</b>	<b>\$2,332,831</b>	<b>\$2,332,831</b>	<b>\$2,539,246</b>	<b>\$2,539,246</b>	<b>\$2,539,246</b>	<b>\$2,539,246</b>	<b>\$2,539,246</b>	<b>\$2,539,246</b>	<b>\$2,539,246</b>	<b>\$2,539,246</b>	<b>\$16,745,051</b>

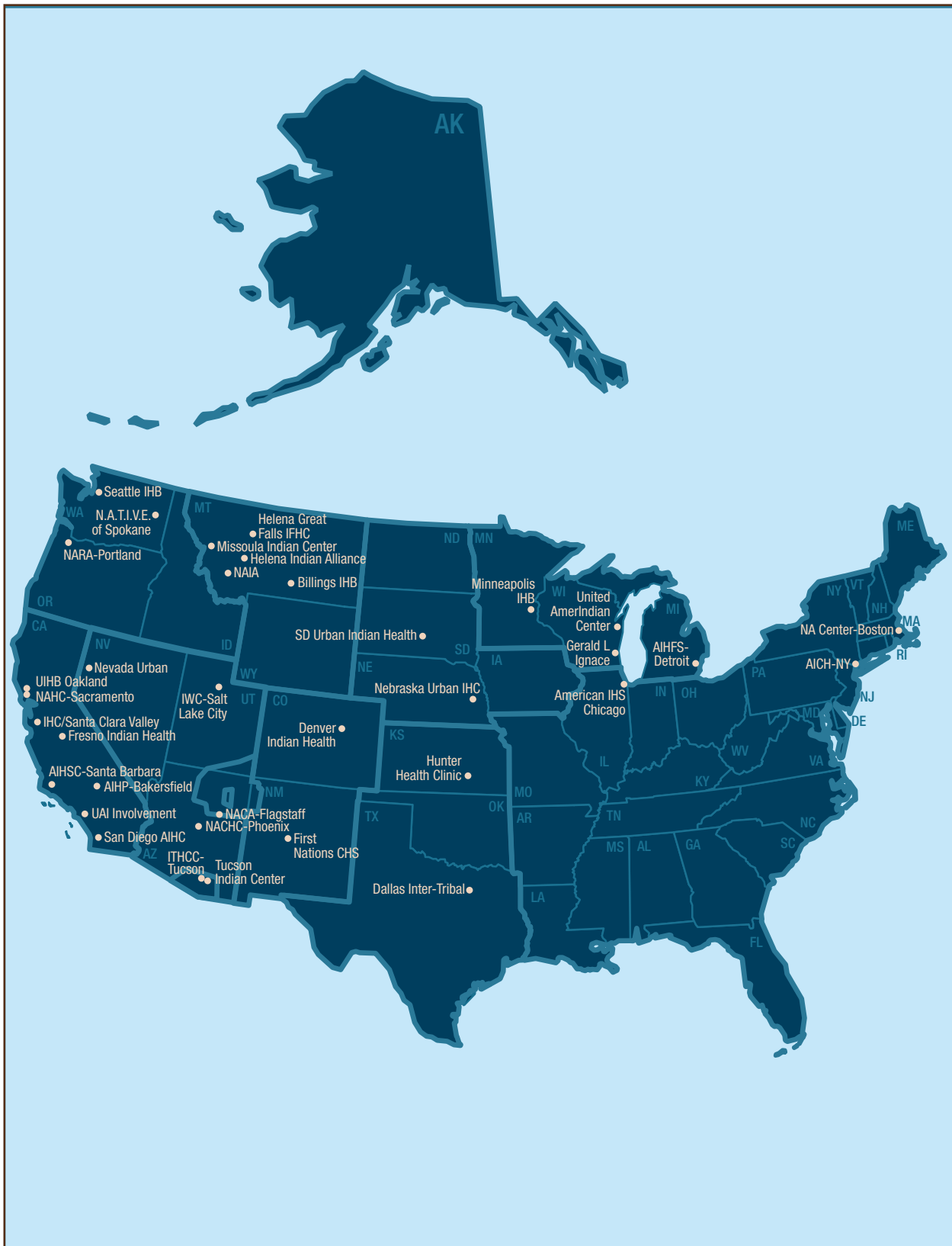
<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001

# SPECIAL DIABETES PROGRAM FOR INDIANS

## COMMUNITY-DIRECTED DIABETES PROGRAMS: URBAN



**Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
Urban Programs**

Grant IT/U <sup>1</sup> Number	Program Name	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		GRAND TOTAL
		Yr 1 BBA <sup>2</sup>	Yr 2 BBA <sup>2</sup>	Yr 3 BBA <sup>2</sup>	Yr 4 BBA <sup>2</sup>	Yr 4 CAA <sup>3</sup>	TOTAL	Yr 5 BBA <sup>2</sup>	Yr 5 CAA <sup>3</sup>	TOTAL	Yr 6 CAA <sup>3</sup>	Yr 7 CAA <sup>3</sup>	Yr 8 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>	Yr 9 CAA <sup>3</sup>					
U 322	AICH - NY	46,875	45,454	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103	156,323	143,012	143,012	143,012	143,012	143,012	143,012	143,012	\$881,267
U 289	AIHFS - Detroit	46,875	45,455	44,953	43,631	123,570	167,201	43,631	91,638	135,269	132,837	201,393	228,943	228,943	228,943	228,943	228,943	228,943	228,943	\$1,231,869
U 398	AIHP - Bakersfield	46,875	45,454	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103	156,323	144,711	144,711	144,711	144,711	144,711	144,711	144,711	\$639,712
U 310	AIHSC - Santa Barbara	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	224,188	224,188	224,188	224,188	224,188	224,187	224,187	\$1,327,726
U 288	American IHS Chicago	46,875	45,455	44,953	43,631	123,570	167,201	43,631	91,638	135,269	132,837	201,393	226,282	226,282	226,282	226,282	226,282	226,282	226,282	\$1,226,547
U 282	Billings IHB	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	237,292	237,292	237,292	237,292	237,292	237,292	237,292	\$1,353,935
U 395	Billings Indian Health Board					31,080	31,080		14,940	14,940	14,957									\$60,977
U 264	Dallas Inter-Tribal	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	259,927	259,927	259,927	259,927	259,927	259,927	259,927	\$1,399,204
U 089	Denver Indian Health	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	234,077	234,077	234,077	234,077	234,077	234,077	234,077	\$1,347,505
U 319	First Nations CHS	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	230,375	230,375	230,375	230,375	230,375	230,375	230,375	\$1,340,100
U 422	Fresno Indian Health	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	103,103	156,323	185,303	185,303	185,303	185,303	185,303	185,303	185,303	\$787,314
U 360	Gerald L. Ignace	46,875	45,454	44,973	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	231,775	231,775	231,775	231,775	231,775	231,775	231,775	\$1,296,045
U 397	Helena Great Falls IFHC	46,875	45,455	44,953	43,631	123,570	167,201	43,631	91,638	135,269	162,570	246,482	228,671	228,671	228,671	228,671	228,671	228,671	228,671	\$987,046
U 317	Helena Indian Alliance	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	228,671	228,671	228,671	228,671	228,671	228,671	228,671	\$1,306,147
U 244	Hunter Health Clinic	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	235,530	235,530	235,530	235,530	235,530	235,530	235,530	\$1,350,410
U 312	IHC/Santa Clara Valley	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	233,671	233,671	233,671	233,671	233,671	233,671	233,671	\$1,346,692
U 314	ITHCC - Tucson	46,875	45,454	44,953	43,631	50,181	93,812	43,631	61,092	104,723	132,837	201,393	238,747	238,747	238,747	238,747	238,747	238,747	238,747	\$231,094
U 245	IWC - Salt Lake City	46,875	45,454	44,953	43,631	50,181	93,812	43,631	122,184	165,815	162,570	246,482	241,307	241,307	241,307	241,307	241,307	241,307	241,307	\$1,100,666
U 230	Minneapolis IHB	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	241,307	241,307	241,307	241,307	241,307	241,307	241,307	\$1,361,964
U 284	Missoula Indian Center	46,875	45,455	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103	156,323	140,635	140,635	140,635	140,635	140,635	140,635	140,635	\$876,514
U 370	N.A.T.I.V.E of Spokane	46,875	45,454	44,953	43,646	123,570	167,216	43,646	122,184	165,830	162,570	246,482	237,103	237,103	237,103	237,103	237,103	237,103	237,103	\$1,261,257
U 330	NA Center - Boston	46,875	45,454	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103	156,323	142,066	142,066	142,066	142,066	142,066	142,066	142,066	\$879,375
U 331	NACA - Flagstaff	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	237,123	237,123	237,123	237,123	237,123	237,123	237,123	\$1,353,596
U 229	NACHC - Phoenix	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	249,389	249,389	249,389	249,389	249,389	249,389	249,389	\$1,378,128
U 550	NAHC - Sacramento	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	227,519	227,519	227,519	227,519	227,519	227,519	227,519	\$1,334,389
U 295	NAIA	46,875	45,455	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103	156,323	189,111	189,111	189,111	189,111	189,111	189,111	189,111	\$973,466
U 323	NARA - Portland	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	235,815	235,815	235,815	235,815	235,815	235,815	235,815	\$1,350,980
U 083	Nebraska Urban IHC	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	234,519	234,519	234,519	234,519	234,519	234,519	234,519	\$1,348,389
U 351	Nevada Urban	46,875	45,454	44,953	43,631	50,181	93,812	43,631	91,638	135,269	132,837	201,393	201,351	201,351	201,351	201,351	201,351	201,351	201,351	\$1,103,295
U 262	San Diego AIHC	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	229,281	229,281	229,281	229,281	229,281	229,281	229,281	\$1,337,912
U 318	SD Urban Indian Health	46,875	45,455	44,953	43,631	123,570	167,201	43,631	91,638	135,269	132,837	201,393	261,313	261,313	261,313	261,313	261,313	261,313	261,313	\$1,296,609
U 305	Seattle IHB	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570	246,482	249,583	249,583	249,583	249,583	249,583	249,583	249,583	\$1,378,516
U 396	Seattle IHB					125,000	125,000		125,000	125,000	125,000									\$386,500
U 406	Tucson Indian Center					50,181	93,812		61,092	104,723	103,103	156,323	140,763	140,763	140,763	140,763	140,763	140,763	140,763	\$645,675
U 308	UAI Involvement	46,875	45,455	44,953	43,631	123,570	167,201	43,631	61,092	104,723	103,103	156,323	195,404	195,404	195,404	195,404	195,404	195,404	195,404	\$986,051
U 304	UIHB Oakland	46,875	45,455	44,953	43,631	123,570	167,201	87,262	183,276	270,538	265,673	246,482	230,067	230,067	230,067	230,067	230,067	230,067	230,067	\$1,547,311
U 281	United Amerindian Center	46,875	45,455	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103	156,323	185,827	185,827	185,827	185,827	185,827	185,827	185,827	\$966,898
	<b>TOTAL</b>	<b>\$1,453,125</b>	<b>\$1,500,000</b>	<b>\$1,438,516</b>			<b>\$4,772,637</b>			<b>\$4,846,200</b>	<b>\$5,086,572</b>	<b>\$7,343,512</b>	<b>\$7,343,512</b>	<b>\$7,343,512</b>	<b>\$7,343,512</b>	<b>\$7,343,512</b>	<b>\$7,343,512</b>	<b>\$7,343,512</b>	<b>\$7,343,512</b>	<b>\$41,141,081</b>

<sup>1</sup> I = IHS, T = Tribal, U = Urban

<sup>2</sup> BBA = Funding allocated through Balanced Budget Act of 1997

<sup>3</sup> CAA = Funding allocated through Consolidated Appropriations Act of 2001



# APPENDIX 4

## FUNDING AMOUNTS BY STATE FOR THE SPECIAL DIABETES PROGRAM FOR INDIANS COMMUNITY-DIRECTED DIABETES PROGRAMS

Appendix 4  
Funding Amounts for the Special Diabetes Program for Indians Community-Directed Diabetes Programs  
By State

*State	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Alabama	49,655	57,977	44,442	145,675	139,048	139,048	158,046	158,046	186,868	1,078,805
Alaska	2,816,838	2,816,838	2,783,589	8,080,726	8,234,947	8,234,947	8,963,599	8,963,599	8,963,599	59,858,682
Arizona	8,053,715	7,954,066	7,948,202	23,745,397	23,732,140	23,724,030	26,454,606	26,432,594	26,359,794	174,404,544
California	1,542,034	1,993,533	1,897,221	6,173,527	6,619,657	6,701,675	8,345,064	8,307,829	8,307,826	49,888,366
Colorado	193,013	191,593	191,091	635,115	615,878	612,633	740,617	728,212	728,212	4,636,364
Connecticut	86,295	96,035	81,593	258,442	230,542	230,542	289,421	289,421	283,935	1,846,226
Florida	85,185	92,959	95,246	357,426	365,036	365,035	460,020	460,020	411,650	2,692,577
Idaho	191,472	191,472	191,472	653,315	662,333	662,333	758,806	758,806	759,471	4,829,480
Illinois	46,875	45,455	44,953	167,201	135,269	132,837	201,393	226,282	226,282	1,226,547
Iowa	209,051	209,051	209,051	500,586	494,570	494,570	518,266	518,266	518,266	3,671,677
Kansas	235,264	233,843	230,318	570,973	573,081	569,836	706,762	695,810	695,810	4,511,697
Louisiana	75,311	81,900	77,482	263,288	242,690	242,690	306,691	306,691	307,903	1,904,646
Maine	148,324	163,503	139,137	427,043	326,406	326,406	394,075	394,075	429,697	2,748,666
Massachusetts	46,875	45,454	44,953	93,812	104,723	103,103	156,323	142,066	142,066	879,375
Michigan	682,475	685,905	685,403	2,034,153	1,901,989	1,907,019	2,127,177	2,185,587	2,172,877	14,382,585
Minnesota	986,562	974,162	973,660	3,226,951	3,115,755	3,076,738	3,414,978	3,391,743	3,401,552	22,562,101
Mississippi	213,240	231,951	245,580	842,282	915,932	917,492	1,197,948	1,196,498	1,350,679	7,111,602
Missouri	35,539	35,539	34,532	51,234	51,234	51,234	5,535,899	5,558,060	5,582,611	208,078
Montana	1,704,772	1,697,672	1,611,769	4,817,884	4,644,788	4,828,191	5,535,899	5,558,060	5,582,611	35,981,646
Nebraska	431,409	429,989	429,487	1,224,472	1,194,263	1,191,018	1,338,467	1,326,504	1,326,504	8,892,113
Nevada	762,220	760,799	760,298	2,668,261	2,696,401	2,693,969	3,260,762	3,260,720	3,260,720	20,124,150
New Mexico	2,144,107	2,142,687	2,108,929	6,581,040	6,345,059	6,341,814	7,030,445	6,938,492	6,938,491	46,571,064
New York	298,747	313,385	294,744	896,156	979,758	978,138	1,349,829	1,336,518	1,159,580	7,606,855
North Carolina	244,313	266,682	264,784	854,694	1,064,379	1,064,379	1,175,894	1,175,894	1,143,625	7,254,644
North Dakota	899,974	899,974	899,974	2,474,833	2,388,649	2,388,649	2,643,997	2,643,997	2,643,997	17,884,044
Oklahoma	4,528,268	4,528,268	4,500,057	15,392,766	16,104,317	15,666,940	17,430,130	18,387,863	18,387,863	114,916,472
Oregon	516,621	526,814	481,450	1,590,305	1,525,856	1,522,611	2,175,281	2,164,614	2,134,513	12,638,065
Rhode Island	26,513	28,888	27,986	81,482	86,691	86,691	103,452	103,452	114,858	660,013
South Carolina	72,971	79,084	27,260	101,119	92,999	92,999	112,544	112,544	120,669	812,189
South Dakota	1,717,290	1,715,870	1,682,119	5,097,732	4,888,921	4,886,489	5,379,197	5,439,117	5,439,117	36,245,852
Tennessee	201,422	85,230	166,596	167,512	84,609	84,609	84,609	84,609	84,609	1,043,805
Texas	143,805	145,665	143,152	416,136	413,525	410,280	549,500	562,945	589,207	3,374,215
Utah	214,573	260,027	259,526	799,806	807,238	835,352	1,335,063	1,372,417	1,444,740	7,328,742
Washington	964,598	951,563	1,007,179	3,274,055	3,380,183	3,351,305	3,512,577	3,506,299	3,541,903	23,489,662
Wisconsin	728,555	778,399	777,416	2,590,273	2,575,448	2,597,333	2,945,385	2,948,832	2,949,032	18,890,673
Wyoming		239,100	239,100	710,734	687,083	687,083	747,878	747,878	747,878	4,806,734
<b>Total</b>	<b>\$31,297,881</b>	<b>\$31,951,332</b>	<b>\$31,599,751</b>	<b>\$97,966,406</b>	<b>\$98,421,397</b>	<b>\$98,138,784</b>	<b>\$111,904,701</b>	<b>\$112,826,300</b>	<b>\$112,856,404</b>	<b>\$726,962,956</b>

\* Includes funding for Urban programs within each state



## APPENDIX 5 DIABETES-RELATED WEBSITES

Indian Health Service Division of Diabetes Treatment and Prevention	<a href="http://www.ihs.gov/medicalprograms/diabetes">www.ihs.gov/medicalprograms/diabetes</a>
American Diabetes Association	<a href="http://www.diabetes.org">www.diabetes.org</a>
American Academy of Pediatrics	<a href="http://www.aap.org">www.aap.org</a>
American Academy of Pediatrics - Committee on Native American Child Health	<a href="http://www.aap.org/nach">www.aap.org/nach</a>
American Association of Diabetes Educators	<a href="http://www.diabeteseducator.org">www.diabeteseducator.org</a>
American Dietetic Association	<a href="http://www.eatright.org">www.eatright.org</a>
American Indian Higher Education Consortium	<a href="http://www.aihec.org">www.aihec.org</a>
Association of American Indian Physicians	<a href="http://www.aaip.org">www.aaip.org</a>
Association of American Indian Physicians Diabetes Program	<a href="http://www.aaip.org/programs/diabetes/diabetes.htm">www.aaip.org/programs/diabetes/diabetes.htm</a>
Boys and Girls Club	<a href="http://www.bgca.org">www.bgca.org</a>
Centers for Disease Control and Prevention - Division of Diabetes Translation	<a href="http://www.cdc.gov/diabetes">www.cdc.gov/diabetes</a>
Centers for Disease Control and Prevention - Native Diabetes Wellness Program	<a href="http://www.cdc.gov/diabetes/projects/ndpc.htm">www.cdc.gov/diabetes/projects/ndpc.htm</a>
Centers for Medicare and Medicaid Services	<a href="http://www.cms.hhs.gov">www.cms.hhs.gov</a>
Diabetes Prevention Program of the National Institutes of Health	<a href="http://www.diabetes.niddk.nih.gov/dm/pubs/preventionprogram/index.htm">www.diabetes.niddk.nih.gov/dm/pubs/preventionprogram/index.htm</a>
Indian Health Service Head Start	<a href="http://www.ihs.gov/nonmedicalprograms/headstart/index.cfm">www.ihs.gov/nonmedicalprograms/headstart/index.cfm</a>
Improving Chronic Illness Care (Chronic Care Model)	<a href="http://www.improvingchroniccare.org">www.improvingchroniccare.org</a>
Institute of Healthcare Improvement	<a href="http://www.ihl.org">www.ihl.org</a>
Joslin Diabetes Center	<a href="http://www.joslin.org">www.joslin.org</a>
Juvenile Diabetes Research Foundation	<a href="http://www.jdf.org">www.jdf.org</a>
National Congress of American Indians	<a href="http://www.ncai.org">www.ncai.org</a>
National Diabetes Education Program	<a href="http://www.ndep.nih.gov">www.ndep.nih.gov</a>
National Eye Institute	<a href="http://www.nei.nih.gov">www.nei.nih.gov</a>
National Heart, Lung, and Blood Institute	<a href="http://www.nhlbi.nih.gov">www.nhlbi.nih.gov</a>
National Indian Health Board	<a href="http://www.nihb.org">www.nihb.org</a>
National Institutes of Health	<a href="http://www.nih.gov">www.nih.gov</a>
Tribal Leaders Diabetes Committee	<a href="http://www.ihs.gov/medicalprograms/diabetes/tlc/tlc_index.asp">www.ihs.gov/medicalprograms/diabetes/tlc/tlc_index.asp</a>
United States Department of Health and Human Services - Office on Women's Health	<a href="http://www.4women.gov/owh">www.4women.gov/owh</a>
United States Department of Agriculture - Food and Nutrition Service	<a href="http://www.fns.usda.gov/fns">www.fns.usda.gov/fns</a>





## **A1C**

(also known as glycosylated or glycated hemoglobin or as HbA1c). A blood test that provides the best measure of average blood sugar control for the past 2–3 months. The results provide patients with diabetes and their health care team with a good idea of how well their individualized diabetes treatment plans are working.

## **Accountability**

Being responsible to key stakeholders of a program or initiative by planning, implementing, monitoring, evaluating, and reporting results to achieve program goals.

## **Age-adjusted**

Applying age-specific rates in a population of interest to a standardized age distribution. This adjustment is done: (1) to eliminate differences in observed rates that result from age differences in population composition; and (2) usually when comparing two or more populations at one point in time or one population at two or more points in time.

## **Age-specific**

Specific rates that apply only to specific subgroups of the population of interest to measure population change. The most common form of specific rates is age-specific rates.

## **Assessment**

In this Report, the process of observing, describing, collecting, and measuring the quality and effectiveness of an initiative, program, or policy. (Also see “evaluation.”)

## **At risk for diabetes**

A condition characterized by risk factors that affect the body's ability to use blood sugar, putting people at risk for developing health problems that can lead to diabetes. These risk factors include a hereditary predisposition for diabetes or family history that may be compounded further by being a member of certain ethnic groups (e.g., American Indian), a sedentary lifestyle, and obesity. In this Report, people at risk for diabetes generally have blood sugar values within the normal range (i.e., a fasting plasma glucose less than 100 mg/dl, and/or a 2-hour plasma glucose on an oral glucose tolerance test less than 140 mg/dl). People with pre-diabetes are considered **at very high risk** for developing diabetes.

## **Best practice**

In this Report, a consensus-based approach for successful diabetes treatment, prevention, and education practices in American Indian and Alaska Native communities. The *Indian Health Diabetes Best Practices* documents are based on findings from the latest scientific research, outcomes studies, and successful experiences of diabetes programs. These Best Practice documents also provide Indian health system diabetes programs with relevant, evidence-based information on caring for American Indians and Alaska Natives with diabetes or at risk for developing diabetes.

## **Blood sugar level**

The amount of sugar or glucose in the blood that is the source of energy for all the cells in the body.

### **Body mass index (BMI)**

An indirect measure of body fat calculated as the ratio of a person's body weight in kilograms to the square of a person's height in meters.

In children and youth, BMI is based on growth charts for age and gender, referred to as BMI-for-age, and used to assess underweight, overweight, and risk for overweight. According to the Centers for Disease Control and Prevention (CDC), a child with a BMI-for-age that is equal to or greater than the 95th percentile is considered to be *overweight*. A child with a BMI-for-age that is equal to or between the 85th and 95th percentile is considered to be *at risk for becoming overweight*. In this Report, the definition of "childhood obesity" is equivalent to the CDC definition of "overweight."

In adults, BMI is a direct calculation based on height and weight, regardless of gender. It provides a more accurate measure of total body fat than body weight alone. *Overweight* is defined as a BMI of 25 to 29 kg/m<sup>2</sup>, and *obesity* is defined as a BMI greater than 30 kg/m<sup>2</sup>.

### **Chronic condition**

Conditions that are long-lasting and often have no cure. Chronic conditions such as diabetes, heart disease, and cancer are the leading causes of death and disability in the United States. Although chronic conditions are among the most common and costly health problems, they also are among the most preventable. Adopting healthy behaviors such as eating nutritious foods, being physically active, and avoiding tobacco use can prevent or control the devastating effects of these conditions.

### **Collaboration**

A cooperative effort between and among groups of people (e.g., governmental and private entities), through which partners work together toward mutual advantage and to achieve common goals.

### **Commodity foods**

Foods that the Federal Government has the legal authority to purchase and distribute to support farm prices. The United States Department of Agriculture (USDA) purchases food and makes it available to state agencies and Tribal organizations. The USDA also provides funds for administrative costs. Commodity foods do not provide a complete diet for consumers, but are designed to supplement their nutritional needs.

### **Community**

A social entity that can be: (1) spatial, based on where people live in local neighborhoods; (2) as in this Report, on American Indian reservations; or (3) relational, based on common ethnic, cultural, or other characteristics or similar interests.

### **Community-Directed Diabetes Programs**

A diabetes grant program of the *Special Diabetes Program for Indians*. Since 1998, the IHS has provided *Special Diabetes Program for Indians* funds to 333 IHS, Tribal, and Urban Indian health programs in 35 states to begin or enhance diabetes treatment and prevention programs. These grant programs make up the Community-Directed Diabetes Program. Each of the grant programs is unique in its diabetes treatment and prevention needs and priorities. The *Special Diabetes Program for Indians* allows the grant programs to design and carry out diabetes interventions that will best address the problem of diabetes in their local, individual communities.

**Community Health Representative (CHR)**

The Community Health Representatives (CHR) Program is an IHS funded, tribally contracted/ granted and directed program of well-trained, community-based health care providers, who provide health promotion and disease prevention services in their communities.

**Community readiness**

Broadly represents the community's awareness of, interest in, and ability to support policies, programs, and initiatives.

**Cost-benefit analysis**

An evaluation tool used to compare the various costs of a program or initiative with its proposed benefits.

**Cost-effectiveness evaluation**

An analysis used to assess the most efficient method for achieving a program or policy goal. Effectiveness is defined by the degree of achieving a goal and may be measured in dollars.

**Criterion standard**

An established or widely accepted accuracy for determining a diagnosis, providing a standard to which a new screening or diagnostic test can be compared. Criterion standard can also be used in studies of the quality of care to indicate a level of performance to which the performance of individual practitioners or organizations can be compared. "Criterion standard" is the preferred term to "gold standard."

**Cultural competence**

The ability of individuals to consider ethnic, racial, and cultural aspects in all dimensions of their work relative to diabetes and obesity prevention, as well as population health programs and interventions.

**Culture**

The values, norms, beliefs, attitudes, traditions, and customs shared by a group of people who are unified by race, ethnicity, language, faith, nationality, or life experience.

**Demonstration Projects**

A grant program of the *Special Diabetes Program for Indians*. In 2004, Congress directed the IHS to develop and implement a competitive grant program to prevent diabetes in high-risk individuals and to prevent cardiovascular disease—the most compelling complication of diabetes—in people who already have diabetes. Sixty-six American Indian and Alaska Native communities began implementing these demonstration projects, called the "Diabetes Prevention Demonstration Project" and the "Healthy Heart Demonstration Project," at the end of 2004.

**Diabetes**

Diabetes is a disease in which the body does not produce or properly use insulin. Insulin is a hormone that is needed to convert sugar, starches, and other food into energy needed for daily life. For diagnosis, the fasting plasma glucose is greater than 125 mg/dl, or a 2-hour plasma glucose on an oral glucose tolerance test is greater than 199 mg/dl.

**Diabetes Care and Outcomes Audit**

A voluntary, annual, systematic review of a random sample of medical records in each participating Indian health system facility clinical program. The IHS Division of Diabetes Treatment and Prevention uses the *Diabetes Care and Outcomes Audit* to monitor the quality of diabetes care in Indian health programs (including IHS, Tribal, and Urban Indian health programs) on 59 diabetes care measures to track performance and monitor changes over time. Quality diabetes care is defined as having met the *IHS Standards of Care for Diabetes*.

**Diabetes complications**

Damage to organs and systems, such as the eyes, kidneys, nerves, or heart, as a result of high blood sugar levels and other metabolic effects of diabetes.

**Diabetes Prevention Program of the National Institutes of Health**

A clinical trial sponsored by the National Institutes of Health examined whether diet and exercise (i.e., lifestyle intervention) or the diabetes drug metformin could prevent or delay the onset of type 2 diabetes in people with pre-diabetes. The study clearly indicated that modest weight loss, achieved with moderate exercise and a low-fat, low-calorie diet, can prevent type 2 diabetes in individuals at risk for developing the disease. The study ended a year early when researchers found that the people in the lifestyle intervention group had a 58% lower incidence of type 2 diabetes compared to the placebo group. The metformin group had a 31% lower incidence of type 2 diabetes compared to the placebo group.

**Diabetes registry**

A list of people with diabetes in a community. Diabetes registries are part of a systematic approach to diabetes care and help determine whether individuals with diabetes received recommended diabetes services.

**Diabetes standards of care**

A set of guidelines that are intended to provide health care professionals, patients, researchers, and payers with the components of diabetes care, treatment goals, and tools to evaluate the quality of care. The guidelines include diagnostic and therapeutic actions that are known or believed to favorably affect health outcomes of people with diabetes.

**Diabetes team**

A team of health care providers that provides a comprehensive approach to treating and preventing diabetes. Diabetes medical care and self-management education are most effective when delivered by a health care team that includes professionals from a variety of disciplines, such as primary care providers, nurses, registered dietitians, diabetes educators, and pharmacists.

**Dietary Guidelines for Americans**

A federal summary of the latest dietary guidance for the American public based on current scientific evidence and medical knowledge. The guidelines are issued jointly by the United States Department of Health and Human Services and the United States Department of Agriculture and are revised every 5 years.

**Disease burden**

The effect of disease on people's health-related quality of life and life expectancy. In this Report, the IHS used disease burden (based on diabetes prevalence and diabetes-related deaths) along with several other factors to distribute *Special Diabetes Program for Indians* funds for the Community-Directed Diabetes Programs.

**Epidemic**

The occurrence of more cases of a disease than would be expected in a community or region during a given time period. The obesity epidemic is a main cause of the diabetes epidemic.

**Evaluation**

A systematic assessment of the quality, effectiveness, and effects of an initiative, program, or policy designed to produce information that people who have an interest in the initiative can use.

**Fast food**

Foods and meals designed for ready availability, use, or consumption and sold at eating establishments for quick availability or take-out.

**Focus group**

A research method whereby a moderator convenes a group of participants who often have common characteristics (e.g., age, gender, and ethnicity) to discuss the attributes of a specific concept or product. Focus groups often are used in the marketing development phase of a product to generate ideas and provide insights into consumer reactions and perceptions.

**Formative evaluation**

A method of assessing the value of a program while program activities are being developed. Formative evaluation focuses on process issues, such as understanding how a program works and its strengths and weaknesses.

**Gestational diabetes**

Diabetes that occurs during pregnancy. Diabetes that is present before a woman becomes pregnant or is diagnosed in the first trimester is called *pregestational diabetes*. A woman who has had gestational diabetes is more likely to develop type 2 diabetes later in life. Children of women with gestational diabetes have an increased risk of developing type 2 diabetes.

**Health**

A state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity. Health is a resource for everyday life, not the objective of living, and is a positive concept emphasizing social and personal resources as well as physical capacities.

**Health care quality**

The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.

**Health disparities**

The population-specific differences in the presence of disease, health outcomes, or access to health care across racial, ethnic, and socioeconomic groups.

### **Health outcomes**

Changes made by individuals or populations that either reduce or increase their risk of developing specific health conditions.

### **Health promotion**

The process of enabling people to increase control over and improve their health through networks and initiatives that create healthy environments. To reach a state of complete physical, mental, and social well-being, an individual or group must be able to identify and realize aspirations, satisfy needs, and change or cope with the environment.

### **Healthy diet**

For children and youth, a diet that provides recommended amounts of nutrients and other food components within estimated energy requirements to promote normal growth and development, a healthy weight trajectory, and energy balance. For adults, a healthy diet involves eating a wide variety of foods that provide all the nutrients the body needs to repair and replace proteins, tissues, and cells throughout the body. A healthy diet is consistent with the *Dietary Guidelines for Americans*, and reduces the long-term risk for obesity and related chronic conditions, including diabetes, metabolic syndrome, and cardiovascular disease.

### **Healthy lifestyle**

A lifestyle that can help an individual reduce the risk of chronic conditions, such as diabetes, obesity, and coronary heart disease. Healthy lifestyles include eating a healthy diet, maintaining a healthy weight, exercising regularly, and avoiding risky behaviors.

### **Healthy weight**

In children and youth, a level of body fat that supports normal growth and development, and where there are no observed obesity complications, such as hypertension or high cholesterol levels. The current Centers for Disease Control and Prevention guidelines for healthy weight in children and youth are in the range of the 5th–85th percentiles of the age- and gender-specific BMI charts. In adults, a healthy weight is one that equates with a BMI less than 25.

### **Incidence**

The frequency of new cases of a condition or disease within a defined time period. Incidence is commonly measured in new cases per 1,000 (or 100,000) of population at risk per year.

### **Indian health system**

The health system composed of IHS, Tribal, and Urban Indian health care organizations that collectively provide care to American Indians and Alaska Natives. The IHS is the operating division within the United States Department of Health and Human Services that carries out the Federal Government's trust responsibility to provide health care services to eligible American Indians and Alaska Natives. Until the mid-1990s, the IHS directly operated most of its 49 hospitals, 231 ambulatory clinics, 309 health stations, 15 school-based clinics, and numerous Alaska Native village clinics. Currently, over 50% of these facilities are operated directly by Tribal governments through contracts or compacts. The IHS also contracts with 34 Urban Indian health organizations to provide services to eligible American Indians and Alaska Natives who reside in large metropolitan areas.

**Insulin**

A hormone produced by the pancreas that is needed to convert sugar, starches, and other food into energy needed for daily life.

**Insulin resistance**

A condition in which the body fails to use insulin properly.

**Intervention**

A policy, program, or action intended to bring about identifiable outcomes.

**Media literacy**

A person's ability to sift through and analyze the messages that inform, entertain, and sell to us every day. Media literacy involves critically thinking about messages from all forms of media—including music videos, the internet, and product placements in movies.

**Metabolic syndrome**

The presence of a cluster of variables, such as obesity, hypertension, low HDL, high triglycerides, and impaired fasting glucose, that increases a person's risk for developing diabetes and cardiovascular disease.

**Modeling studies**

Studies that use logical mathematical frameworks to integrate facts and values and link these data to outcomes that interest health care decision makers.

**Monitoring**

The collection and analysis of data as a program, intervention, or policy progresses to ensure the integrity of its planned implementation.

**Multifaceted interventions**

Interventions that involve more than one component that are delivered concurrently to a target group.

**Obesity**

An excess amount of total body fat. In adults, a BMI of 30 or greater is considered obese. In this Report, “obesity in children and youth” refers to the age- and gender-specific BMI that is equal to or greater than the 95th percentile of the Centers for Disease Control and Prevention (CDC) BMI charts. “At-risk for obesity in children and youth” refers to the age- and gender-specific BMI that is between the 85th and 95th percentiles of the CDC BMI charts. In most children, these values indicate elevated body fat and reflect the obesity complications associated with excessive body fat.

**Outcome**

The changes that result from a program's activities and outputs. In this Report, an outcome can be short-term, intermediate, or long-term. Aggregated data are used to measure long-term health outcomes, such as obesity and diabetes rates, related complications, and life expectancy. Such indices are used to assess whether progress has been made toward achieving specific outcomes as a result of an intervention.

**Outcome evaluation**

An approach to assessing whether or not anticipated changes or differences occur as a result of an intervention. In this Report, this type of evaluation assesses the extent of change in targeted laboratory values or conditions between baseline measurement and subsequent points of measurement over time.

**Physical activity**

Body movement produced by the contraction of skeletal muscles that result in energy expenditure above the basal level. Physical activity consists of athletic, recreational, housework, transportation, or occupational activities that require physical skills and utilize strength, power, endurance, speed, flexibility, range of motion, or agility.

**Policy**

A written statement reflecting a plan or course of action taken by the government, businesses, communities, or institutions that is intended to influence and guide present and future directions. For governments, including Tribal governments, a policy may represent a law, regulation, ordinance, executive order, or resolution.

**Population health**

The state of health of an entire community or population, as opposed to that of an individual. Population health is concerned with the interrelated factors that affect the health of populations over the lifespan and the distribution of the patterns of health outcomes.

**Portion size**

The amount of food an individual is served at home or away from home and chooses to consume for a meal or snack. Portions can be larger or smaller than serving sizes listed on the food label or the Food Guide Pyramid (United States Department of Agriculture).

**Pre-diabetes**

A condition that occurs when a person's blood sugar levels are higher than normal, but not high enough for a diagnosis of diabetes. Two states of abnormal blood sugar regulation between the normal state and the state of diabetes are used to classify pre-diabetes. With the fasting plasma glucose test, a fasting blood sugar level between 100 and 125 mg/dl signals pre-diabetes (impaired fasting glucose). In the oral glucose tolerance test, a person's blood sugar level is measured after a fast and 2 hours after drinking a glucose-rich beverage. If the 2-hour blood sugar level is between 140 and 199 mg/dl, the person tested has pre-diabetes (impaired glucose tolerance).

**Prevalence**

The number of instances of a condition or disease in a population at a designated period of time. Usually expressed as a percentage of the population.

**Prevention**

With regard to diabetes, *primary prevention* seeks to delay or halt the development of diabetes; *secondary prevention* focuses on preventing diabetes-related complications in people with diabetes; and *tertiary prevention* focuses on controlling diabetes-related complications in people with the disease.

**Program**

An integrated set of planned strategies and activities that support clearly stated goals and objectives that lead to desirable changes and improvement in the well-being of people, institutions, or environments.



**Project Officer**

The individual designated as the official responsible for the programmatic, scientific, or technical aspects of United States Department of Health and Human Services programs. The Project Officer serves as the counterpart to the department's Grants Management Officer, who is responsible for all business management aspects of a grant.

**Promising practice**

An intervention that is likely to reduce diabetes and has been reasonably well evaluated, but lacks sufficient evidence to provide a level of certainty that it may be linked to reducing the incidence or prevalence of diabetes and related complications and other disease conditions.

**Public health program**

A coordinated set of complementary activities designed to produce desirable health outcomes.

**Quality of life**

The degree to which intellectual, spiritual, economical, social, and health pursuits are achieved and maintained. Quality of life refers to a person's overall sense of well-being and to a supportive environment when applied to a community.

**Quality-adjusted life-year (QALY)**

A year of perfect health. When assessing the relative economic value of alternative interventions that aim to achieve similar outcomes, the dollar value of a QALY reflects the cost of delivering a year of perfect health—not the cost of the interventions themselves.

**Risk factor**

A condition that increases the possibility that an individual, group, community, or population may experience a problem, such as the incidence or prevalence of obesity or diabetes.

**Screen time**

The number of hours a person spends watching various types of electronic media (e.g., television, video games, movies, and computer) per day, week, month, or year for either leisure or educational purposes.

**Sedentary**

A way of living or a lifestyle that requires minimal physical activity and encourages inactivity through limited choices, disincentives, or structural or financial barriers.

**Self-management education**

Teaching skills and providing information on available resources to people with diabetes so they can make the best decisions about their daily diabetes management. Self-management education is a key element of diabetes treatment.

**Serving**

A standardized unit of measure used to describe the total amount of foods recommended daily from each of the food groups from the Food Guide Pyramid (United States Department of Agriculture), or a specific amount of food that contains the quality of nutrients listed on the Nutrition Facts panel. This may differ from a portion, which represents the amount of food an individual is served at home or away from home and chooses to consume for a meal or snack.

**Social determinants**

Specific features of and pathways by which societal conditions affect health and can be potentially altered by individual, group, community, or societal actions.

***Special Diabetes Programs for Indians***

A grant program that provides funding for diabetes treatment and prevention services at IHS, Tribal, and Urban Indian health programs. Almost 10 years since its inception, the *Special Diabetes Program for Indians* is now the most comprehensive, far-reaching diabetes program for American Indians and Alaska Natives, and serves as the foundation for diabetes treatment and prevention efforts for Tribal communities across the United States.

**Stakeholder**

A person or organization that is invested in a policy or program or interested in the results of an evaluation.

**Strategy**

A set of actions taken to achieve a goal.

**Surveillance**

The systematic collection, analysis, interpretation, and dissemination of data to assist in the planning, implementation, and evaluation of public health policies, programs, and interventions.

**Sustainability**

The likelihood that a program will continue over a period of time after grant funding has ended.

**Systems approach**

An approach that views a system and its components in its entirety. A systems approach emphasizes the interactions and connectedness of the components to understand the entire system. It also acknowledges that individuals and families are embedded within broader social, political, and economic systems that shape behaviors and constrain access to resources necessary to maintain health.

**Target population**

A group of people at risk for whom a policy, program, or intervention is designed to reach.

**Technical assistance**

Services provided by program staff that are intended to provide guidance to individuals, institutions, or communities to conduct, strengthen, or enhance diabetes treatment and prevention activities, such as implementing, monitoring, or evaluating programs and interventions.

**Traditional culture**

American Indian and Alaska Native values, religion, and health resources that persist in many Tribes today despite the influence of generations of colonization policies forcing assimilation.

**Traditional lifestyles**

Tribal-specific, culturally accepted values, spiritual practices, and dietary and physical activity patterns that are incorporated into the daily life of present-day American Indians and Alaska Natives.

**Translation activities**

Translation and implementation of research findings into evidence-based practice, planning, and decision-making in a health care system.

**Tribal consultation**

An integral part of federal program development because of the government-to-government relationship between the Federal Government and Tribes. The IHS has a Tribal consultation policy that allows Tribes to participate fully in the planning of health care delivery for eligible American Indians and Alaska Natives.

**User population**

American Indians and Alaska Natives eligible for IHS care who have used IHS services at least once in the last 3-year period.

**Well-being**

A view of health that takes into account an individual's physical, social, and emotional health.



## Chapter 2 Diabetes: Opportunities for Prevention at Each Stage of the Disease

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## Chapter 3

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## Chapter 4

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