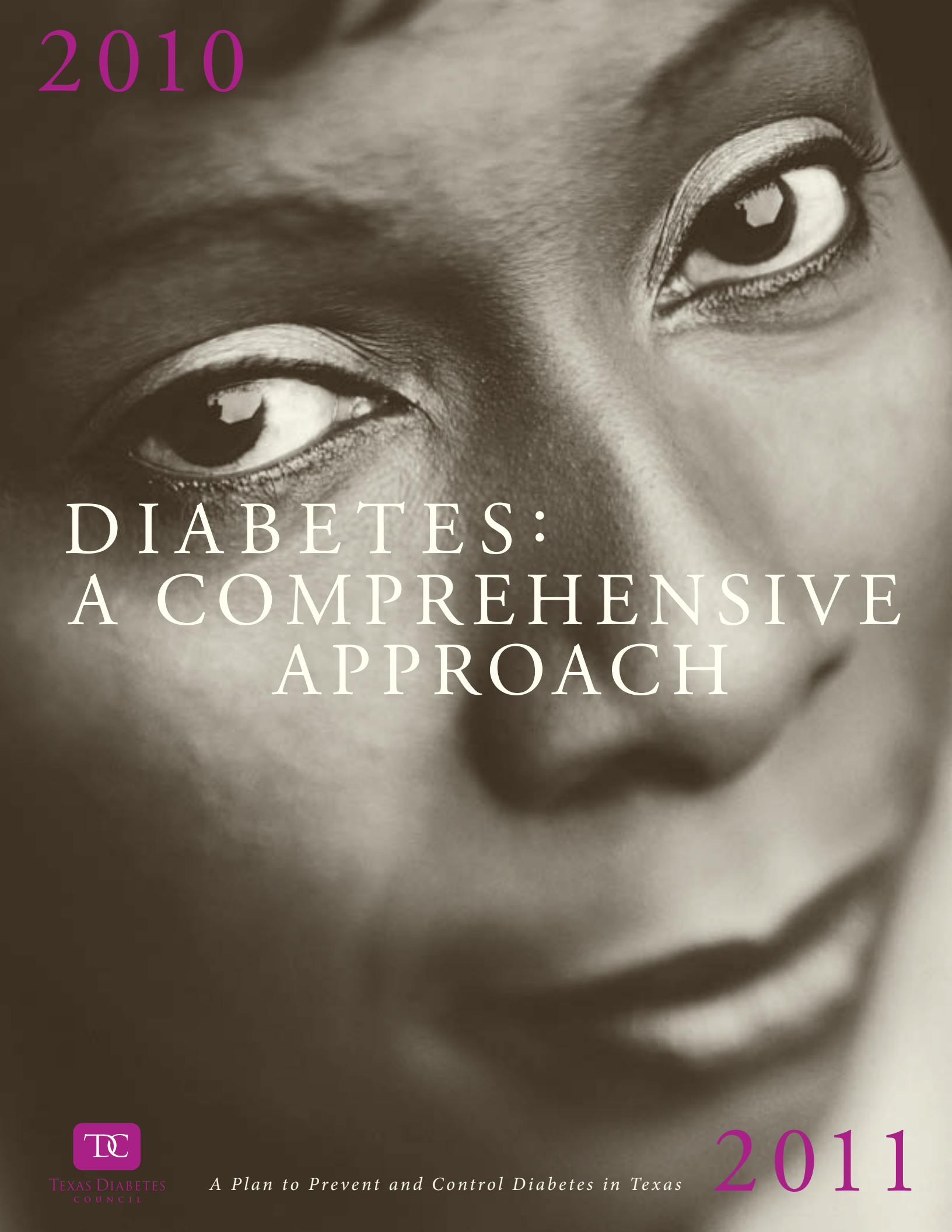
2010



DIABETES: A COMPREHENSIVE APPROACH

TDC

TEXAS DIABETES COUNCIL

A Plan to Prevent and Control Diabetes in Texas

2011

Vision:

A Texas free of diabetes and its complications

Mission:

To effectively reduce the health and economic burdens of diabetes in Texas

DIABETES: A COMPREHENSIVE APPROACH

A Plan to Prevent and Control Diabetes in Texas

2010–2011

TEXAS DIABETES
COUNCIL

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A MESSAGE FROM THE CHAIR

A MESSAGE FROM THE CHAIR

In 2007, an estimated 1.8 million adult Texans had diagnosed diabetes and another 460,040 adults were believed to be undiagnosed. From 2003 to 2007, those estimated to be diagnosed with diabetes rose from about 8% of adult Texans to 10.3%. That's compared to an estimated prevalence of 9% for the nation.

The growing number of Texans with diabetes is a rallying cry used by public health professionals, patient advocates and our health care systems to impart a sense of urgency to the fight against diabetes. It's the number we all want to decrease, and rightfully so. Diabetes costs the state $12.5 billion annually in health care costs and lost productivity. It robs people of sight, limbs, kidneys, and increases risk for heart disease. It's the sixth leading cause of death in Texas overall, and the fourth leading cause for Hispanics and African Americans.

But there's another way of looking at this growing number. As persons with diabetes lead longer, healthier lives, we can expect that the number with the disease will only increase. The reason is simple – more people living with diabetes, in addition to those newly diagnosed, will drive rising prevalence figures for years to come. All of the things we do in the name of decreasing impact of diabetes in Texas – increased awareness, earlier diagnosis, improved patient care – will serve to raise a number we expect to lower. Obviously, for Texans with diabetes, a longer, quality life is a good thing.

So what must we impact to make a difference in the burden of diabetes in Texas? The pages that follow show how simulating future effects of our diabetes interventions, both alone and in various combinations, can provide best-case scenarios for decreasing disease prevalence and burden. These projections remind us that the answer is not as simple as affecting a single number, but requires a comprehensive approach impacting Texans at all stages of life in the sectors and diverse communities where they live.

For the past twenty-five years, the Texas Diabetes Council and the Texas Department of State Health Services Diabetes Program have worked to build a model approach to diabetes in Texas. Starting with simple patient education materials, that model has grown to include community-based education programs, public policy development, clinical systems improvement, public information campaigns, continuing education for physicians, guidelines for insurance coverage, and the list goes on. Within this comprehensive approach, data is now being used to project which interventions have the potential to have the greatest impact on numbers of persons in our state with diabetes and their quality of life over the next 50 years.

The link between diabetes and obesity has risen to the forefront of how we plan for diabetes prevention in the years ahead. Childhood obesity is a priority for many state agencies, school districts and health care systems. Over the past biennium, the Texas Diabetes Council has participated on the advisory committee for the state's Risk Assessment for Type 2 Diabetes Program, which assesses diabetes risk for youth in specific areas of the state based on body mass index, blood pressure and presence of acanthosis nigricans. Through the efforts of the Diabetes Program at DSHS, we've continued to monitor progress in the implementation of HB 984 (79R) relating to student management of diabetes in schools, and worked with Texas Children's Hospital in providing recommendations to Texas Health Steps/Medicaid for an online training module to assist providers in identifying and treating youth with diabetes.

But projections based on current state data indicate that impacting childhood obesity alone, though an important priority, will not get us where we need to be in terms of reducing the burden of diabetes in the long run. Using a systems dynamics modeling approach, researchers have projected how reducing obesity levels to their 1991 values over the next fifteen years can potentially keep diabetes prevalence at its current level through 2050, rather than the annual increases we're consistently seeing. In order to achieve these kinds of reductions in obesity, a comprehensive approach focusing not only on youth, but adults of all ages is required.

Throughout the Texas Diabetes Council's strategic plan and our activities and services update are descriptions of programs and activities proposed by the Partnership for a Healthy Texas, worksite wellness programs developed by the National Diabetes Education Program and the Texas Department of State Health Services, nutrition and exercise programs offered by community organizations, and other resources addressing the varied populations

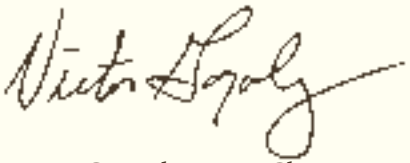
we must reach to affect change in obesity and, consequently diabetes prevalence for Texas. And more are needed.

While our greatest opportunity to reduce the burden lies in identifying pre-diabetes and preventing the onset of diabetes, our commitment to proposing systems of quality diabetes services for all Texans with diabetes remains strong. We continue to advocate for the provision of diabetes self-management training under Medicaid. Our Medical Professionals Advisory Subcommittee has expanded the number of treatment guidelines and algorithms available to health care professionals across the state and, as required by law, continues to review minimum practice recommendations used by regulated health plans offering diabetes services in Texas. As new therapies and drugs are introduced, we have opened communication with the Medicaid Drug Utilization Review Board in order to provide input on medications covered under Medicaid plans.

The Texas Diabetes Council and Diabetes Program engage in initiatives cutting across multiple disease and programmatic areas, from projects to effectively manage cardiovascular disease in community health centers to media campaigns that alert persons with diabetes at risk for chronic kidney disease to get tested regularly.

In 2008, San Antonio Metropolitan Health District announced the nation's second public health diabetes registry, collecting A1c test results to pinpoint local areas experiencing poor A1c control for diabetes outreach efforts. We're excited for this opportunity to learn even more about what the numbers mean for our citizens with diabetes, and how they translate to new diabetes interventions.

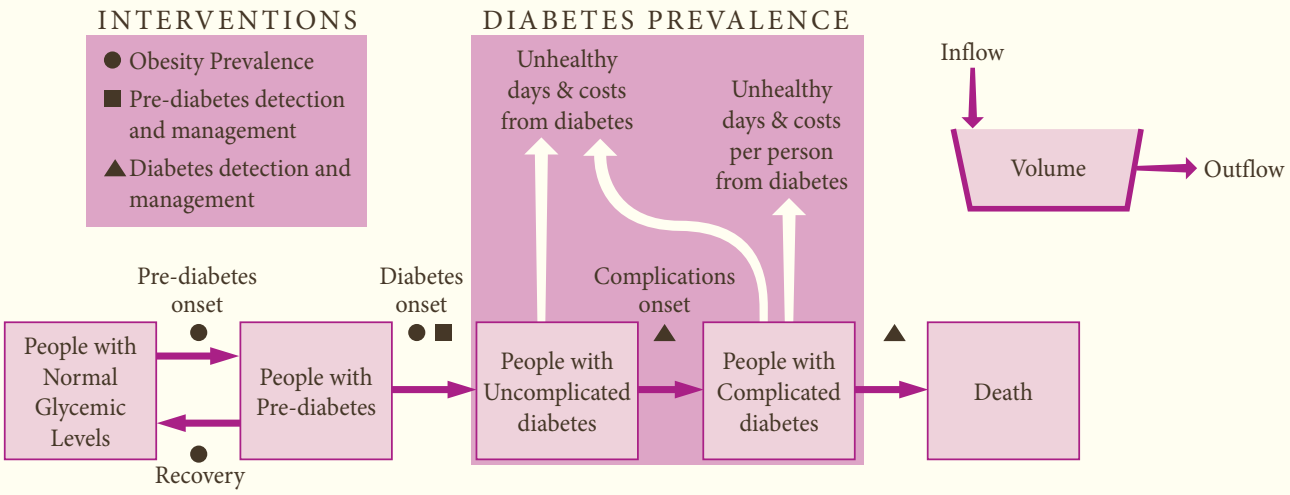
Whether your focus is patient care, research, public policy, healthy living, or living daily with diabetes – all Texans have a role in diabetes prevention and control. On behalf of the Texas Diabetes Council, I invite you to learn more about how you fit in this comprehensive approach to diabetes.



Victor Gonzalez, MD, Chair
Texas Diabetes Council

COMPONENTS OF A COMPREHENSIVE APPROACH: DIABETES AND SYSTEMS DYNAMICS MODELING

Diabetes Burden is Driven by Population Flows



COMPONENTS OF A COMPREHENSIVE APPROACH:

Diabetes and System Dynamics Modeling

Health planners increasingly use systems dynamics modeling as a tool for representing what current data tell us about the progression of diabetes in various populations, and how evidence-based approaches can affect future impact of the disease.

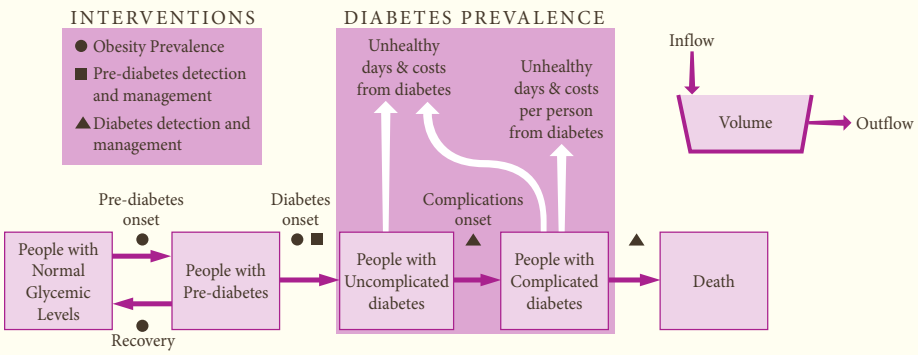
In past plans to prevent and control diabetes in Texas, predictions of diabetes burden for the state have painted a grim picture in terms of increasing diabetes risk factors and numbers affected. **It has been projected that, if current trends in overweight and type 2 diabetes continue, persons born in the year 2000 will face a one in three chance of developing diabetes some time in their lives.**[1] While this and other projections are alarming and draw attention to an increasing economic and health care burden for the state, the question for the Texas Diabetes Council and other health planners remains: *How do we use these projections to affect change?*

System dynamics modeling takes projections of diabetes burden and creates scenarios of how reduction in obesity, management of pre-diabetes, clinical management of diabetes, enhanced insurance coverage, and other factors affecting diabetes are likely to impact the overall burden.

The model begins with a basic illustration of what is known about diabetes. Figure 1 illustrates the population "flow" of diabetes from persons with normal blood sugar levels, through diagnosis and eventual death. At any given point in the model, each box contains a certain number of people. **The pool represents total diabetes prevalence, with newly diagnosed persons entering the pool (inflow) and persons with diabetes leaving the pool (outflow) upon death.** Factors affecting diabetes can be applied at various points along the population flow to affect the "volume" in the pool, or the number of persons with diagnosed diabetes as well as the burden of diabetes.

FIGURE 1

Diabetes Burden is Driven by Population Flows



A Scenario Using Systems Modeling to Project Impact of Policy/ Interventions on Texas Diabetes Prevention and Control

Researchers from the Centers for Disease Control and Prevention and state diabetes prevention and control programs have applied Texas-specific data to the model in Figure 1 to project the impact of specific policy options/interventions on diabetes prevalence and unhealthy days due to diabetes through 2050. The scenario below starts with basic improvements to diabetes management in Texas, adding more ambitious intervention goals such as increasing the number of insured Texans and reducing obesity in cumulative steps. Figures 2 and 3 show how interventions build upon each other to produce greater reductions in diabetes prevalence and unhealthy days by 2050.

Data used for these projections are available through a number of national and state sources, including the U.S. Census, Behavioral Risk Factor Surveillance System, and death certificate data. Unhealthy days due to poor mental or physical health is indicative of the direct and indirect costs of diabetes (medical and lost productivity).

Applying Policy/Intervention Options (Figures 2 and 3):

Step 1: Increase basic diabetes management to 75% by 2015

Step 2: Step 1 PLUS increase intensive diabetes management to 75% by 2015

Step 3: Steps 1 and 2 PLUS increase basic pre-diabetes management from an estimated 10% to 50%, 2006 – 2015

Step 4: Steps 1–3 PLUS increase intensive pre-diabetes management from an estimated 0% to 50% by 2015

Step 5: Steps 1–4 PLUS increase insured to 95% by 2015

Step 6: Steps 1–5 PLUS reduce obesity to its 1991 value by 2025

***Definitions*:**

Basic diabetes management includes:

- At least 1 A1c in the past 12 months, and
- At least 1 eye exam in the past 24 months

Intensive diabetes management includes:

- At least 2 A1cs in the past 12 months,
- At least 1 dilated eye exam in the past 12 months,
- At least 1 foot exam in the past 12 months, and
- At least 1 flu shot in the past 12 months

Basic pre-diabetes management is achievement of one-half of the DPP's* effect on diabetes incidence (about a 30% reduction).

Intensive pre-diabetes management is achievement of the full effect of the DPP* on diabetes incidence (about a 60% reduction)

*The Diabetes Prevention Program (DPP) was a major clinical trial, or research study, aimed at discovering whether either diet and exercise or the oral diabetes drug metformin (Glucophage) could prevent or delay the onset of type 2 diabetes in people with impaired glucose tolerance (IGT), or pre-diabetes. The DPP found that, over the 3 years of the study, diet and exercise sharply reduced the chances that a person with IGT would develop diabetes.

Projected Impact of Policy/Intervention Options Based on Texas-Specific Data:

Using computer-based modeling, Figures 2 and 3 illustrate the benefit of having a cumulative or comprehensive approach to diabetes prevention and control. Using different scenarios based on combinations of interventions along the "diabetes-population flow" will yield varying results in diabetes prevalence and unhealthy days related to diabetes. **Clearly, adding reductions in obesity drives the largest reductions in prevalence and unhealthy days.**

FIGURE 2

Systems Dynamics Modeling – Diabetes Prevalence, Texas

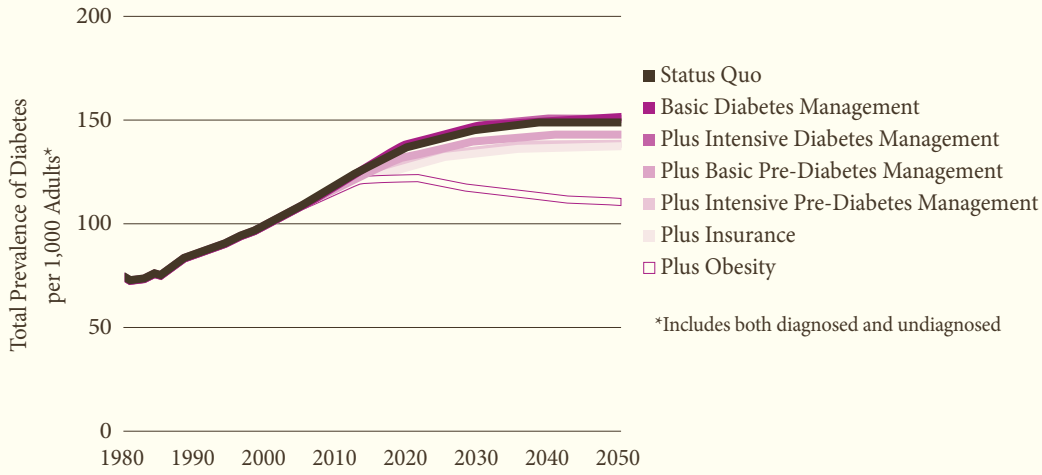


FIGURE 3

Systems Dynamics Modeling – Unhealthy Days Due to Diabetes, Texas

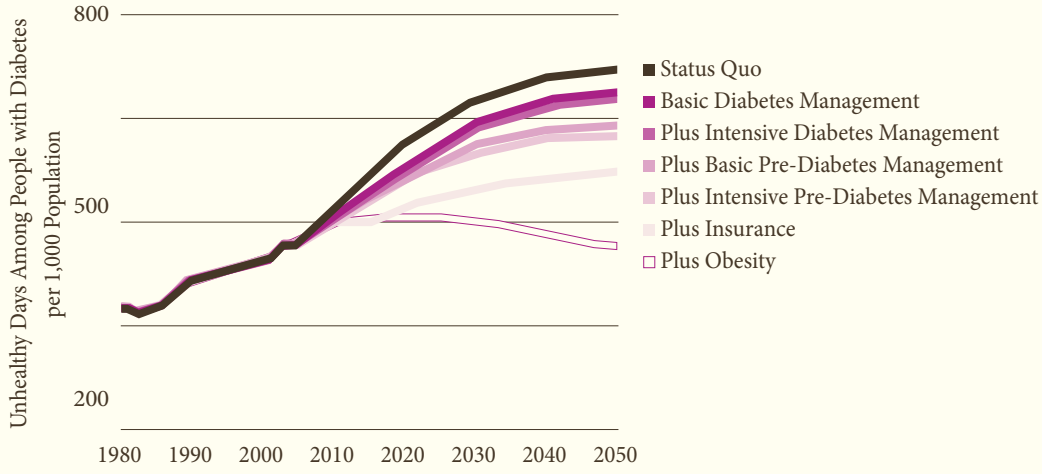
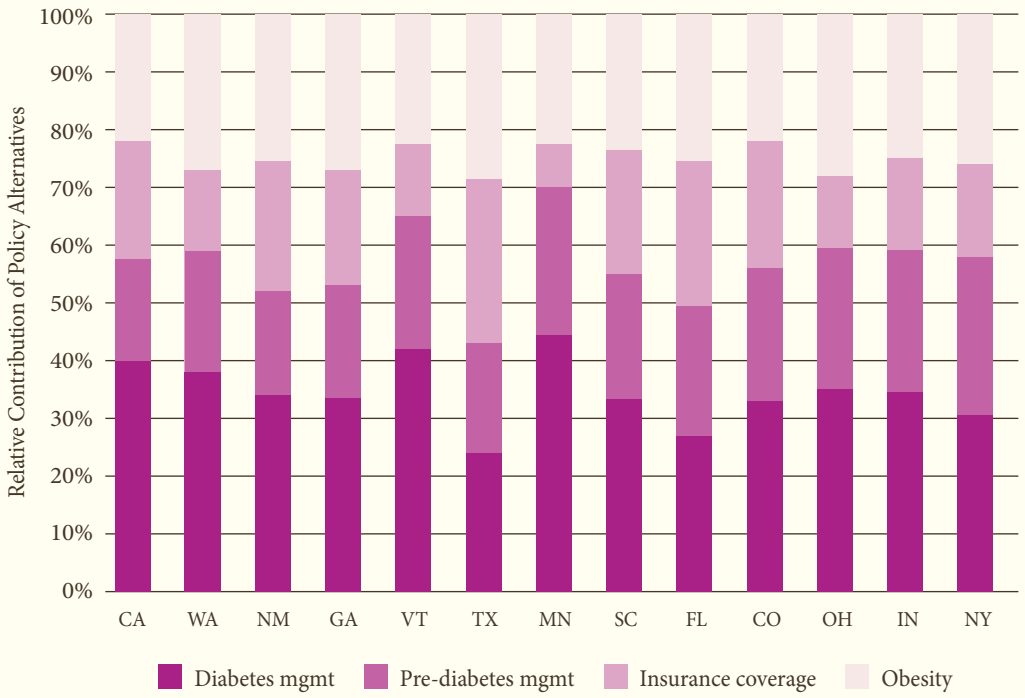


FIGURE 4

Relative Contributions of Policy Alternatives to Improving Unhealthy Days



Modeling Across States

Figure 4 shows how data specific to different states yield varying policy recommendations. Policy alternatives are represented by colored bars for each state. Longer bars indicate greater likelihood that the policy can improve the burden of unhealthy days, whereas shorter bars indicate a lesser impact.

Policy modeling for Texas indicates that, as part of a comprehensive approach, obesity prevention and improved insurance coverage contribute more to a "best-care scenario" for improvements in unhealthy days than do diabetes and pre-diabetes management. Modeling using the same data sources specific to other states yield different results based on a number of factors including each state's room for improvement in these policy areas and characteristics of state populations. For example, states where more residents are better insured are less likely to see improvement by affecting insurance policy than states with a high level of uninsured residents.

Diabetes Systems Dynamics Modeling Contributors: Centers for Disease Control and Prevention, Division of Diabetes Translation, Atlanta GA; The Sustainability Institute, Hartland VT; Minnesota Department of Health, Diabetes Prevention and Control Program, St. Paul MN; Jack B. Homer, PhD, Homer Consulting

A COMPREHENSIVE APPROACH TO DIABETES IN TEXAS

A COMPREHENSIVE APPROACH TO DIABETES IN TEXAS

As demonstrated, systems dynamics modeling can help target resources to combinations of interventions that are most likely to impact the burden of diabetes. But there are a wide range of desired outcomes for diabetes programming that further drive the need for a comprehensive approach.

Improved clinical care for persons with diabetes, along with advances in diabetes treatment, have done much to increase years of life and reduce complications such as kidney disease, blindness, and amputations for persons with diabetes. While this is a desirable outcome, it also increases the prevalence, or number of persons with diabetes, in the state. Using the pool illustration in Figure 1, it's clear that, as more persons enter the pool upon diagnosis, and fewer people with diabetes are flowing out due to complications and death, the level of diabetes will only rise.

However, pre-diabetes management reaches people at a point where they have yet to develop diabetes. Early intervention among this population keeps more people from entering the pool of those with diagnosed diabetes, thereby curbing and eventually decreasing overall prevalence in the state, relative to what could be expected without efforts to stop the progression from pre-diabetes to diabetes.

Clearly, both pre-diabetes management and diabetes management have a place in a state plan to prevent and control diabetes. The Texas Diabetes Council Strategic Plan includes activities for both of these policy/intervention areas, promoting a comprehensive state model for diabetes, addressing:

- Community/Worksite Environmental Policy Change
- School – Comprehensive School Health
- Clinical – Improving Provision of Primary, Secondary and Tertiary Prevention
- Media
- Efforts Targeted to Diverse/Special Populations
- Surveillance/Evaluation

Priority Areas

Within a comprehensive framework, the Texas Diabetes Council (TDC) has identified priority recommendations for the 2010–11 biennium. The TDC supports and promotes activities of many organizations and partners across the state as evidenced by the Activities and Services Update on page 49. As opportunities arise, the TDC will play a role in advancing diabetes prevention and control in all areas of its strategic plan (page 39).

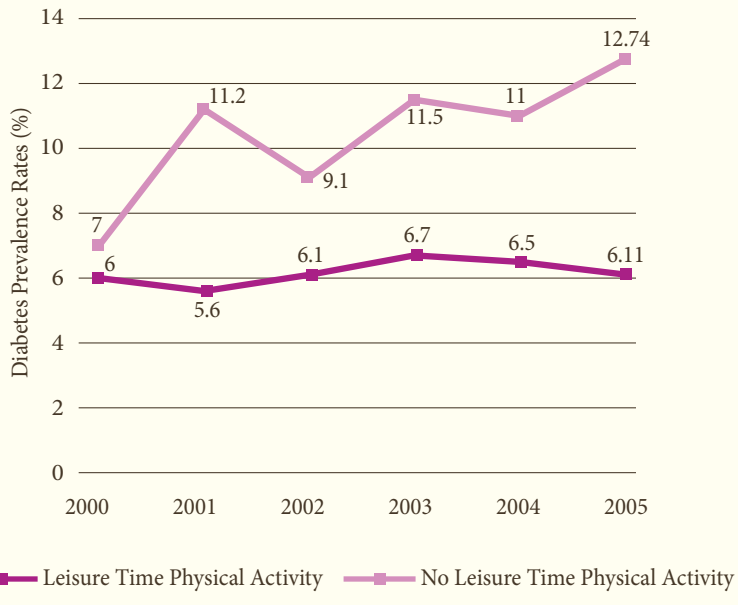
The following priorities represent a range of activities that **(1) prevent onset of diabetes at the population level (primary prevention), (2) affect the ability of individuals with diabetes to manage the disease, and (3) allow Texans with diabetes full participation in society through policy change.**

Priority: Primary Prevention

Primary prevention affects the diabetes population flow at the point before people develop the disease, whereas secondary and tertiary prevention focus on the prevention and treatment of complications once a person already has the disease.

FIGURE 5

Texas Diabetes Prevalence by Leisure Time Physical Activity Status, 2000–2005[2]



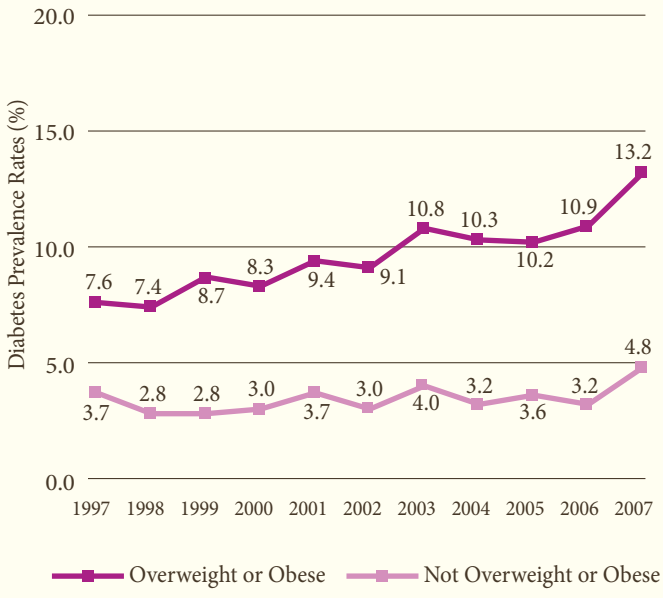
In 2002, the results of a major clinical trial, the Diabetes Prevention Program (DPP), shed new light on primary prevention. This landmark study proved that diet and exercise greatly reduce the chances that a person with impaired glucose tolerance (pre-diabetes) will develop type 2 diabetes. The lifestyle changes that produced results included:

- Losing 5 to 7 percent of weight, if overweight—that's 10 to 14 pounds for a 200-pound person.
- Getting at least 30 minutes of moderate-intensity physical activity five days a week.
- Eating a variety of foods that are low in fat and reducing the number of calories eaten per day.

The link between physical activity and diabetes is evident in Behavioral Risk Factor Surveillance System survey results for Texas *(Figure 5)*. In 2005, more than 12 percent of Texas adults who did not participate in physical activity in their leisure time had diabetes, while only 6 percent of those adult Texans who regularly participated in physical activity in their leisure time had diabetes. Diabetes rates were consistently higher among adults who reported no leisure time physical activity than for those who did. Texans who were overweight or obese also had higher rates of diabetes than Texans who were not overweight or obese *(Figure 6)*.

FIGURE 6

Texas Diabetes Prevalence by Overweight and Obesity Status, 1997–2007[2]



Since results of the DPP were released, federal and state diabetes prevention programs have worked to replicate the results of the DPP among the populations they serve. The Texas Diabetes Program has received federal funds that support community-based diabetes education programs in areas of the state at highest risk for diabetes since 1986 (See Activities and Services Update, page 65). The community organizations implementing these programs have historically targeted persons newly diagnosed with type 2 diabetes through nutrition classes, physical activity programs and improved access to treatment. In light of the DPP, a new focus has been placed on targeting family members of persons attending program activities and others in the community who may not have diabetes, but are at risk. Likewise, curriculums for training of community health workers reaching out to high-risk African American and Hispanic clients have included information about pre-diabetes and empowering communities to prevent diabetes through pre-diabetes management.

In the public school sector, TDC members have participated in implementing, and support maintaining the current Texas School Nutrition Policy. Initiated by the Texas Department of Agriculture in 2004, the policy controls access to foods of minimal nutritional value in Texas schools and supports stricter nutrition standards for schools participating in the National School Lunch Program. The TDC also seeks to enhance, in an advisory role, the state Risk Assessment for type 2 diabetes program for Texas public school students, promoting appropriate medical evaluation and interventions for children who are overweight or at risk.

The TDC supports the recommendations of the Partnership for a Healthy Texas related to physical activity and nutrition in schools, and obesity prevention in the general population, as well as the Strategic Plan for the Prevention of Obesity in Texas, 2005–2010, published by the Texas Department of State Health Services. Both of these planning efforts propose comprehensive approaches targeting schools, communities, worksites and businesses, health care and state government.

Priority: Diabetes and Pre-diabetes Management

Diabetes management requires a team of health care professionals including endocrinologists, primary care physicians, diabetes educators, and dietitians. Central to this team is the individual with diabetes, whose success in managing the disease is directly related to his or her access to health care, initial diabetes management training and ongoing support and education as diabetes treatment advances.

Progress has been made in the area of insurance coverage for persons with diabetes in Texas and the nation. The history of legislative action in Texas on page 79 includes legislation that, over the past decade, has required coverage of diabetes medications, supplies, equipment and education under certain health plans, and defined health care professionals who can be reimbursed for diabetes self-management training. In 1997, the Texas Legislature passed Senate Bill 162 requiring the Insurance Commissioner, in

consultation with the Texas Diabetes Council, to develop minimum standards for health care benefits provided to people who have diabetes.

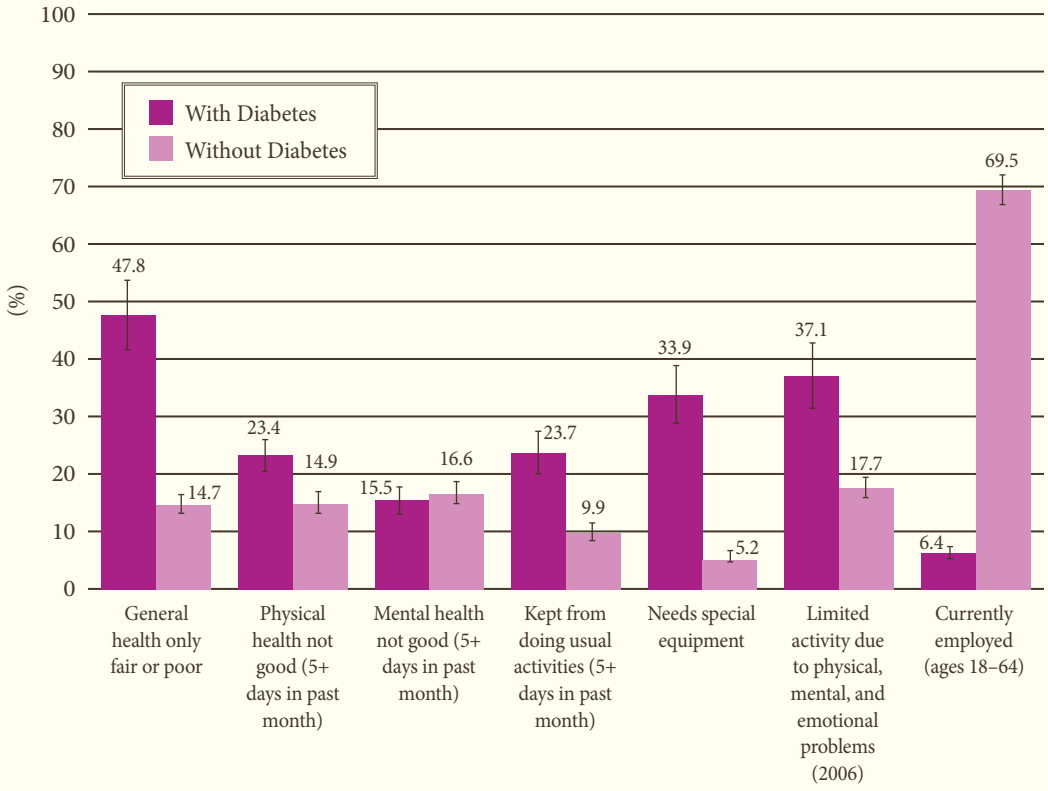
However, more Texans with diabetes continue to report that they cannot see a doctor because of the cost than those who do not have diabetes *(Figure 7)*. Self-reported quality of life remains significantly reduced for Texans with diabetes compared to those without the disease *(Figure 8)*.

FIGURE 7

Could Not See Doctor in the Past 12 Months Because of Cost by Race/Ethnicity, Gender, and Diabetes Status, 2007[2]

FIGURE 8

Health-Related Quality of Life Indicators by Diabetes Status, 2007[2]



Self-management training and support upon diagnosis of diabetes is critical to maintaining the health and well-being of the individual with diabetes, and decreasing these disparities between those who have diabetes and those who do not. In 1997, the federal Balanced Budget Act expanded coverage for diabetes supplies, equipment, and education within the Medicare program. **However, consistent and reliable coverage for self-management training and prescription medications has not been provided to all Texans who are Medicaid and CHIP recipients across all Medicaid benefit plans.** Based on analysis of 2006 reimbursement, about one-fifth of Medicaid fee-for-service and primary care case management clients have diabetes *(see Table 1)*.

The Texas Diabetes Council recommends that self-management training be included as a covered service for all Medicaid and CHIP recipients with diabetes. Patients should receive ten hours of initial self-management training with a diabetes educator, and three hours of initial nutrition education with a

registered dietitian. A minimum of two hours of self-management education with a diabetes educator and two hours of nutrition education with a registered dietitian should be received annually after this initial training with the goal of sustaining the A1c recommended by the TDC.

Diabetes management is key to preventing or delaying complications such as kidney disease, amputations, and blindness. **In Texas, state and federal expenditures for the diabetes prevention activities of the Department of State Health Services Diabetes Program are estimated at just above $3 million.** In contrast, the state programs below *(Table 1)* spend an estimated $459 million a year to provide health care and rehabilitative services for persons with diabetes with advanced complications.

TABLE 1

State Agency Expenditures for Diabetes-Related Services by Fiscal Year (FY)

Department	Number Served	Cost
State Health Services/FY07		
Kidney Health Care (KHC)*	9,336	$5,664,138
Assistive and Rehabilitative Services/FY07		
Rehabilitation Services**	2,849	$4,529,149
Blind Services***	2,996	$5,830,423
Health and Human Services Commission/FY 06		
Medicaid (FFS/PCCM)****	260,574	$442,766,987

* Data provided by the Kidney Health Application Group includes clients with diabetes as a primary and secondary diagnosis, and Medicare Part D costs.

** Cause code 16. Includes comprehensive rehabilitation services, independent living services, and vocational rehabilitation services.

*** Data provided by the Department of Blind Services (DBS) includes clients with diabetes as a primary and secondary diagnosis under the following DBS strategies: Independent Living, Blind Children's Program, and Vocational Rehabilitation Services. Includes diabetes equipment and supplies.

**** Estimated Medicaid FFS/PCCM and Managed Care Reimbursements for Diabetes-Related Services. Diabetes-related services is defined as claims with any diagnosis of ICD-9-CM250. Costs include reimbursement for out-patient visits, medical tests and diabetes supplies. Medications are not included in this cost estimate. Research Team , Strategic Decision Support, Texas Health and Human Services Commission, September 2008.

Priority: Policy

During the 79th Regular Session, the American Diabetes Association (ADA) and the TDC advocated for passage of HB 984 relating to care of students with diabetes in schools, which establishes the rights of students with diabetes in Texas public schools to manage their diabetes in class and at school functions.

In its 2008 "Call to Congress," the ADA continued its mission to protect people with diabetes from discrimination by requesting that Congress pass the ADA (Americans with Disabilities Act) Amendments Act. This legislation was the result of a series of Supreme Court decisions that narrowed the definition of who is covered under the Act to the point that many people with chronic diseases, including diabetes, found they were no longer protected. This is exemplified in employment cases where persons with diabetes challenge being fired for taking time to manage the disease, only to be told that their efforts have been so successful that they are now "too healthy" to be considered disabled.

In September 2008, Congress passed the Act and the President signed it into law. The TDC supports amending Texas Labor Code as needed to conform with the ADA Amendments Act.

TEXAS DIABETES FACT SHEET, 2008

TEXAS DIABETES FACT SHEET, 2008

Survey estimates of diabetes prevalence rose from 8% in 2006 to 10.3% in 2007. The 2007 BRFSS survey had a substantially larger sample size than previous years; therefore, it may have provided a more accurate estimate of prevalence which is steadily increasing in the state and nation.

Prevalence estimates are based on surveys in which individuals are asked if they have been diagnosed with diabetes. Efforts to increase diabetes screening and awareness lead to more people knowing they have diabetes and, consequently, being able to report that they have been diagnosed. This increase in awareness would also be reflected in the estimated prevalence rate.

2007 Diabetes Prevalence

Prevalence of Diagnosed[2] Diabetes in Persons 18 and Older

An estimated 1.8 million persons aged eighteen years and older in Texas (10.3% of this age group) have been diagnosed with diabetes. Nationwide, 18.3 million persons eighteen years of age and older have been diagnosed with diabetes (9.0% of this age group).

Prevalence of Undiagnosed[3] Diabetes in Persons 18 and Older

Another estimated 460,040 persons aged eighteen years and older in Texas are believed to have undiagnosed diabetes (based on 1999–2000 NHANES age-adjusted prevalence estimate of 2.5% of persons twenty years of age and older). The total for both diagnosed and undiagnosed diabetes is 2.2 million persons.

Prevalence of Diagnosed[2] Diabetes by Sex in Persons 18 and Older

Male 853,751 (9.9%)

Female 942,698 (10.8%)

Prevalence of Diagnosed[2] Diabetes by Race/Ethnicity in Persons 18 and Older

White, non-Hispanic 751,235 (8.5%)

Black, non-Hispanic. 244,590 (12.9%)

Hispanic. 721,779 (12.3%)

Other 88,524 (11.8%)

Prevalence of Diagnosed[2] Diabetes by Age Group in Persons 18 and Older

18–29 Years 2.7%

30–44 Years 5.5%

45–64 Years 14.5%

65+ 23.2%

Prevalence of Diagnosed[2] Diabetes by Educational Level in Persons 18 and Older

No High School Diploma 15.8%

High School Graduate 11.3%

Some College. 10.0%

College + ... 6.9%

Prevalence of Diagnosed[2] Diabetes by Race/Ethnicity and Age Group in Persons 18 and Older

Age Group	White, non-Hispanic	Black, non-Hispanic	Hispanic	Other
18 - 44	3.0%	3.7%	6.8%	3.8%
45 - 64	10.9%	17.6%	20.2%	21.1%
65+	17.5%	36.5%	34.4%	34.1%
Overall	**8.5%**	**12.9%**	**12.3%**	**11.8%**

***Sample size too small to report a reliable estimate (n<20).*

Diabetes Mortality[4]

Deaths Among Persons with Diabetes

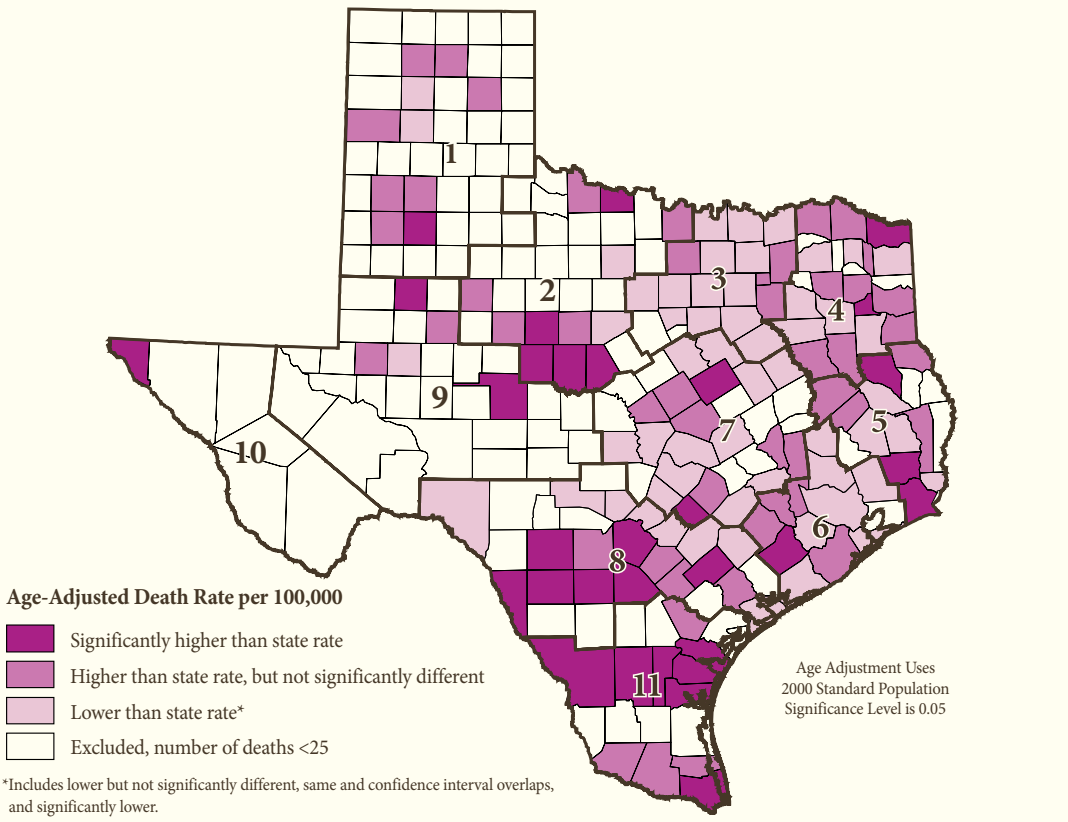
At this writing, the most recent year for which mortality data is available is 2005. In 2005, 5,593 deaths were directly attributed to diabetes. Diabetes was the sixth leading cause of death in Texas in 2002 through 2005. Diabetes was also the sixth leading cause of death nationally in 2002 through 2004, and seventh in 2005. Diabetes is believed to be under-reported on death certificates in Texas and the nation, both as a condition and as a cause of death.

Figure 9 shows the age-adjusted mortality rates per 100,000 persons for Texas by county for the years 2002 through 2005, with diabetes as the underlying cause of death. The state rate for the four years is **31.1 per 100,000**. More of the counties in Health Service Regions 8 and 11 fall into the "significantly higher than state rate" and "higher than state rate, but not significantly different" categories. Many counties along the eastern part of our state fall into the "higher than state rate, but not significantly different" category.

FIGURE 9

Diabetes Mellitus [ICD-10: E10–E14] as Underlying Cause of Death, 2002–2005

State Age-Adjusted Death Rate: 31.1 per 100,000



Diabetes Mortality[4] Rate (Per 100,000) by Race/Ethnicity, Texas, 2005

The 2005 diabetes mortality rate for Texas was 30 deaths per 100,000 persons. Mortality rates for each race/ethnicity were applied to the 2005 population by race/ethnicity:

- 21 per 100,000 whites (non-Hispanic)
- 52 per 100,000 Hispanics
- 55 per 100,000 blacks (non-Hispanic)
- 15 per 100,000 persons who fall in the "Other" category

The 2005 mortality rates (per 100,000) for blacks (non-Hispanic) and Hispanics were more than double that of whites (non-Hispanic).

Diabetes in Persons Less than 18 Years of Age

Diabetes in childhood is mainly type 1, an autoimmune disorder that destroys insulin-producing cells, requiring multiple daily insulin injections or a pump. About one in every 400 to 600 Texas children and adolescents has type 1 diabetes.[5] It is the second most prevalent chronic disease of childhood (after asthma).

It is important to note that the incidence of type 2 diabetes in persons less than 18 years of age has been increasing in recent years. However, representative data that would be needed to monitor diabetes trends in youth by type are not available for Texas or the nation.

In an effort to learn more about diabetes in persons less than twenty years of age, CDC created the SEARCH study.[5] SEARCH for Diabetes in Youth is a multicenter study funded by CDC and the National Institutes of Health to examine diabetes (type 1 and type 2) among children and adolescents in the United States.[6] SEARCH findings for the communities studied include the following:

- Based on 2002–2003 data, 15,000 youth in the United States were newly diagnosed with type 1 diabetes annually, and about 3,700 youth were newly diagnosed with type 2 diabetes annually.[6]
- The rate of new cases among youth was 19.0 per 100,000 each year for type 1 diabetes and 5.3 per 100,000 for type 2 diabetes.[6]
- Non-Hispanic white youth had the highest rate of new cases of type 1 diabetes.[6]
- Type 2 diabetes was extremely rare among youth younger than 10 years. While still infrequent, rates were greater among youth aged 10–19 years compared to younger children, with higher rates among U.S. minority populations compared with non-Hispanic whites.[6]
- Among non-Hispanic white youth aged 10–19 years, the rate of new cases of type 1 diabetes was higher than for type 2 diabetes.[6] For Asian/Pacific Islander and American Indian youth aged 10–19 years, the opposite was true–the rate of new cases of type 2 was greater than the rate for type 1 diabetes.[6] Among African American and Hispanic youth aged 10–19 years, the rates of new cases of type 1 and type 2 diabetes were similar.[6]

Addressing High Risk

Individuals at high risk for developing type 2 diabetes can be identified through risk assessment at any healthcare visit. This approach is called opportunistic screening, and the Centers for Disease Control and Prevention recommends it over mass or targeted public screening projects, e.g., health fairs. Diabetes prevention programs that focus on modest weight loss through increased physical activity and healthy nutrition are shown to have health benefits. Public health messages, healthcare professionals, and healthcare systems should encourage behavioral habits for a healthy lifestyle.[7]

Pre-diabetes

Pre-diabetes is a condition in which individuals have blood glucose levels higher than normal but not high enough to be classified as diabetes. People with pre-diabetes have an increased risk of developing type 2 diabetes, heart disease, and stroke. People with pre-diabetes have impaired fasting glucose (IFG) or impaired glucose tolerance (IGT), or both. IFG is a condition in which the fasting blood sugar level is 100 to 125 milligrams per deciliter (mg/dL) after an overnight fast. This level is higher than normal but not high enough to be classified as diabetes. IGT is a condition in which the blood sugar level is 140 to 199 mg/dL after a 2-hour oral glucose tolerance test. This level is higher than normal but not high enough to be classified as diabetes. In 1988–1994, among U.S. adults aged 40–74 years, 33.8% had IFG, 15.4% had IGT, and 40.1% had pre-diabetes (IGT or IFG or both). More recent data for IFG, but not IGT, are available and are presented below.[6]

Prevalence of impaired fasting glucose in people younger than 20 years of age, United States

- In 1999–2000, 7.0% of U.S. adolescents aged 12–19 years had IFG.[6]

Prevalence of impaired fasting glucose in people aged 20 years or older, United States, 2007

- In 2003–2006, 25.9% of U.S. adults aged 20 years or older had IFG (35.4% of adults aged 60 years or older). Applying this percentage to the entire U.S. population in 2007 yields an estimated 57 million American adults aged 20 years or older with IFG, suggesting that at least 57 million American adults had pre-diabetes in 2007.[6]
- After adjusting for age and sex differences, IFG prevalence among U.S. adults aged 20 years or older in 2003–2006 was 21.1% for non-Hispanic blacks, 25.1% for non-Hispanic whites, and 26.1% for Mexican Americans.[6]

Preventing or Delaying Type 2 Diabetes

The Diabetes Prevention Program (DPP)[8] study brings great hope for protecting the health of Texans. The three-year study found that:

- Americans at high risk for type 2 diabetes who improved their eating habits and increased physical activity to lose a little excess weight could prevent or delay type 2 diabetes. The study defined "high risk" as blood glucose or sugar higher than

normal, but not yet high enough to be diabetes. All participants were overweight, most were obese, and most had a family history of type 2 diabetes.

- Participants who made lifestyle changes to reduce excess body weight lowered their risk of developing type 2 diabetes by 58 percent.
- Lifestyle intervention was effective for adults of all ages and in all ethnic groups.
- Participants who received standard care plus the diabetes medication Metformin reduced their risk for getting type 2 diabetes by 31%.

In this DPP study, the lifestyle change group received intensive nutrition and physical activity counseling. On average, half of the group achieved the goal of at least a 7% weight reduction, and three-fourths did at least 150 minutes per week of moderately intense activity.[9]

Diagnostic Criteria for Diabetes

The usual diagnostic test for diabetes is a fasting plasma glucose test[10] rather than the previously preferred oral glucose tolerance test. However, in certain clinical circumstances, e.g., to identify gestational diabetes, physicians may choose to perform the oral glucose tolerance test.

A confirmed[11] fasting plasma glucose value greater than or equal to 126 milligrams per deciliter (mg/dL) of blood plasma indicates a diagnosis of diabetes. In the presence of signs and symptoms of diabetes, a confirmed, nonfasting, random plasma glucose value greater than or equal to 200 mg/dL indicates a diagnosis of diabetes. A confirmed two-hour glucose value greater than or equal to 200 mg/dL on an oral glucose tolerance test is diagnostic of diabetes.

Types of Diabetes[12]

Type 1 diabetes was previously called insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes. Type 1 diabetes develops when the body's immune system destroys pancreatic beta cells, the only cells in the body that make the hormone insulin that regulates blood glucose. To survive, people with type 1 diabetes must have insulin delivered by injection or a pump. This form of diabetes usually strikes children and young adults, although disease onset can occur at any age. Type 1 diabetes accounts for 5% to 10% of all diagnosed cases of diabetes. Risk factors for type 1 diabetes may be autoimmune, genetic, or environmental. There is no known way to prevent type 1 diabetes. Several clinical trials of methods of the prevention of type 1 diabetes are currently in progress or are being planned.

Type 2 diabetes previously was called non-insulin-dependent diabetes mellitus or adult-onset diabetes. Type 2 diabetes may account for 90% to 95% of all diagnosed cases of diabetes. Type 2 usually begins as insulin resistance, a disorder in which the cells do not use insulin properly. As the need for insulin increases, the pancreas gradually loses its ability to produce insulin. Risk factors for type 2 diabetes include overweight, family history of diabetes, previous diabetes during pregnancy or having a baby weighing more than nine pounds at birth, high or low blood sugar, minimal or no physical

activity, age 45 or older, high blood pressure (greater than 140/90), high cholesterol, and race/ethnicity. African Americans, Hispanics, American Indians, and some Asian Americans and Pacific Islanders are at particularly high risk for type 2 diabetes. Type 2 diabetes is increasingly being diagnosed in youth.

Gestational diabetes is a form of glucose intolerance diagnosed in some women during pregnancy. Gestational diabetes occurs more frequently among African Americans, Hispanic/Latino Americans, and American Indians. It is also more common among obese women and women with a family history of diabetes. During pregnancy, gestational diabetes requires treatment to normalize maternal blood glucose levels to avoid complications in the infant. After pregnancy, 5% to 10% of women with gestational diabetes are found to have type 2 diabetes. Women who have had gestational diabetes have a 20% to 50% chance of developing diabetes in the next 5 to 10 years.

Other types of diabetes result from specific genetic conditions (such as maturity-onset diabetes of youth), surgery, drugs, malnutrition, infections, and other illnesses. Such types of diabetes account for 1% to 5% of all diagnosed cases.

Treatment of Diabetes

Diabetes can lead to serious complications, such as blindness, kidney damage, cardiovascular disease, and lower-limb amputations, but people with diabetes can lower the occurrence of these and other diabetes complications by controlling blood glucose, blood pressure, and blood lipids. Many people with type 2 diabetes can control their blood glucose by following a healthy meal plan and exercise program, losing excess weight, and taking oral medication. Some people with type 2 diabetes may also need insulin to control their blood glucose. To survive, people with type 1 diabetes must have insulin delivered by injection or a pump. Among adults with diagnosed diabetes (type 1 or type 2), 14% take insulin only, 13% take both insulin and oral medication, 57% take oral medication only, and 16% do not take either insulin or oral medication. Medications for each individual with diabetes will often change during the course of the disease. Many people with diabetes also need to take medications to control their cholesterol and blood pressure. Self-management education or training is a key step in improving health outcomes and quality of life. It focuses on self-care behaviors, such as healthy eating, being active, and monitoring blood sugar. It is a collaborative process in which diabetes educators help people with or at risk for diabetes gain the knowledge and problem-solving and coping skills needed to successfully self-manage the disease and its related conditions.

Treatment of type 1 diabetes. Lack of insulin production by the pancreas makes type 1 diabetes particularly difficult to control. Treatment requires a strict regimen that typically includes a carefully calculated meal plan, planned physical activity, self blood-glucose testing several times a day, and multiple daily insulin injections.

Treatment of type 2 diabetes. Treatment typically includes a balanced meal plan, daily physical activity, self blood-glucose monitoring, and in many cases, oral medication and/or insulin.

Complications of Diabetes

Heart disease and stroke. Heart disease is the leading cause of death among persons with diabetes. Heart disease and stroke account for about 65% of deaths in people with diabetes.[12]

- In 2004, heart disease was noted on 68% of diabetes-related death certificates among people aged 65 years or older.
- In 2004, stroke was noted on 16% of diabetes-related death certificates among people aged 65 years or older.
- Adults with diabetes have heart disease death rates about 2 to 4 times higher than adults without diabetes.
- The risk for stroke is 2 to 4 times higher among people with diabetes.

High blood pressure. In 2003–2004, 75% of adults with self-reported diabetes had blood pressure greater than or equal to 130/80 millimeters of mercury (mm Hg), or used prescription medications for hypertension.[12]

Blindness. Diabetes is the leading cause of new cases of blindness in adults 20 to 74 years old. Diabetic retinopathy causes from 12,000 to 24,000 new cases of blindness each year.[12]

Kidney disease. Diabetes is the leading cause of kidney failure, accounting for 44% of new cases in 2005. In 2005, 46,739 people with diabetes began treatment for end-stage kidney disease in the United States and Puerto Rico. In 2005, a total of 178,689 people with end-stage kidney disease due to diabetes were living on chronic dialysis or with a kidney transplant in the United States and Puerto Rico.[12]

Nervous system disease. About 60% to 70% of people with diabetes have mild to severe forms of nervous system damage. The results of such damage include impaired sensation or pain in the feet or hands, slowed digestion of food in the stomach, carpal tunnel syndrome, and other nerve problems. Almost 30% of people with diabetes aged 40 years or older have impaired sensation in the feet (i.e., at least one area that lacks feeling). Severe forms of diabetic nerve disease are a major contributing cause of lower-extremity amputations.[12]

Amputations. In the United States, more than 60% of non-traumatic lower-limb amputations occur in people with diabetes. In 2004, about 71,000 non-traumatic lower-limb amputations were performed in people with diabetes in the United States.[12] The Texas Health Care Information Council reports that in

2003, in Texas, 7,284 hospitalizations for amputations occurred in persons with diabetes. The cost of these amputations is approximately $324 million.[13]

Dental disease. Periodontal (gum) disease is more common in people with diabetes. Among young adults, those with diabetes have about twice the risk of those without diabetes. Persons with poorly controlled diabetes (A1c > 9%) were nearly 3 times more likely to have severe periodontitis than those without diabetes. Almost one-third of people with diabetes have severe periodontal disease with loss of attachment of the gums to the teeth measuring 5 millimeters or more.

Complications of pregnancy. Poorly controlled diabetes before conception and during the first trimester of pregnancy can cause major birth defects in 5% to 10% of pregnancies and spontaneous abortions in 15% to 20% of pregnancies. Poorly controlled diabetes during the second and third trimesters of pregnancy can result in excessively large babies, posing a risk to both mother and child.[12]

Other complications. Uncontrolled diabetes leads to biochemical imbalances that can cause acute life-threatening events, such as diabetic ketoacidosis[14] and hyperosmolar hyperglycemic nonketotic syndrome (HHNS)[15]. People with diabetes are more susceptible to many other illnesses and, once they acquire these illnesses, often have worse prognoses. For example, they are more likely to die with pneumonia or influenza than people who do not have diabetes.[12]

Diabetes Costs

Diabetes contributes to a number of chronic complications and is associated with an increased utilization of health care services. With an increasing prevalence of diabetes and an aging population, the burden of diabetes in the nation and Texas continues to grow. According to the American Diabetes Association and the Centers for Disease Control and Prevention (CDC), the direct and indirect costs of diabetes in the United States

reached more than $174 billion in the United States in 2007 *(Table 2)*. This estimate includes $116 billion in excess medical expenditures attributed to diabetes, as well as $58 billion in reduced national productivity. People with diagnosed diabetes, on average, have medical expenditures that are approximately 2.3 times higher than the expenditures would be in the absence of diabetes. Approximately 1 in 10 of health care dollars is attributed to diabetes. Indirect costs include increased factors such as absenteeism, reduced productivity, and lost productive capacity due to early mortality.[16]

These data are based on a study by the Lewin Group, Inc., for the American Diabetes Association and are 2007 estimates of both the direct (cost of medical care and services) and indirect costs (costs of short-term and permanent disability and of premature death) attributable to diabetes. This study used a specific cost-of-disease methodology to estimate the health care costs due to diabetes. Estimates are based on the National Health Interview Survey (NHIS) administered by the CDC.

TABLE 2

Cost of Diabetes, 2007

	Type	Amount in Billions
Texas[17]	Direct	$8
	Indirect	$4
	Total	**$12**
United States[16]	Direct	$116
	Indirect	$58
	Total	**$174**

According to the American Diabetes Association and CDC, the cost of diabetes for 2007 in Texas was more than $12 billion. This estimate includes $8 billion in excess medical expenditures attributed to diabetes, as well as $4 billion in reduced productivity.[17]

Internet Resources

The following web sites provide more information about diabetes statistics for Texas and the United States.

American Diabetes Association
www.diabetes.org

CDC – Behavioral Risk Factor Surveillance System (BRFSS)
http://www.cdc.gov/brfss/

Cardiovascular Health and Wellness, Texas Department of State Health Services (DSHS)
http://www.dshs.state.tx.us/wellness/default.shtm

Center for Health Statistics (CHS), Behavioral Risk Factor Surveillance System, Texas Department of State Health Services (DSHS)
http://www.dshs.state.tx.us/chs/brfss/query/brfss_form.shtm

Center for Health Statistics (CHS), Texas Health Data, Death Data, DSHS
http://soupfin.tdh.state.tx.us/deathdoc.htm

Center for Health Statistics (CHS), Population Data for Texas, DSHS
http://www.dshs.state.tx.us/chs/popdat/

Centers for Disease Control and Prevention (CDC)– Division of Diabetes Translation
www.cdc.gov/diabetes
http://apps.nccd.cdc.gov/DDTSTRS/default.aspx

The Health Plan Employer Data and Information Set (HEDIS)
www.ncqa.org

Health Resources and Services Administration (HRSA) – U.S. Department of Health and Human Services
www.hrsa.gov

Kidney Health Care Program, DSHS
www.dshs.state.tx.us/kidney

End Stage Renal Disease Network of Texas
http://www.esrdnetwork.org/

National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health (NIDDK)
www.niddk.nih.gov

Texas Department of Insurance
www.tdi.state.tx.us

Texas Diabetes Council/Program
www.texasdiabetescouncil.org

TEXAS DIABETES COUNCIL STRATEGIC PLAN
2010-2011

TEXAS DIABETES COUNCIL STRATEGIC PLAN

2010-2011

Priority 1: Advancing Public Policy Affecting Diabetes

The Health and Safety Code permits the Texas Diabetes Council to develop and submit legislation to the legislature and comment on pending legislation that affects people with diabetes. The Council desires that all people with diabetes in Texas receive quality care and services and have access to information about managing the disease and preventing complications. The Council also believes that all professionals who treat people with diabetes should have access to the most recent treatment modalities. By accessing the legislative process and influencing lawmakers, the Council hopes to reduce the burden of diabetes in the state, improve coverage for people with diabetes, and reduce the costs associated with tertiary care of complications.

Goals:

- Educate policymakers about diabetes and its complications through personal stories, dissemination of materials that illustrate the burden in the state, and forums that enable people with diabetes to testify
- Develop position statements about diabetes, articulate positions to policymakers, and work to implement needed legislation
- Advocate that private (health benefit plans) and public (Medicaid and CHIP) insurers in Texas cover diabetes equipment, supplies, and self-management education
- Advocate that coverage be expanded when new science and technology products are available (e.g., continuous monitoring devices, medications)
- Advocate for national legislation that supports state laws regarding benefits for people with diabetes
- Support, protect and promote diabetes research opportunities in Texas, with emphasis on diabetes in children, beginning by requiring that the condition be reported to the Texas Department of State Health Services
- Support public policy, education, and legislation to protect the health, civil rights and safety of people with diabetes, including people who are institutionalized (e.g., incarcerated and imprisoned individuals in the criminal justice system)
- Advocate for self-management training for persons with impaired glucose tolerance (pre-diabetes)
- Partner with advocacy groups and other state agency programs (see potential partner list)

Priority 2: Evaluating the Impact of Diabetes in Texas

Effective diabetes prevention and control programs depend on valid, reliable data gathered through surveillance and evaluation. These data clarify the magnitude of diabetes in Texas, identify target audiences, and facilitate the development of culturally appropriate messages. They also guide the distribution of resources to areas of greatest need related to diabetes. As progress is made toward meeting the following goals, the Texas Diabetes Council expects to increase the reliability of diabetes data, increase participation in diabetes continuing education by physicians, increase the use of best practices by local diabetes programs, and increase the number of children who are identified as being at risk for type 2 diabetes.

Goals:

- Obtain data regarding the use of minimum standards and algorithms by healthcare providers who treat patients who have diabetes
- Expand surveillance to include data on youth under the age of 18 years by creating a pediatric diabetes resource (registry) for the purpose of 1) targeting resources for intervention, and 2) supporting research
- Improve current diabetes surveillance and acquire new tools and sources that provide data related to Healthy People 2010 objectives
- Utilize an evaluation system based on valid and reliable measures of success to identify local prevention and control programs that other communities can adapt and/or replicate
- Improve accounting of diabetes as an underlying or contributing cause of death on Texas death certificates
- Support the use of electronic medical records by the provider community
- Partner with agencies collecting health statistics, pediatric endocrinologists, research institutions, and the health care provider community (See potential partner list)

Priority 3: Promoting Comprehensive Programs for the Prevention of Diabetes

Upstream prevention, or reaching persons in the diabetes population flow before they develop the disease, involves addressing a number of policy, lifestyle, and environmental factors that lead to overweight/obesity, decreased physical activity and poor nutrition. Pre-diabetes, a condition marked by elevated blood glucose levels that are higher than normal, but not yet high enough to be diagnosed as diabetes, is a point at which diabetes can be prevented. As a result of the Diabetes Prevention

Program (DPP) Study, we know that type 2 diabetes prevention is proven, possible, and powerful. The DDP showed that people at high risk for type 2 diabetes can prevent or delay the onset of the disease by losing 5% to 7% of their weight (if overweight), getting at least 30 minutes of moderate-intensity physical activity five days a week, and eating a variety of foods that are low in fat and reducing the number of calories eaten per day. While we know the results of the DPP are possible, the challenge remains to duplicate these results outside of a study population. Doing so involves working across disease and organization boundaries to support favorable conditions for the lifestyle and behavior changes that will bring the results of the DPP to all Texans at risk for diabetes.

Goals:

- Support recommendations of the Partnership for a Healthy Texas
- Promote the Strategic Plan for the Prevention of Obesity in Texas, 2005-2010, published by the Texas Department of State Health Services
- Promote the establishment of local community coalitions addressing diabetes prevention using a comprehensive approach
- Encourage opportunistic screening to identify patients with pre-diabetes and diabetes, regardless of reason for doctor visit
- Promote worksite wellness/diabetes prevention programs such as the National Diabetes Education Program's diabetesatwork.org and state agency worksite wellness programs
- Continue to support the state Agriculture Commissioner in maintaining a strong school nutrition policy that encourages healthy eating through limited student access to foods of minimal nutritional value and greater access to healthy food choices
- Support the state Risk Assessment for Type 2 Diabetes program for Texas public school students, promoting appropriate medical evaluation and intervention in addition to lifestyle (eating and activity) interventions for children who are overweight or at risk
- Promote implementation of coordinated school health programs in Texas schools
- Encourage recipients of the Lone Star Card to complete a nutrition and healthy lifestyle course, thus increasing likelihood that healthy food and lifestyle choices will be made
- Encourage the United States Department of Agriculture (USDA) to remove foods of minimal nutritional value from the list of foods that can be purchased with Food Stamps and provide incentives to recipients for making healthy choices
- Recommend policy addressing target areas for obesity prevention, including increased fruit and vegetable consumption, physical activity and breastfeeding, and decreased consumption of sugar-sweetened beverages, television-viewing and consumption of energy-dense foods
- Support the development of safe, built environments such as parks and walking trails that allow for increased physical activity

Priority 4: Increasing Public Awareness, Promoting Community Outreach and Diabetes Education

The Health and Safety Code mandates that the Texas Diabetes Council "advise the legislature on legislation that is needed to develop further and maintain a statewide system of quality education for all persons with diabetes." Public awareness about diabetes is limited, despite the fact that it is the sixth leading cause of death in the United States. The Council will undertake education programs that help individuals partner with their healthcare providers in preventing or delaying the onset of type 2 diabetes and diabetes complications. Messages about risk factors, pre-diabetes, and diabetes (diagnosed and undiagnosed) will be distributed through the media, community-based organizations, schools, and public and private health organizations. As a result, Texas will work to contain the growing rate of type 2 diabetes and the number of resulting complications and deaths for Texans of all ages.

Recognizing that Texas includes many diverse communities with unique needs, the Diabetes Council supports local, tailored approaches to accomplishing its goals. An approach that is successful for one geographical or ethnic group may or may not work for another group. As individual communities learn from both their successes and their failures, best practices will be shared and duplicated in communities with similar characteristics and needs. The outcome of the following goals will be an increase in the number of diabetes service projects that enhance health education and promote positive behavior changes.

Goals:

- Educate the public about the differences between type 1 and type 2 diabetes and increase awareness of type 1 as a disease unrelated to obesity
- Empower the general public, including children and adults, through education on how to reduce their risk for type 2 diabetes and control all types of diabetes
- Promote awareness and distribution of guidelines for safe and appropriate care of children with diabetes in schools
- Support the implementation of legislation that promotes more physical activity and better nutrition for children
- Partner with communication specialists, stakeholders, other state agency programs impacting diabetes prevention efforts and federal agencies producing campaigns and materials related to diabetes prevention (see potential partner list)
- Work with community organizations and programs to improve health promotion activities as part of the effort to achieve Healthy People 2010 objectives
- Identify and promote evidence-based practices in communities throughout Texas
- Promote appropriate use of community health workers and promotores to reinforce and support diabetes education
- Support and promote quality self-management education programs
- Include academic institutions in evaluation and development of community programs

- Partner with community-based diabetes programs, diabetes centers, community groups and faith-based organizations (see potential partner list)

Priority 5: Improving Diabetes Care and Prevention of Complications by Health Care Professionals

Many people with diabetes do not have access to a specialist for routine diabetes care. Rather, they rely upon a primary care physician or provider. The Council develops standards of care and treatment algorithms for primary care physicians and providers who treat people with diabetes. If followed, these tools can lead to improved glycemic control and a reduced number of complications.

Uncontrolled diabetes leads to life-threatening conditions and poor quality of life. Proliferative diabetic retinopathy is the leading cause of blindness among adults. Other conditions, such as cardiovascular disease, neuropathy, kidney disease, and podiatric (foot) complications, may be avoided if primary care physicians and providers adhere to best practices and follow treatment algorithms. It has been demonstrated that improved glycemic control results in fewer complications.

The Texas Diabetes Council wants to assure that Texans receive high-quality care. Providers need access to the latest information on preventing and managing diabetes. Activities related to this priority include developing, updating, and distributing materials for healthcare providers who treat people who have diabetes. The Council develops standards of care and treatment algorithms, and those are distributed at professional association meetings and continuing medical education (CME) seminars. Additionally, the Council has developed a Diabetes Tool Kit that includes professional educational materials. The Council's Health Care Professional Advisory Committee reviews professional education materials and makes updates on a quarterly basis to ensure that recommendations are in line with rapidly changing advances in the field of diabetes. The committee has published journal articles and promotes their products at CME events statewide.

Goals:

- Continue to develop and promote evidence-based minimum standards of care for type 1 and type 2 diabetes (for youth and adults) and gestational diabetes
- Develop, update, and expand distribution of algorithms for the management of diabetes in children and adults
- Develop, publish, and promote preventive protocols for people who have impaired glucose tolerance (pre-diabetes) or are at risk for developing diabetes
- Partner with professional associations and health benefit plans to market the standards of care and treatment algorithms
- Expand collection of data on the prevalence of impaired glucose tolerance (pre-diabetes)
- Partner with academic centers, the provider community, and other state agencies (see potential partner list)

- Promote early identification of people with diabetes or who are at risk for type 2 diabetes
- Improve professional education related to care of people with diabetes and pre-diabetes by including diabetes-specific content and expanding the required clinical competencies in professional preparation and continuing education programs for healthcare professionals
- Design strategies and incentives to help more healthcare professionals pursue Certified Diabetes Educator (CDE) credentials and other provider recognitions (e.g., National Committee for Quality Assurance [NCQA] Provider Recognition) especially in underserved areas
- Partner with academic institutions (colleges of medicine, nursing, nutrition, social work, podiatry, optometry), medical professional associations, and peer review groups to promote improved care and services to people with diabetes (see potential partner list)

Potential Partner List

Advocacy Groups

- American Diabetes Association
- American Heart Association
- Juvenile Diabetes Research Foundation (JDRF)
- Texas Renal Coalition
- Partnership for a Healthy Texas
- Governor's Advisory Council on Physical Fitness
- Texas Health Institute

Governmental Entities

- Centers for Disease Control and Prevention (CDC)/National Diabetes Education Program (NDEP)
- National Kidney Disease Education Program (NKDEP)

Research Institutions

- Juvenile Diabetes Research Foundation (JDRF)
- National Institutes of Health (NIH)
- Texas Diabetes Institute (TDI)

Other Department of State Health Services (DSHS) Programs

- School Health Network
- Kidney Health Care
- Nutrition, Physical Activity, and Obesity Prevention
- Cardiovascular Health and Wellness

Other State Agencies

- Department of Criminal Justice (DCJ)
- Department of Public Safety (DPS)
- Department of Agriculture (DoA)
- Department of Assistive and Rehabilitative Services (DARS)
- Department of Aging and Disability Services (DADS)
- Department of Insurance (TDI)
- Texas Education Agency (TEA)
- Health and Human Services Commission (HHSC)
- Medicaid
- Texas Medicaid & Healthcare Partnership
- CHIP/ Children's Medicaid
- AgriLIFE Extension, Texas A&M University

Academic Centers

- Medical Schools

Health Benefit Plans

- Health Maintenance Organizations (HMOs)
- Preferred Provider Organizations (PPOs)

Professional Associations

- Texas Medical Association
- Texas Academy of Family Physicians
- Texas Pediatric Society
- Texas Hospital Association
- Texas School Nurses Organization (TSNO)
- American Association of Diabetes Educators
- Texas Chapter of the American Association of Clinical Endocrinologists
- Texas Podiatric Medical Association
- Texas Ophthalmological Association
- Texas Osteopathic Medical Association
- Texas Dietetic Association
- Texas Association for School Nutrition

Peer Review Organizations

- Texas Medical Foundation (TMF) Health Quality Institute

Texas Legislature

- Senators
- Representatives

International Partners

- US-Mexico Border Diabetes Prevention and Control Project

Community-Based Organizations

- Faith-Based Projects
- Urban League
- Stark Diabetes Center

Local and Regional Health Departments

Community-Based Organizations

- Faith-Based Projects
- Urban League
- Stark Diabetes Center

Food Distribution and Marketing Organizations

ACTIVITIES AND SERVICES UPDATE

ACTIVITIES AND SERVICES UPDATE

Agency Implementation of State Plan

According to Health and Safety Code Chapter 103. 013, each state agency affected by the Texas Diabetes Council state plan shall:

(1) determine what resources would be required to implement the portions of the state plan affecting that agency; and (2) determine whether that agency will seek funds to implement that portion of the state plan. Not later than November 1 of each even-numbered year, each state agency affected by the state plan shall report this information to the council, the Legislative Budget Board, and the Governor's Office of Budget and Planning. Each state agency shall also explain each deviation from the Council's proposed plan, including an explanation for the deviation.

In addition to costs of state agency diabetes-related services presented on page 33, the Activities and Services Update that follows includes activities proposed by the TDC Strategic Plan that are implemented by the Texas Diabetes Program at the Texas Department of State Health Services. Staff work with legislators, state agency liaisons, and health care organizations across the state to implement TDC recommendations as funding allows, and develop legislation and funding requests that promote a comprehensive plan to prevent and control diabetes in the state. The summary of diabetes-related legislation in the Appendix captures the combined efforts of these organizations to implement the Council's plan over the past twenty-five years.

The Council seeks to coordinate statewide diabetes prevention activities in an open, collaborative manner where proposed activities that deviate from the Council's approved strategies may be addressed by all involved with the goal of achieving consensus.

Priority 1: Advancing Public Policy Affecting Diabetes

Advocacy and Coordination

The legislation creating the Texas Diabetes Council requires its members to advise lawmakers "on legislation needed to develop further and maintain a statewide system of quality education services for all persons with diabetes."

The Texas Diabetes Program at the Texas Department of State Health Services (DSHS), along with the Texas Diabetes Council (TDC) and its committees, implements a number of programs and activities that reflect the five priority areas of the TDC's strategic plan. As a Centers for Disease Control and Prevention (CDC)-funded State Diabetes Prevention and Control Program (DPCP), direction for program implementation is also provided at the federal level. This report includes highlights of activities for the biennium including state fiscal years 2007–08, grouped according to priorities of the TDC Strategic Plan for 2009–10.

The Texas Diabetes Council's Advocacy and Outreach Committee provides a forum for Council members and organizations with similar health promotion goals to discuss education and health care policies affecting Texans with diabetes and other chronic diseases. Past meetings have included representatives of the American Diabetes Association, Juvenile Diabetes Research Foundation International, American Dietetic Association, American Association of Diabetes Educators, Texas Medical Association, Texas School Nurses Organization and Texas health maintenance organizations (HMOs). Based on input obtained at committee meetings, Council members have developed positions on the following topics:

- Pediatric diabetes research;
- Medicaid and Children's Health Insurance Program (CHIP) coverage of self-management training and prescriptions;
- State funding for the University of Texas Medical Branch Stark Diabetes Center's efforts to expand diabetes prevention and control programs in underserved communities;
- Care of children with diabetes in school and after-school care settings;
- Assessment and follow-up of youth for risk for type 2 diabetes;
- Stem cell research;
- Health insurance coverage of diabetes medications, equipment, supplies, and self-management training;
- Physical activity, good nutrition, and healthy body weight;
- Diabetes education for primary care providers;
- Education for law enforcement personnel;
- National funding for diabetes prevention;
- Nutrition education for Lone Star Card recipients;
- Availability of foods of minimal nutritional value through the Food Stamp Program;
- Diabetes in prison;
- Passenger bill of rights legislation (related to air travel for persons with diabetes).

Legislative Priorities

The committee recommended priority issues for the TDC during the 80th Legislature, and TDC members advocated for passage of the following companion bills:

1) **SB 1226/HB 3917: Self-management training under Medicaid and the child health plan (CHIP) program**

2) **SB 1090/HB 3697: Implementation and funding of recommendations of the Texas Pediatric Diabetes Research Advisory Committee that : a) diabetes diagnosed before the age of 18 years be a disease reportable to the Department of State Health Services, and b) a Texas Childhood Diabetes Research Resource be established**

Although none of the bills addressing TDC priorities were passed, the TDC and committee members continue to examine issues related to self-management training offered through Medicaid and increases in type 2 diabetes among youth. A listing of diabetes-related legislation passed during the 80th Legislature as well as significant bills from previous sessions can be found on page 79.

Disease Management and Medicaid

Disease management is a system of coordinated, sequential activities instituted by health plans/payers to reduce medical care costs and to improve health outcomes through better management of chronic conditions. Examples of disease management activities range from basic reminder systems for appointments to home visits by licensed clinical specialists providing patient education and encouragement for adherence to treatment protocols.

Legislation passed in 2003 (78R) directed the Health and Human Services Commission to implement a comprehensive Medicaid disease management (DM) program for eligible fee-for-service (HB 727) and managed care/CHIP clients (HB 1735).

The varying methods of applying disease management to the Medicaid system have given rise to a number of questions regarding disparities in the diabetes management provided. Specifically, the TDC has reviewed policy and practice regarding provision of diabetes self-management training and payment for medication and supplies under Medicaid.

While health plans defined and regulated by the Department of Insurance provide diabetes self-management education through certified diabetes educators, reports from health care professionals across the state and review of policy indicate that the education services provided Medicaid recipients vary in frequency and substance across Medicaid delivery systems (Fee-for-Service, HMOs, and Primary Care Case Management).

Services of certified diabetes educators are not a covered benefit under Medicaid, and diabetes self-management education may be provided through a number of sources including primary care providers, community programs, or telephone counseling.

In 2008, the Texas Diabetes Program worked with the Texas Medicaid and Healthcare Partnership's Health Management Workgroup to develop recommendations for Medicaid coverage of self-management training, particularly for women with gestational diabetes and children. The Program also identified childhood diabetes experts at Texas Children's Hospital in Houston to provide recommendations for an online training module that will assist Texas Health Steps/Medicaid providers in identifying and treating youth with diabetes.

Medicaid Delivery Systems

Traditional Medicaid/Fee-for-Service Reimbursement: The traditional health care payment system, under which physicians and other providers receive a payment for each unit of service they provide.

Health Maintenance Organizations (HMO): Organizations licensed by the Texas Department of Insurance that deliver and manage health services under a risk-based arrangement. The HMO receives a monthly "capitation" payment for each person enrolled based on an average projection of medical expenses for the typical patient.

Primary Care Case Management (PCCM): In this non-capitated model, each PCCM participant is assigned to a single Primary Care Provider (PCP) who must authorize most other services, such as specialty physician care, before Medicaid can reimburse them. The state sets up physician networks and contracts directly with providers. Providers receive fee-for-service reimbursement, plus PCPs receive a small monthly case management fee for each client.

Encountering Diabetic Emergencies: A Roll Call Video for Law Enforcement

Persons with diabetes experiencing low blood sugar (hypoglycemia) can display symptoms that are easily mistaken for intoxication – slurred speech, confusion, irrational behavior and dazed appearance. To help law enforcement recognize and respond to a diabetic emergency during routine traffic stops and other daily encounters with persons who may have diabetes, the TDC Advocacy and Outreach committee initiated production of an instructional roll call video and quick-reference notepad. The video was distributed to more than 2,500 law enforcement agencies across the state with a business reply card for training officers to use in ordering materials as they schedule roll call viewings or in-service trainings.

Priority 2: Evaluating the Impact of Diabetes in Texas

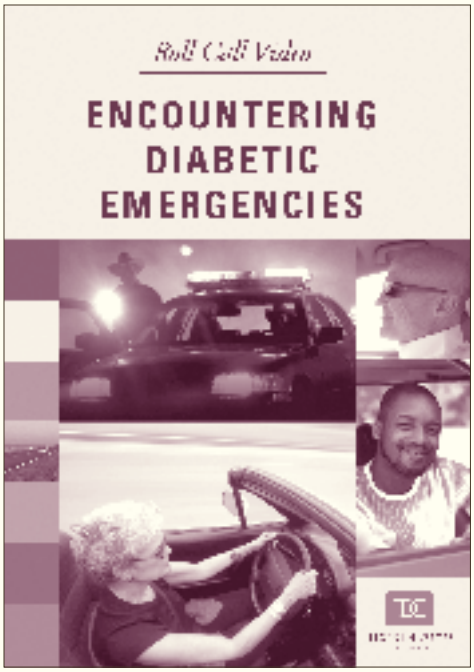
Behavioral Risk Factor Surveillance System

The DSHS Diabetes Program contracts for annual statewide telephone surveys using the Behavior al Risk Factor Surveillance System (BRFSS), a population-based method endorsed by the Centers for Disease Control and Prevention.

Participants' replies to diabetes questions help state and national agencies estimate the prevalence of diagnosed diabetes and describe the preventive services that people with diabetes recall they have received within the previous year. For more information about Texas BRFSS data, visit www.dshs.state.tx.us/chs/brfss/default.shtm.

Hemoglobin A1c Registry – San Antonio Metropolitan Health District (Metro Health)

The registry is an 18-month, state-authorized pilot project (HB 2132, 80R) that allows Metro Health to



gather hemoglobin A1c test results from San Antonio laboratories to conduct population surveillance. The A1c test serves as a medical marker, indicating how well a person diagnosed with diabetes is managing his or her blood sugar levels over a period of time. Data collected will be assessed to determine local levels of diabetes control and possible target areas for future diabetes research and education.

The pilot registry will be the second such public health registry in the country. The New York City Department of Health and Mental Hygiene initiated the first registry last year. The company which provided assistance to NYC, Vermont Clinical Decision Support, LLC, will collaborate with Metro Health to network local laboratories for the collection, storage and maintenance of registry data. Data will be reported to the Texas Department of State Health services as required by HB 2132 and, at the pilot's conclusion, a summary report will be given to the governor and legislature.

US–Mexico Border Project

The Texas Diabetes Council/Program was a partner in the development and completion of the nation's first study to treat the border as a single epidemiological unit and measure diabetes and the prevalence of impaired fasting glucose, or pre-diabetes. The study showed that people living in counties within 60 miles of the US-Mexico border have higher rates of diabetes, almost twice the rate for Texas. The study also showed that a higher percentage of border residents are overweight and obese than national averages in both Mexico and the United States.

The Collaborative US-Mexico Border Diabetes Prevention and Control Project found that almost 16% of border residents have type 2 diabetes, and an additional 14% have pre-diabetes. Almost 75% of the border adult population are overweight or obese, compared to two-thirds of Texas adults.

The bi-national study included data collected from February 2001 to October 2002 by household surveys in Texas, California, Arizona, New Mexico, and the six Mexican border states. In addition to interviews, researchers measured body size and blood pressure and took blood tests. Blood test results indicated that 2.6% of the people on the U.S. side had diabetes that was not previously diagnosed.

Next steps for the project include a focus on increasing access to education and health care for persons with diabetes and those at risk for developing the disease. This will be accomplished through workforce development and capacity-building activities in project regions, targeting primary health care providers, community health workers, and policy makers.

HEDIS: Healthcare Plan Performance

State law requires basic-service health maintenance organizations (HMOs) to report their performance on five measures related to diabetes. These reports are included in the Health Plan Employer Data and Information Set (HEDIS), which is sponsored, supported, and maintained by the National Committee for Quality Assurance, an independent, nonprofit organization (www.ncqa.org). Findings from chart reviews conducted by the HMOs indicate progress in delivering care to persons ages 18 to 75 years who have diagnosed diabetes, but Texas falls behind the nationwide average *(Figure 10)*. In an effort to encourage improvement in Texas performance measures, the TDC instituted an HMO Recognition Program in 2006 . The Council recognizes Texas HMOs exceeding the state average for all HEDIS performance measures relating to comprehensive diabetes care on a biennial basis. Recognition is based on averages presented in the Guide to Texas HMO Quality, part of the Texas Health Care Information Collection at the Texas Department of State Health Services.

Priority 3: Promoting Comprehensive Programs for the Prevention of Diabetes

Partnership for a Healthy Texas

The Partnership for a Healthy Texas is comprised of more than 40 organizations aimed at developing and promoting programs that prevent and treat obesity in Texas, including the American Diabetes Association, American Heart Association, American Cancer Society, and the TDC.

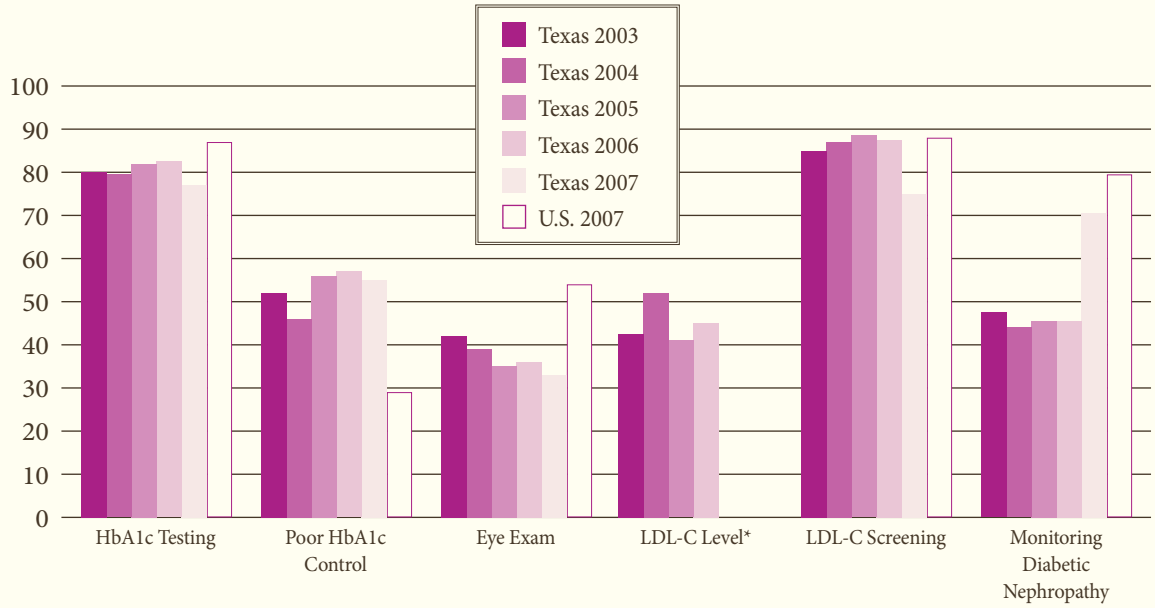
Priorities for the 81st Legislature are:

1) **Support Implementation of Coordinated School Health**
   - Support funding of school health specialists through Texas Education Agency
   - Strengthen criteria for school health advisory committee (SHAC) organizational structure to make them more effective (required number

FIGURE 10

Comprehensive Diabetes Care: HEDIS Measures for Texas, 2003–2007 Data

State of Texas vs. U.S. Average



*LDL-C Level no longer a performance measure starting in 2007

of meetings, parent chair or co-chair, report to school board yearly)

- Support funding for schools to implement coordinated school health

2) **Improve Nutrition Education and Access to Healthy Foods**

- Support existing Texas Public School Nutrition Policy
- Promote nutrition and nutrition education in public schools and early childhood environments
- Support the expansion of farm-to-school programs to reach more Texas school children
- Study the feasibility of incorporating WIC/Food Stamp programs into farmer's market locations

3) **Strengthen Physical Education in Schools and Communities to Reflect Best Practice**

- Establish criteria for new school construction that promotes physical education
- Collect and analyze data on physical education class sizes and physical education teacher certification
- Support daily recess
- Improve physical education in early childhood environments
- Promote built environments that integrate physical activity into daily life

4) **Promote Worksite Wellness Programs**
   - Provide incentives for employers to establish worksite wellness programs
   - Worksite wellness programs should include nutrition, physical education, and tobacco cessation counseling; and insurance discounts for preventive services
   - Support private sector programs as models for the public sector
   - Encourage employers to provide opportunities for employees to be active during the day, including open, safe stairwells, and other places to walk. Business and organizations should also focus on providing healthy options in vending machines and in cafeterias

5) **Support Comprehensive Evidence-Based Programs at the Community Level that will have an Impact on Obesity**

6) **Monitor Texas Department of Agriculture Sunset Review Process to Strengthen Implementation of Nutrition Policy**

Proposed action for each priority can be found on the Texas Health Institute web site, www.texashealthinstitute.org.

Texas School Nutrition Policy

In 2004, the TDC applauded Texas Department of Agriculture (TDA) Commissioner Susan Combs for establishing the Texas Public School Nutrition Policy limiting student access to foods of minimal nutritional value at school and providing stricter nutrition standards for schools participating in the National School Lunch Program. The Texas Public School Nutrition Policy remains an important component of a comprehensive approach to controlling overweight and soaring rates of type 2 diabetes and its complications among both youth and adults. According to an article published in the American Journal of Public Health*, student consumption of milk, vegetables and important nutrients increased and calories from fat decreased following implementation of the policy. During the 80th Legislature, SB 34 attempted to codify the policy into Texas law, but was not passed. In 2008, the Sunset Advisory Committee, in reviewing the TDA, developed the recommendation that TDA should implement rules to administer and enforce the Texas Public School Nutrition Policy. The TDC, American Diabetes Association, and other advocates continue to support a strong school nutrition policy.

*Am J Public Health. 2008 Jan;98(1):111-7.

Risk Assessment for Type 2 Diabetes

In 1999, the University of Texas-Pan American Border Health Office was required by state legislation to establish an acanthosis screening pilot program in Texas schools in El Paso, Hudspeth, Cameron, Hidalgo, Jim Hogg, Starr, Webb, Willacy, and Zapata counties.

Subsequent legislation required that the ANTES (Acanthosis Nigricans: The Education and Screening Program) be expanded to include students in eleven of the twenty Education Service Center (ESC) regions in the state. To date, risk assessment training has been provided to more than 5,000 school nurses in these

regions who assess more than 700,000 students each year for risk factors associated with diabetes when conducting vision, hearing and spinal screenings.

The program screens for acanthosis nigricans (AN – associated with hyperinsulinemia and insulin resistance), conducting assessment of body mass index and blood pressure for children determined to have AN. School nurses provide students found to have AN with a medical referral that includes all screening results. Physicians receiving the referral are also informed that the child's visit may be reimbursed under Medicaid using CPT Code 701. 2. Figure 11 shows how the program has impacted doctor visits for AN from 1999 to 2005.

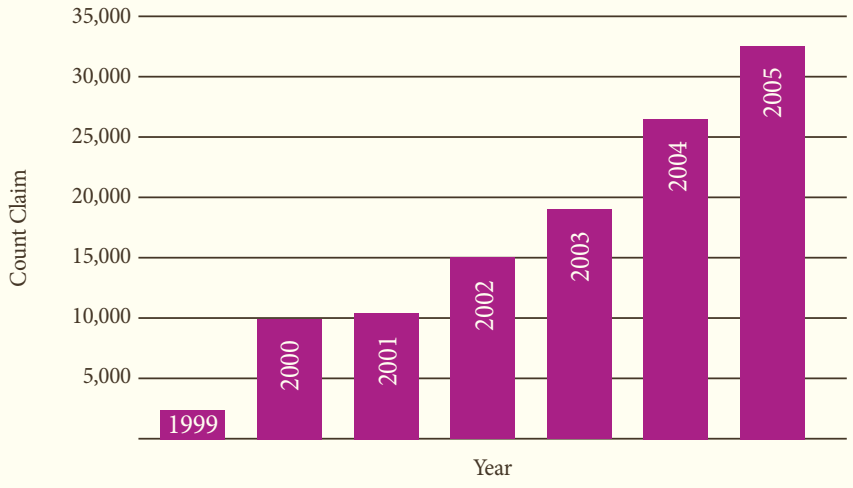
During the 80th Legislature, SB 415 was passed which changed the name of the ANTES program to the "Type 2 Diabetes Risk Assessment in Children Program," and established membership of a new program advisory committee appointed by the UT Pan American Border Health Office and the TDC. The first meeting of the advisory committee took place on February 29, 2008. Committee members reviewed the history of the program, noting how the screening program complemented the requirement of SB 530 (80R) for annual physical fitness assessments for students in grades 3–12, and overall quality of reports generated by the Risk Factor Electronic Data System developed by UT Pan American.

Advisory committee recommendations are found in the Appendices (page 83).

FIGURE 11

Acanthosis Nigricans CPT Code 701.2 Claim Count Among Children 0–17 years old

Texas Medicaid FY 1999–2005



Food Stamp Program

The TDC sent specific recommendations to Congress for a more healthful approach to the national Food Stamp Program as proposals for the 2007 Farm Bill were being considered. In a letter to chairs and Texas members of the House and Senate Agriculture Committees, the TDC encouraged incentives for buying healthy foods through the Food Stamp Program. Combining incentives with stronger nutrition education programs for food stamp recipients was recommended to help create preferences for healthy eating while increasing access to nutritious foods for those who cannot otherwise afford them.

Strategic Plan for the Prevention of Obesity in Texas

The Centers for Disease Control and Prevention recommends that obesity prevention strategies focus on five highly modifiable risk factors: calorie imbalance, insufficient fruit and vegetable consumption, physical inactivity, lack of adequate breastfeeding and increased screen time and other sedentary behaviors. A range of action items categorized by importance and ease of implementation are presented in the Strategic Plan for the Prevention of Obesity in Texas developed by the Texas Department of State Health Services.

http://www.texasbringinghealthyback.com/

Priority 4: Increasing Public Awareness, Promoting Community Outreach and Diabetes Education

Public Information Campaign

The Texas Diabetes Council/Program's public information campaign promotes prevention, early diagnosis, and careful management of diabetes, adapting campaign messages developed by the National Diabetes Education Program (NDEP) and other trusted sources for Texans with diabetes. Diabetes education programs across the state use TDC's low-literacy diabetes education materials and resources to convey complex diabetes management messages to their patients in simple, easy-to-remember terms. The most recent public information activities include:

- Development and distribution of CD-ROM and print versions of the fourth edition of the Diabetes Tool Kit, a teaching aid and educational resource for healthcare professionals;
- Quarterly distribution of *Texas Diabetes, the Newsletter of the Texas Diabetes Council*, a six-page publication with information about Diabetes Council activities and initiatives, patient and professional education resources, and diabetes statistical updates mailed to more than 31,000 health professionals and community leaders (also available on the web);
- Production and distribution of patient education videos and DVDs in English, Spanish, Vietnamese, and Mandarin Chinese;

- Purchase of broadcast time to air "Step by Step/ Paso a Paso" English and Spanish radio spots about diabetes prevention in targeted markets (see American Diabetes Alert Day below); and
- Development of 60-second radio public service announcements in English and Spanish with messages about pre-diabetes, risk factors for diabetes, complications of diabetes, and prevention through lifestyle changes. Announcements aired on 235 stations, and reached an estimated audience of 1.6 million radio listeners.

American Diabetes Alert Day

The American Diabetes Alert Day, held on the fourth Tuesday of every March, is a one-day, "wake-up" call drawing attention to the seriousness of diabetes. Building upon this observance, the TDC developed new "Paso a Paso" ("Step by Step") radio spots which aired in markets across the state on Hispanic radio stations and the Texas State Network, reaching an estimated 3.2 million listeners in March and April, 2008. The results of the Diabetes Prevention Program (DPP), a landmark study that proves diet and exercise are effective in preventing type 2 diabetes among persons with impaired glucose tolerance (pre-diabetes), provided messages for the spots:

"There are simple steps to preventing type 2 diabetes:

- "Increase your physical activity by getting just 30 minutes of physical activity 5 times a week;
- "Eat a variety of foods that are low in fat and reduce the number of calories you eat per day;
- "Lose a small amount of weight (5% to 7% of weight if overweight)."

Diabetes prevention and management were topics of four radio news features that aired free of charge on 235 stations in spring, 2008, reaching an estimated 1.6 million listeners per week for four weeks.

Listeners were provided the toll-free number of the National Diabetes Education Program (1-888-693-NDEP) for more information about preventing diabetes, including the "Your Game Plan for Preventing Type 2 Diabetes" materials which include a fat and calorie counter, physical activity tracker, and tips to help lower risk for type 2 diabetes.

TDC Patient Education Materials

The Texas Diabetes Council/Program makes available free, low-literacy patient education materials for order through the Texas Department of State Health Services literature warehouse. During fiscal year 2008, the Diabetes Program distributed more than 300,000 pieces of printed materials. The following resources for patients are available in both English and Spanish. Videos and DVDs also are available in Vietnamese and Mandarin Chinese :

- *Taking Charge of Your Health: Controlling Diabetes One Day at a Time*, a kit designed to support educational classes or groups;
- *Controlling Diabetes One Day at a Time* (video and DVD), a brief overview of self-management guidelines for people who are newly diagnosed with type 2 diabetes;
- *Food for Life: Living Well with Diabetes*, a booklet describing healthy eating habits and dietary choices along with recommended portion sizes;
- *Diabetes Health Record*, a wallet-size card for recording results of medical examinations;
- *Foot Poster*, a colorful reminder that diabetes patients should remove their shoes for a foot examination at healthcare visits;
- *Could You Have Diabetes?* a quiz that encourages patients to share information about their risk factors and symptoms with their physician;
- *Living with Diabetes*, a brochure that includes tips for managing diabetes and to-do lists for before, during, and after a doctor visit;
- *Give Your Child a Healthy Headstart*, a brochure for parents to help their children manage their weight, exercise and develop healthy habits to prevent obesity and type 2 diabetes;
- *Getting the Facts About Diabetic Eye Disease*, a brochure explaining the increased risk for eye diseases such as diabetic retinopathy, cataracts and glaucoma faced by persons with diabetes, and the importance of an annual dilated eye exam for saving sight.

In addition to producing these resources, the Council/Program works with the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) to distribute information on gestational diabetes for WIC clients.

National Diabetes Education Program

The National Diabetes Education Program (NDEP) is a federally sponsored initiative that involves more than 200 public and private partners, including the Texas Diabetes Council/Program, to improve treatment and outcomes for people with diabetes. It is a joint initiative of the National Institutes of Health, the National Institute of Diabetes and Digestive and Kidney Diseases, and the Centers for Disease Control and Prevention.

NDEP experts review diabetes prevention and control messages for accuracy and effectiveness, and they are incorporated into educational materials and radio public service announcements produced by the Texas Diabetes Council/Program. NDEP resources also are featured in the Texas Diabetes newsletter and the TDC Diabetes Tool Kit, a teaching aid for healthcare professionals who work with people who have diabetes.

TDC members and Program staff participated in the planning and dissemination of several NDEP products and initiatives, including:

- Diabetes at Work: The Diabetes Program is represented on the NDEP Business and Managed Care (BMC) Work Group. The BMC Work Group aims to increase awareness of the clinical and economic benefits of quality diabetes care among employers, benefits managers, and managed care decisionmakers and promotes prevention of diabetes through worksite interventions. The web site, www.diabetesatwork.org, is a project of the BMC Work Group and includes tools employers can use to assess the prevalence and cost of diabetes in their organization, advice on choosing an appropriate health plan, and lesson plans for educating employees about diabetes management and prevention.
- The TDC included the NDEP publication, *Helping the Student with Diabetes Succeed*, as part of its training guidelines for the implementation of House Bill 984 (related to the care of students with diabetes in school). This comprehensive guide is designed to empower school personnel, parents, and students to create a safe learning environment and equal access to educational opportunities for all students with diabetes.
- The Diabetes Program and its community-based diabetes program partners will utilize the *Road to Health/El Camino Hacia la Buena Salud Tool Kit* for community health workers/promotores(as) upon its release in fall 2008. The Tool Kit is designed for reaching high-risk Hispanic/Latino and African American communities targeted by community health workers with the message of the Diabetes Prevention Program (DDP) study – *Type 2 diabetes does not have to be our destiny, since type 2 diabetes can be prevented or delayed.* Focus groups conducted by the NDEP with community health workers contributed to Tool Kit components, including a flipchart for one-on-one patient education, activities guide, resource guide and instruction on how to use the tool kit in communicating information about type 2 diabetes, healthy eating habits, and appropriate physical activity.

"Be S.A.F.E. from Diabetes Campaign" – South Texas

The "Be S.A.F.E. from Diabetes" community service program, started in 2005 by ABC Affiliate, KIII-TV, Channel 3 in Corpus Christi, has been an agenda item for the TDC Advocacy and Outreach committee since its inception. Current and former TDC members and representatives of state-funded community diabetes projects in the area continue to report ongoing campaign activities, appear in local television PSAs and interviews, and serve on advisory boards to plan future diabetes education efforts for South Texas. Through PSAs and weekly interviews with diabetes experts, KIII-TV encourages viewers to be S.A.F.E.:

S: Stop High Calorie Drinks
A: Alter Snack Habits
F: Forget Fatty Foods
E: Exercise Daily

The TDC recognized the community service efforts of KIII-TV with a proclamation from the governor, including special recognition of the Domingo Live show for integrating interviews with diabetes experts and disease prevention messages into its music and entertainment format for Hispanic audiences.

End Stage Renal Disease Prevention Program

The Texas Renal Coalition, National Kidney Disease Education Program (NKDEP), and National Kidney Foundation strive to increase early detection of chronic kidney disease (CKD) and to improve patient outcomes by encouraging more routine testing of at-risk patients. Use of an estimating or prediction equation to calculate glomerular filtration rate (GFR) from serum creatinine is recommended to determine kidney function of people with CKD and those at risk (those with diabetes, hypertension, cardiovascular disease, or a family history of kidney disease).

In Texas, House Bill 1373 (80R) amended the Health and Safety Code to create the Chronic Kidney Disease Task Force. The bill provides for the task force's composition and duties, including the development of plans relating to early screening, diagnosis, and treatment of chronic kidney disease, end-stage renal disease education, and early renal replacement therapy. Not later than January 1, 2009, the task force is required to submit its findings and recommendations to the governor, lieutenant governor, speaker of the house of representatives, and presiding officers of the Senate Committee on Health and Human Services and the Public Health Committee of the House of Representatives.

The 80th Texas Legislature also allocated funding during the 2008–09 biennium for a program to decrease the number of new end-stage renal disease (ESRD) cases in Texas (ESRD Prevention Program). The program works in conjunction with the Texas Renal Coalition and the Chronic Kidney Disease Task Force to provide educational services designed to increase awareness, early diagnosis and treatment of chronic kidney disease (CKD) and its consequences.

Both the Chronic Kidney Disease Task Force and the activities of the ESRD Prevention Program are implemented through the Diabetes Program at the Department of State Health Services. The Chronic Kidney Disease Task Force was appointed by the governor in April 2008 and held its first meeting on May 12, 2008, developing work groups to complete its charges.

A statewide prevention campaign targeting Texans at risk for ESRD and their health care providers was implemented with funding allocated by the Legislature in summer 2008. The **"Love Your Kidneys"** campaign tells persons with diabetes, hypertension and/ or a family history of kidney disease to get tested for kidney disease through television spots, radio reads, signage in pharmacies and grocery stores and posters in doctors' offices.

Physicians are reminded to **"Save Their Kidneys"** through screening and treatment recommendations provided in mailings from the Texas Department of State Health Services and the Texas Renal Coalition along with ads in professional journals. The Texas Medical Foundation Health Quality Institute also

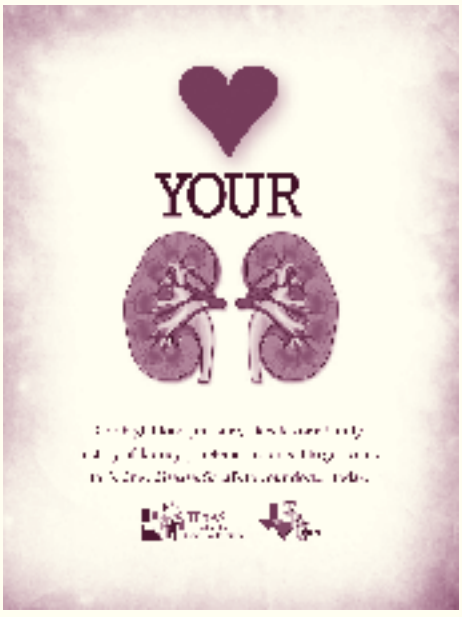
promotes the campaign in their launch of a quality improvement project for Medicare physicians urging timely testing of urine microalbumin to identify kidney failure, prescription of an ACE inhibitor or antiotension receptor blocking agent to slow progression of kidney disease in hypertensive patients, and increased use of arteriovenous (AV) fistula for individuals receiving hemodialysis treatment. For more information about the campaign and chronic kidney disease, visit www.savekidneys.com.

Youth with Diabetes

HB 984. House Bill 984 (79R) relates to the care of students with diabetes in schools. The bill mandates that principals identify unlicensed diabetes care assistants (UDCAs) to assist with caring for students during the regular school day or while participating in a school activity. The bill also mandates that the TDC develop guidelines for training school personnel to be diabetes care assistants.

The Diabetes Program continues to develop guidelines for training, with the assistance of the following organizations: Texas School Nurses Organization, American Diabetes Association, Juvenile Diabetes Research Foundation, American Association of Diabetes Educators, Texas Nurses Association, Texas Education Agency, and DSHS School Health Program.

The Diabetes Program has developed a list of frequently asked questions related to HB 984, which is posted on the TDC web site. The Program's nurse consultant is available to answer questions from schools related to HB984 and assists with trainings for school staff.



The Diabetes Program has allocated funding to Education Service Centers to provide training for school districts regarding HB984. The Diabetes Program assists in training of the DSHS School Health Program's School Health Network to promote implementation and compliance with HB 984.

Consulting services. The Diabetes Program staff serves as a resource for schools, parents, and physicians on issues related to type 1 and type 2 diabetes care for children and youth. Staff members are available for consultation with primary care providers and school personnel who want to help students with diabetes engage in necessary self-care at school. The Diabetes Program also helps promote awareness of other resources, including the National Diabetes Education Program's tip sheets for youth and guide for school personnel, parents, and students; the American Diabetes Association's school personnel training; and the curriculum of the National Association of School Nurses.

Texas Health Steps Training Module. Texas Health Steps (THSteps) is Medicaid's comprehensive preventive child health service for individuals from birth to 20 years of age, providing medical, dental and case management services. During FY08, the Diabetes Program consulted with THSteps in developing an online training module for providers to assist in identifying and treating children with diabetes. Pediatric diabetes experts at Texas Children's Hospital in Houston were contacted to advise on content for the module, which focuses on identifying and treating modifiable risk factors for diabetes and management of existing diabetes. A Texas Diabetes Council tour of the Texas Children's Diabetes Care Center earlier in the year had acquainted Diabetes Program staff with pediatric diabetes services and research conducted by the Center, where some 30% of children newly diagnosed with diabetes have type 2 diabetes – close to 75 new cases each year.

Insurance Resources for Persons with Diabetes

Access to health care continues to be a major obstacle to diabetes management for people with diabetes who cannot afford health insurance. Diabetes is also a pre-existing condition that can cause insurers to deny or limit coverage.

The Diabetes Program maintains resource lists for persons who are uninsured or underinsured and find themselves without the medication or supplies necessary to manage the disease. Frequently asked questions related to insurance issues are posted in the "Insurance" section of the Texas Diabetes Council web site along with legislation related to insurance coverage for diabetes.

Community Diabetes and Family Focused Projects

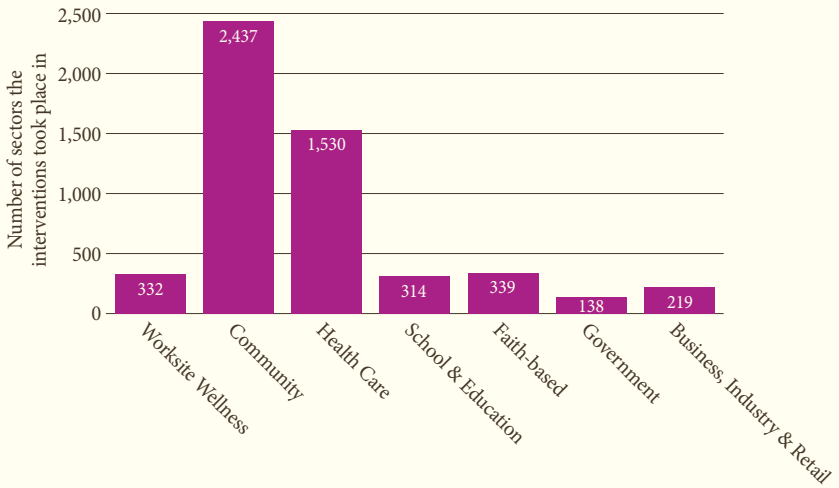
Since 1986, the Texas Diabetes Program has received state Diabetes Prevention and Control Program (DPCP) funding from the Division of Diabetes Translation, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. These funds help state health departments:

- Build on expertise in program, science, and policy areas to control and prevent diabetes;
- Coordinate statewide diabetes control and prevention;
- Expand systems to define and analyze the scope of the diabetes problem;
- Improve access to diabetes care for all people and raise the quality of that care;
- Use statewide public health projects to reduce diabetes-related problems; and
- Inform, educate, and empower external supporters to control and prevent diabetes.

As the state DPCP for Texas, the Texas Diabetes Program has contracted with community-based organizations, including federally qualified health centers, local health departments, and other nonprofits, to achieve these objectives. Currently, eighteen Community Diabetes Projects (CDPs) receive funding through the Diabetes Program to increase opportunities in the state for implementing positive behavior and lifestyle changes in people with diabetes and those at risk for developing it. Projects receive technical support and training to follow a comprehensive model for diabetes prevention and control within their communities, impacting various sectors of the areas they serve. Figure 12 reflects the number of diabetes interventions implemented by CDPs during state fiscal year 2008 by sector addressed. These CDPs have established successful programs for promoting wellness, physical activity, weight and blood pressure control, and smoking cessation for people with diabetes. The CDPs are found in both rural and urban settings and target racial and

FIGURE 12

Number of Diabetes Interventions Implemented by Community Diabetes Programs in FY2008 by Sector



ethnic minorities who have disproportionate rates of diabetes and limited access to health services.

One of the CDPs' key activities is facilitating classes and support groups that educate people with diabetes about not only diabetes control, but also emotional issues and effective communication with family, friends, and health professionals. Sessions are offered in senior centers, churches, libraries, hospitals, health centers, and other community settings throughout Texas using culturally appropriate materials and teaching methods. The community-based organizations supported through the Texas Diabetes Program and the Centers for Disease Control are:

- City of Austin Health and Human Services Department;
- Texas Association of Community Health Centers;
- Jefferson County Family-Focused Diabetes Project;
- Corpus Christi-Nueces County Public Health District;
- Dallas Concilio of Hispanic Service Organizations;
- Project Vida Health Center, El Paso;
- Tarrant County Hospital District;
- University of Texas Medical Branch at Galveston/ Proyecto Juan Diego, Brownsville;
- Prairie View A&M Research Foundation;
- Gateway Community Health Center, Inc., Laredo;
- DSHS Public Health Region 4 & 5, Gilmer;
- Community Health Center of Lubbock;
- Migrant Health Promotions, Inc., Weslaco;
- Shannon Health System, San Angelo;
- San Antonio Metropolitan Health District;
- Community Health Development, Inc., Uvalde;
- Victoria City-County Health Department; and
- Waco-McLennan County Public Health District

Program Management and Tracking System (PMATS) data demonstrate the reach of CDP intervention activities in 2008:

CDP Intervention Activities, FY2008

Self Management Classes

Classes provided in English: **454**/Spanish: **402**

New Participants: English: **5,663**/Spanish: **4,315**

General Diabetes Education

Sessions or events: **771**/New participants: **16,638**

Support Groups

Classes Given: English: **227**/Spanish: **329**

New Participants: English: **1,848**/Spanish: **3,447**

Physical Activity

Sessions or events: **1,492**/New participants: **39,030**

Information Activities

Newsprint (articles, ads, press releases, inserts): **203**
Radio (interviews, ads, PSAs, reports): **133**
Television (interviews, ads, PSAs, reports, public videos): **109**
Web page hits: **26,643**
Calls received: **1,556**
Referrals made: **1,960**
Materials distributed to Clients: **285,113**
Materials distributed to providers: **26,086**
Health care providers reached: **936**

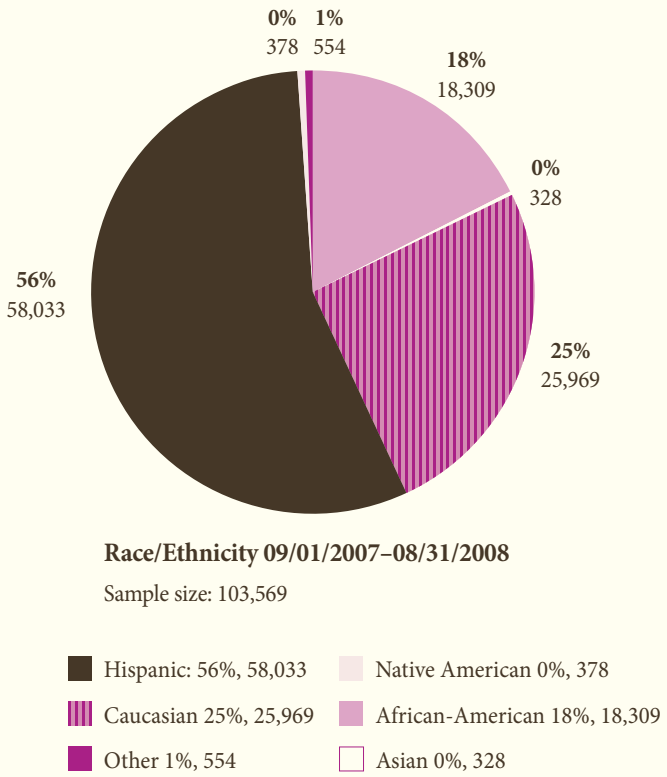
Community Diabetes Projects address diabetes management topics using resources such as the **Do Well, Be Well with Diabetes** program, developed by AgriLife Extension at Texas A&M University and the **Diabetes Empowerment Education Program (DEEP)** developed by the University of Chicago Midwest Latino Health Research, Training and Policy Center.

The **Do Well, Be Well with Diabetes** program covers nine basic nutrition and self-care management topics delivered in five sessions. Offered in up to 75 Texas counties annually, county extension agents are trained to organize local health professionals to help plan, market, and provide the class series with the goal of improving attendee blood glucose management. In 2007, 1,724 people with diabetes registered for classes with 1,122 (65%) completing the five-week series.

Offered in English and Spanish, the **Diabetes Empowerment Education Program (DEEP)** has demonstrated how diabetes education programs delivered by community health workers/promotores(as) can be effective with minority and disadvantaged populations. In Texas, Gateway Community Health Center has implemented the curriculum in diabetes education classes for residents of Laredo and Webb county. Building upon their successes with the program, Gateway and Migrant Health Promotions in Weslaco have trained community health workers from diabetes programs across the state to implement the DEEP curriculum in the populations they serve. The curriculum has also been taught to promotores(as) who will deliver family-focused diabetes education in the homes of persons with diabetes along the border as part of the intervention phase of the U.S. Mexico Border Diabetes Prevention and Control Project (see page 53). The value of the DEEP curriculum has been recognized by Medicare quality improvement organizations in Texas and other states as they develop projects to expand capacity for communities to offer DEEP classes and promote referral to classes by Medicare physicians. Florida's Medicare quality improvement organization recruited Gateway Community Health Center to train community volunteers from 33 Florida counties in use of the curriculum.

FIGURE 13

Demographic Information on Community Diabetes Project Intervention Activities, FY2008



Project DEAP (Diabetes Education Awareness Prevention) implemented by the **Cooperative Extension Program of Prairie View A&M University** has trained county extension agents in Bell, Bexar, Cass, Dallas, Ft. Bend, Grimes, Harris, Travis, Waller, Washington and Webb counties in the use of the DEEP curriculum. In FY 08, Project DEAP provided an opportunity for more than 10,000 Texans to receive diabetes information through newsletters, classes, health fairs and other activities with 400 participants attending classes taught by County Extension staff using pre- and post-tests to assess participant knowledge of diabetes management.

In addition to use of the *Do Well, Be Well with Diabetes* program and *DEEP,* other community diabetes projects funded by the Texas Diabetes Program have developed their own evidence-based education resources for use in the communities they serve.

'Walk Texas!'

"Walk Texas!" was initiated in 1996 to address the increasing problem of sedentary lifestyles among adult Texans. "Walk Texas!" is a community-based program whose mission is to promote the health of Texans by increasing awareness and opportunities

for individuals to engage in regular physical activity and sound nutritional practices. Walking is one of the safest and most natural forms of physical activity that can help prevent and manage diabetes and other chronic health conditions. The Texas Diabetes Program contracts with the University of Texas at Austin Department of Kinesiology and Health Education to implement the program (http://www.dshs.state.tx.us/diabetes/walktx.shtm).

University of Texas Medical Branch (UTMB) Stark Diabetes Center Partnership to Improve Diabetes Prevention and Care in Texas

The TDC supports funding of UTMB to expand diabetes prevention and control programs in underserved communities.

With funding from the legislature, the UTMB Stark Diabetes Center will export its model for community outreach and education to establish regional centers in the state with expertise in reaching out to underserved communities to prevent and control diabetes. In particular, the Stark Diabetes Center will lend its expertise in telehealth and teleconferencing, as well as the skills of its diabetes educators – using materials and programs recommended by the TDC.

The Council only supports new appropriations for this project as opposed to re-directing existing appropriations for diabetes prevention and control to UTMB.

The Stark Diabetes Center's geographically expanded services will strengthen current TDC capacity for professional and patient education in underserved areas of Texas. The partnership will facilitate improved:

Clinical Systems Change

- Promote implementation of clinical systems change to ensure delivery of evidence-based minimum standards of care for type 1 and type 2 diabetes (for youth and adults) and gestational diabetes.
- Provide a mechanism for distribution of TDC algorithms for management of diabetes in adults and children.
- Assure Stark Diabetes Center's participation in the TDC Outcomes Subcommittee, which evaluates the use of minimum standards and algorithms by healthcare providers who treat patients with diabetes.

Patient Education

- Coordinate with Council-funded community-based organizations to promote appropriate use of community health workers and promotores(as) for reinforcement and support of diabetes education.
- Provide quality self-management education programs.

Priority 5: Improving Diabetes Care and Prevention of Complications by Health Care Professionals

Professional Preparation and Continuing Education

The Texas Diabetes Council/Program works with a variety of organizations and institutions to plan and promote professional preparation and continuing education for primary care physicians and other members of the healthcare team. The Council supports programs in a variety of settings and media that offer convenience and focused content. Activities in this area are described below:

- To increase awareness of the Council/Program's resources and promote diabetes content in courses for healthcare professionals, the chair of the Diabetes Council meets with representatives of the state's health science centers and medical schools. The visits are the first step to establish partnerships to assure that the schools' leaders know they can call on the Council's expertise as needed (and vice versa).
- The TDC co-sponsors and exhibits at professional conferences that draw attendance from across Texas, including meetings of the Texas Academy of Family Physicians, Texas Medical Association, Texas Osteopathic Medical Association, Texas Pediatric Society, Texas Chapter of the American Associaton of Clinical Endocrinologists and the American Diabetes Association.
- The TDC builds partnerships with and publicizes the efforts of the Texas Academy of Family Practice Physicians, the Texas School Nurses Organization, Texas Medical Association, TMF Health Quality Institute, the Texas Diabetes Institute, and other institutions that offer continuing education.
- The Texas Diabetes newsletter updates more than 31,000 healthcare professionals and other readers on state diabetes programs, TDC activities, and legislation.

Other publications for healthcare professionals include the Diabetes Tool Kit and treatment algorithms.

Eliminating Health Disparities

The Texas Diabetes Council/Program supports the federal Health Resources and Services Administration, the Texas Association of Community Health Centers, and participating community health centers in the national collaborative to reduce health disparities. The Diabetes Learning Collaborative is one of several best-practice models to improve care for chronic diseases.

The Collaborative improves the delivery of care by changing the way staff schedule and provide care, by helping patients set personal goals to manage their diabetes, and by reaching out to local organizations for help with resources like diabetes education classes. The changes are based on healthcare improvement models that have been shown to delay or prevent the complications of diabetes.

Capacity and Infrastructure Development

The Texas Diabetes Council/Program funds the Capacity and Infrastructure Development (CID) grant, awarded to the Texas Association of Community Health Centers. The goals of this grant are to:

- Improve the health status of underserved, uninsured populations and ethnic minorities in Texas;
- Establish the capacity to develop and spread significant changes in public primary care systems for diabetes care; and
- Provide clinicians with the tools and resources needed for high-quality health care, a productive work environment, and strong clinical leadership.

The CID project is active in numerous sites representing at least 30 Texas health centers. These sites strive to implement the diabetes care model, which has four main components:

- **Patient registry.** Identify the center's patients who have diabetes, the care they have received, additional care they need, and their health status.
- **Decision support.** Adopt a standard of care; distribute a standard set of protocols; support consistent practice, procedures, and outcomes.
- **Delivery system redesign.** Emphasize regular and follow-up care rather than treatment of acute illness episodes.
- **Self management.** Focus on education and support to develop patient skills and change behavior, not just provide information; help patients set goals and be proactive in managing their diabetes.

For seven years, the CID has focused on sustaining progress made in existing sites, spreading the concepts and programs to additional sites, and enhancing data collection. A major effort to reduce patient waiting times for appointments and at clinics is also underway. In 2006, a total of 26,783 people with diabetes were enrolled in diabetes registries in Texas community health centers that participate in the CID project. Most of the patients had type 2 diabetes (97%). The majority were female (63%), age 50 and older (73%), and Hispanic (79%). More than 90% were overweight or obese, and almost half were uninsured.

Standards of Diabetes Care

Since 1995 the TDC has developed and continuously reviewed and revised minimum standards of care to be followed when treating patients who have diabetes. The standards are also used to define minimum benefits for health plans regulated by the Texas Department of Insurance. The Council's Healthcare Professionals Advisory Committee (HPAC), a panel of medical experts, develops the standards and treatment guidelines (algorithms and protocols) for the Council's review and approval.

HPAC key activities include :

- Publish and distribute in print, on compact disc, and on the web the Diabetes Tool Kit, a comprehensive teaching aid for healthcare professionals;
- Distribute the Minimum Standards for Diabetes Care in Texas to managed care companies, health plans, physicians, and employer groups throughout Texas;
- Develop, update, and distribute diabetes treatment guidelines, or algorithms, for use in primary care settings to deliver individualized care addressing insulin therapy, weight loss, prevention and delay of type 2 diabetes, foot care, medical nutrition therapy, physical activity, glycemic (blood sugar) control, lipids, and high blood pressure;
- Support continuing medical education activities for primary care physicians and other healthcare providers; and
- Develop methods to evaluate the extent to which recommended care is delivered, e. g., measuring A1c and trends in patient status.
- Provide input to the Texas Medicaid/CHIP Vendor Drug Program Drug Utilization Review Program regarding diabetes medications.

In partnership with American Association of Clinical Endocrinologist (AACE), HPAC members planned and conducted presentations for "An Update in Managing Diabetes in Texas," a continuing education program for health care professionals conducted in Amarillo (May 2007), Corpus Christi (October 2007), and Odessa (October 2008). In FY08, the committee published articles on treatment algorithms in the May 2008 Supplement of the Journal of the American Osteopathic Association.

5th Annual Diabetes Summit– Comprehensive Approaches to Diabetes Care

Held in Austin, the Annual Diabetes Summit sponsored by the American Diabetes Association features leading diabetes experts providing clinical updates to about 400 healthcare professionals. For the 5th Annual Summit, held April 17–18, 2008, the TDC sponsored an additional day of topics devoted to comprehensive approaches to diabetes care, including health care delivery system redesign, advocacy, legislative action, community education, health policy, and media messaging. Keynote speakers included Ann Albright, PhD, RD, Director, CDC Division of Diabetes Translation, and Francine R. Kaufman, MD, author of Diabesity – What You Need to Know if Anyone You Care About Suffers from Weight Problems, Pre-Diabetes, or Diabetes.

Improvement of Clinical Care for Cardiovascular Disease

The Texas Diabetes Council has collaborated with the Texas Council on Cardiovascular Disease and Stroke in implementing two projects funded through Bristol-Meyers Squibb (BMS) and Novartis:

The BMS project identifies clinical barriers to following and meeting secondary prevention guidelines for cardiovascular disease, and examines clinical practices that support implementation of NCQA standards for healthcare improvement. The project is being implemented through community health centers participating in a CVD collaborative, or learning group. The project is expected to assist in developing recommendations for the state Medicaid program to improve the implementation of these guidelines.

The Novartis pilot project targets Hispanic patients in increasing their awareness of high blood pressure and ways to improve its control and treatment. This project is being implemented through the community diabetes outreach efforts of Gateway Community Health Center in Laredo, which receives funding through the Diabetes Program at DSHS.

Diabetic Eye Disease Program

The Diabetic Eye Disease Program (DEDP) helps prevent blindness by providing funduscopic examinations to people with diabetes. In a funduscopic examination, the pupil is dilated, allowing an ophthalmologist or optometrist to identify proliferative diabetic retinopathy and other conditions that can lead to blindness. Proliferative diabetic retinopathy is the leading cause of blindness among adults. Diabetes also increases the risk for glaucoma and cataracts.

The DEDP pays for up to three eye examinations in a 12-month period for people who have incomes below 150% of poverty and lack other insurance coverage. Approximately 350 ophthalmologists and licensed optometrists in Texas provide reduced-cost exams. The DEDP provides almost 6,000 exams each year.

The funduscopic eye examination includes:

- Evaluation of visual acuity;
- Assessment of visual field, muscle function, and lens opacity (cataract);
- Measurement of intraocular pressure (glaucoma); and
- Recommendations for eye treatment/care.

Web Site Resources—www.texasdiabetescouncil.org

The TDC web site is comprehensive, authoritative, and user-friendly and features information for:

- **Health care professionals** (treatment algorithms and minimum standards for diabetes care, and the *Texas Diabetes* newsletter);
- **People with or at risk for diabetes and their families** (resource lists and extensive links to other diabetes-related sites);
- **Parents of children with diabetes** (HB 984 guidelines and frequently asked questions);
- **Policymakers** (TDC state plan);
- **Community-based diabetes programs** (promotions of the National Diabetes Education Program and the TDC);
- **Law enforcement personnel** (Encountering Diabetic Emergencies roll call video); and
- **The media** (diabetes data for Texas).

APPENDICES

APPENDICES

Appendix 1

Texas Diabetes Council Membership

(From Chapter 103. Texas Diabetes Council, Texas Health and Safety Code)

The Texas Diabetes Council is composed of eleven citizen members appointed from the public and one representative from each of the state agencies that work with people who have diabetes.

The governor, with the advice and consent of the senate, shall appoint the following citizen members: a licensed physician with a specialization in treating diabetes; a registered nurse with a specialization in diabetes education and training; a registered and licensed dietitian with a specialization in the diabetes education field; a person with experience and training in public health policy; three consumer members, with special consideration given to people active in the Texas affiliates of the Juvenile Diabetes Research Foundation International or the American Diabetes Association; and four members from the general public with expertise or demonstrated commitment to diabetes issues.

In making appointments under this section, the governor includes members of different minority groups, including females, African Americans, Hispanic Americans, American Indians, and Asian Americans.

Voting Members

Victor Hugo Gonzalez, MD, Chair, McAllen

Gene Bell, RN, CFNP, CDE, Vice Chair, Lubbock

Curtis Triplitt, PharmD, Secretary, San Antonio

Neil Burrell, DPM, Beaumont

Timothy Cavitt, Spring

Maria Duarte-Gardea, PhD, RD, LD, El Paso

John Griffin, Victoria

Avery Rhodes, Diboll

Dora Rivas, MS, RD, SFNS, Dallas

Melissa Wilson, MD, Corpus Christi

Don Yarborough, Garland

State Agency Representatives

(Non-Voting Members)

Texas Department of Aging and Disability Services

Texas Department of Assistive and Rehabilitative Services (including services for people who are blind)

Texas Department of State Health Services

Texas Education Agency

For more information on the Texas Diabetes Council/Program, contact:

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Appendix 2

Texas Legislation Related to Diabetes, 1983–2007

The following is a chronology of appropriations and bills passed by the Texas Legislature over the past twenty-five years. Each event represents the efforts of numerous legislators, advocates, special task forces and advisory committees working to improve the lives of Texans with diabetes. Texas Diabetes Council members have developed positions on bills, served on special committees, and advocated for priority legislation in addition to developing the biennial Plan to Prevent and Control Diabetes in Texas.

Events are arranged by topic to show progress made in specific areas.

1983: 68th Legislature passes Senate Bill 215 creating the Texas Diabetes Council

Appropriations for Diabetes:

- **1989:** Legislature appropriated $750,000 per year to support the Plan to Prevent and Control Diabetes.
- **1993:** Legislature appropriated $3.75 million per year to support the Plan to Prevent and Control Diabetes.*

*Current funding is included in the General Appropriations Act under Texas Department of State Health Services Strategy A.3.1.: Chronic Disease Prevention.

Standards of Care:

- **1997:** Legislature passed SB 162 requiring the Insurance Commissioner and TDC to develop minimum standards for healthcare benefits provided persons who have diabetes.

Youth and Diabetes:

- **2001:** Legislature created the Texas Pediatric Diabetes Research Advisory Committee. Recommendations submitted in 2002 include that:
  - Diabetes diagnosed before the age of 21 years be a reportable disease to the Texas Department of State Health Services, and
  - A Texas Childhood Diabetes Research Resource (TCDRR) be established.

In 2005 and 2007, legislation was filed to implement these recommendations, but did not pass.

- **2005:** HB 984 passed relating to care of children with diabetes in the school setting. Guidelines for training school employees who are not licensed health care professionals are posted on the TDC web site.

Risk Assessment for Type 2 Diabetes:

- **1999:** HB 1860 created a pilot program for acanthosis nigricans (AN) screening during vision/hearing/scoliosis screening in Education Service Center (ESC) Regions 1 and 19 (Rio Grande Valley and El Paso). The program is administered by the University of Texas Pan American Border Health Office.
- **2001:** HB 2989 expanded the AN screening program to ESC Region 2 (Corpus Christi), Region 3 (Victoria), Region 13 (Austin), Region 15 (San Angelo), Region 18 (Midland/Odessa), and Region 20 (San Antonio).
- **2003:** HB 2721 expanded screening to include ESC Region 4 (Houston), Region 10 (Dallas), and Region 11 (Fort Worth).
- **2007:** SB 415 established a program advisory committee to:
  - Recommend who is responsible for conducting risk assessments for schools who do not employ a school nurse;
  - Advise on age groups for risk assessment;
  - Recommend the method for recording/reporting the number of youth at risk for type 2 diabetes and who qualify for the free or reduced-price lunch program; and
  - Contribute to the TDC Plan to Prevent and Control Diabetes and recommend deadlines for implementing recommendations. See report on page 83.

Health Insurance Coverage of Diabetes Medications, Equipment, Supplies and Self-Management Training

- **1997:** SB 163 required a health benefit plan that provides benefits for the treatment of diabetes and associated conditions to provide coverage to each qualified insured for diabetes equipment, diabetes supplies, and diabetes self-management training programs.
- **1999:** SB 982 provided clarification of those allowed to receive reimbursement for providing diabetes self-management training.
- **2003:** SB 10 required a health benefit plan provided through a health group cooperative to provide coverage for diabetes equipment, supplies, and services.

Promotion of Physical Activity, Good Nutrition, and Healthy Body Weight

- **2001:** SB 19 required 135 minutes per week of physical activity for children in elementary schools and authorized school health advisory councils in all school districts to recommend hours of instruction in health education and a curriculum to address obesity, cardiovascular disease, and type 2 diabetes prevention.
- **2003:** SB 1357 required the Texas Education Agency (TEA) to make available to each school district one or more coordinated health programs and strengthened enforcement of SB 19 by TEA. The bill addressed compliance of schools with TEA policy regarding vending machines and food service guidelines, and anti-tobacco policies.
- **2005:** SB 42 allowed for expansion of physical activity requirements to middle and junior high schools, up to 8th grade (authority given to State Board of Education to establish rules), required the Health and Human Services Commission to establish a state-level School Health Advisory Committee (SHAC) in support of coordinated school health programs and services, and required the commissioner of education to adopt criteria for evaluating the nutrition component of a coordinated health program for compliance with Department of Agriculture guidelines related to foods of minimal nutritional value.
- **2007:** SB 530 transferred authority for daily physical activity requirements from the State Board of Education to individual school districts and required school districts to annually assess the physical fitness of students in grades 3 through 12.

Current Implementation of Bills Passed During the 80th Legislature (2007)

- HB 2132: San Antonio Metropolitan Health District and the Texas Department of State Health Services (DSHS) are implementing a diabetes registry pilot program to gather A1c data from labs in the San Antonio area to determine levels of diabetes control among demographic groups.
- HB 3618: DSHS and the commissioner of education will adopt criteria for the development of a pilot program designed to prevent and detect obesity and type 2 diabetes for implementation in school districts along the Texas-Mexico border. Legislation passed without funding/appropriation.
- HB 3735: Diabetes Pilot Program demonstrating a comprehensive approach to diabetes prevention and treatment at Memorial Health System in East Texas. See report on page 86.
- HB 1373: Created the Chronic Kidney Disease Task Force, charged with developing plans relating to early screening, diagnosis, and treatment of chronic kidney disease, end-stage renal disease education, and early renal replacement therapy. The Task Force is currently staffed in the Diabetes Program at DSHS. Not later than January 1, 2009, the task force is required to submit its findings and recommendations to the governor,

lieutenant governor, speaker of the house of representatives, and presiding officers of the Senate Committee on Health and Human Services and the Public Health Committee of the house of representatives.

- The 80th Legislature allocated funding for a program to decrease the number of new end-stage renal disease (ESRD) cases in Texas. The program shall work in conjunction with the Texas Renal Coalition and the Chronic Kidney Disease Task Force to provide educational services designed to increase awareness, early diagnosis and treatment of chronic kidney disease (CKD) and its consequences. The program shall outreach to individuals with diabetes mellitus, hypertension, or with a family history of kidney disease, diabetes, or hypertension and to physicians to ensure appropriate treatment for individuals at risk for ESRD. The program is currently implemented through the Diabetes Program at DSHS.

Appendix 3

Recommendations of the Risk Assessment for Type 2 Diabetes in Children Program Advisory Committee – September 1, 2008

The Risk Assessment for Type 2 Diabetes in Children Program is a legislatively mandated program developed, coordinated, and administrated by the University of Texas Pan-American Border Health Office (BHO). The program assesses children who may be at high risk of developing type 2 diabetes in Texas Education Agency Regional Education Service Centers 1, 2, 3, 4, 10, 11, 13, 15, 18, 19, and 20. During vision/hearing and scoliosis screenings of 1st, 3rd, 5th, and 7th graders in public and private schools, certified individuals assess children for the acanthosis nigricans marker, a skin condition that signals high insulin levels. Children who are positively identified with the marker undergo additional assessments of body mass index (BMI), BMI percentile, and blood pressure. Referrals are issued to the parents of these children, alerting each parent of their child's risk factors and encouraging further evaluation from a health professional. Becoming aware of and understanding what the risk factors suggest can stimulate the changes necessary to prevent or delay future health problems for children at risk of developing type 2 diabetes and other conditions.

During the 80th Texas legislative session, the legislature passed Senate Bill 415 (SB 415). This bill, which details the Risk Assessment for Type 2 Diabetes in Children program and its responsibilities, called for the formation of the Risk Assessment for Type 2 Diabetes Advisory Committee (Advisory Committee) to advise the BHO on the growth and direction of the program. In accordance with SB 415, and no later than September 1 of each even-numbered year, the Advisory Committee is required to make recommendations to the BHO regarding six matters impacting the program. The following report details the Advisory Committee's recommendations for each of the six items specified in SB 415:

- *Recommend the person who should be responsible for conducting risk assessment activities under this chapter for schools that do not employ a school nurse;*
  The Advisory Committee recommends that, in the absence of a school nurse, schools may subcontract for risk assessment services or assign a designated school employee to conduct the assessments, record and report the assessment information to the BHO, and refer and follow-up with children identified as being at risk. Individuals who conduct these assessments must receive training and certification from the BHO.

- *Advise the office on the age groups that would benefit most from the risk assessment activities under this chapter;*
  The Advisory Committee recommends that 9th grade students be included in the risk assessment program. Students in this grade may be experiencing puberty, which has been identified as important in the development of type 2 diabetes in children.

- *Recommend a method to record and report the number of children who are identified in the risk assessment process as being at risk for having or developing type 2 diabetes and who qualify for the national free or reduced-price lunch program established under 42 U.S.C. Section 1751 et seq.;*
  The Risk Assessment for Type 2 Diabetes in Children Advisory Committee recommends that information on the total percentage of students enrolled who qualify for national free or reduced-price lunch program for school districts be included by the BHO in the school district risk assessment activity reports. Currently, information on individual student national free or reduced-price lunch program participation is not readily accessible to those individuals conducting risk assessments. In the future, the Advisory Committee will investigate other methods of recording and reporting the number of children that are identified at-risk for having or developing type 2 diabetes and who qualify for the national free or reduced-price lunch program.

- *Recommend a deadline, which may not be later than the first anniversary of the date the advisory committee submits a recommendation to the office under this section, by which the office shall implement the advisory committee's recommended risk assessment activities, surveillance methods, reports, and quality improvements;*
  In order to allow sufficient time for implementation and training, the Advisory Committee recommends the BHO implement the Advisory Committee's recommendations no later than September 1, 2009.

- *Contribute to the state plan for diabetes treatment developed by the council under Section 103.013 by providing statistics and information on the risk assessment activities conducted under this chapter and recommendations for assisting children in this state at risk for developing type 2 diabetes;*
  The Advisory Committee recommends that the BHO contribute to the state plan by providing the Texas Diabetes Council with statistical information obtained through the risk assessment program.

- *Recommend any additional information to be included in the report required by Section 95.004.*
  The Advisory Committee recommends no additional information to be included in the individual risk assessment reports required by Section 95.004 of the Texas Health and Safety Code.

This report is submitted to the UTPA Border Health Office pursuant to Section 95.006 (i) of the Texas Health and Safety Code.

Risk Assessment for Type 2 Diabetes in Children Advisory Committee

Doreen D. Garza, MPH
Executive Director, The University of Texas – Pan American Border Health Office

Victor H. Gonzalez, MD
Chair, Texas Diabetes Council

Lauralea Bauer
Director of Discipline, Counseling and Pregnancy Programs, Texas Education Agency

Mary Baumann
Director of Youth Markets, American Diabetes Association

Alda T. Benavides, Ed.D.
Superintendent, La Joya Independent School District

Arnoldo F. Benavides
Principal, Freddy Gonzalez Elementary, Edinburg Consolidated Independent School District

Leonides Cigarroa, Jr., MD
Family Physician
Texas Medical Association

Clara Cácares Contreras
Health Specialist, Region 1 Education Service Center

Mary Lou Lujan, RN
School nurse, Region 18

Colleen McHugh, JD
Regent, The University of Texas System

Stephen W. Ponder, MD, CDE
Pediatric Endocrinologist and Director, Children's Diabetes and Endocrine Center of South Texas, Driscoll Children's Hospital
Texas Pediatric Society

Julia Soper, RN
School nurse, Pharr-San Juan-Alamo Independent School District

VACANT (as of May 2008)
Parent representative

Appendix 4

Diabetes Pilot Program: Memorial Health System of East Texas

HB 3735 (80R) authorized the Department of State Health Services and the Texas Diabetes Council to assist in establishing a diabetes pilot program at Memorial Health System of East Texas that would provide a comprehensive approach to promoting the prevention and treatment of diabetes and acanthosis nigricans (AN). The pilot program would:

- Focus on an epidemiological approach to disease surveillance;
- Identify the prevalence of AN and diabetes in Memorial Health System's service area;
- Provide health and wellness information to people positively screened for diabetes and AN;
- Improve access to care for people diagnosed with diabetes and AN; and
- Study the cost savings of early detection and treatment of diabetes and AN.

Memorial Health System assembled a local team of physicians and diabetes educators to develop and implement the program. Focusing on children, the team devised the Children's Lifestyle Intervention Program (CLIP), a 9-week educational program for 6th grade students that attempted to answer the basic question: **Does a community-based lifestyle education program improve healthcare status in a group of children at increased risk for diabetes?**

Two local schools, Lufkin Middle School and Livingston Junior High School participated in the study. Sixth-graders at Livingston served as the control group for the program, while Lufkin sixth-graders received the lifestyle intervention program (CLIP) which incorporated "The Power of Prevention" curriculum, produced by The American Association of Clinical Endocrinologists (AACE) and elements of "The Power of Choice, Helping Youth Make Healthy Eating and Fitness Decisions," developed by the USDA Food and Nutrition Service and the U.S. Department of Health and Human Services FDA.

CLIP included a kick-off media event, physical activity tracking by students, a survey to assess program impact on parental knowledge of healthy eating and activity, and health screening of students prior to and following program implementation. Based on health screening, a subset of students from each school was determined to be at increased risk for diabetes.

At the end of the program, comparison of health screenings of students at both schools demonstrated that:

- Waist size decreased by 2 centimeters in the experimental group.
- Fasting glucose decreased by 16 points in the experimental group.
- Insulin levels decreased 7 points in the experimental group.
- Triglycerides decreased 25 points in the experimental group.
- HDL cholesterol increased by 8 points in the experimental group.
- LDL cholesterol showed no change.
- Total cholesterol increased by 5 points in the experimental group.
- There was no statistically significant difference demonstrated in BMI or blood pressures.

The CLIP study brought together the local expertise and resources of public schools, the medical community, private interests and the healthcare industry in an effort to benefit the children of this East Texas community. To this end, the study was deemed a community success.

Memorial Health System submitted its final report describing the effectiveness of the pilot program and recommendations to the Texas Diabetes Council by the legislative deadline of October 1, 2008. The full report can be downloaded from the Texas Diabetes Council web site.

Endnotes

[1] Narayan KM, Boyle, JP, Thompson, TJ, Sorensen SW, Williamson, DF. Lifetime Risk for Diabetes Mellitus in the United States. JAMA. 2003 Oct 8; 290(14):1884-90.

[2] 2007 Texas Behavioral Risk Factor Surveillance System, Statewide BRFSS Survey, for persons who are eighteen years of age and older. Data include both type 1 and type 2 diabetes. Persons with diabetes include those who report that they have been told by a doctor that they have diabetes. Women who report diabetes only during pregnancy are not included in prevalence. Prevalence data for 2006 will be available in fall of 2007 (Prevalence data are available for the year prior to the current year).

[3] Persons 20 years of age and older. Centers for Disease Control and Prevention. Prevalence of Diabetes and Impaired Fasting Glucose in Adults, United States, 1999-2000. MMWR. September 5, 2003; 52(35);833-837.

[4] Texas Department of State Health Services, Texas Vital Statistics. Data include male and female, and all ages.

[5] Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2003. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2003.

[6] Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2007. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2007.

[7] American Diabetes Association and the National Institute of Diabetes, Digestive, and Kidney Diseases [NIDDK].

[8] For more information, visit http:/ /diabetes.niddk.nih.gov/dm/pubs /preventionprogram/.

[9] New Engl J Med 346:393-403, 2002 Feb 7.

[10] A check of a person's blood glucose level after the person has not eaten for 8 to 12 hours (usually overnight). This test is used to diagnose pre-diabetes and diabetes. It is also used to monitor people with diabetes.

[11] Except in certain specified circumstances, abnormal tests must be confirmed by repeat testing on another day.

[12] Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2005. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2005.

[13] Texas Hospital Inpatient Discharge Public Use Data file, 2003. Texas Department of State Health Services, Center for Health Statistics-THCIC, Austin, Texas. 2003.

[14] An emergency condition in which extremely high blood glucose levels, along with a severe lack of insulin, result in the breakdown of body fat for energy and an accumulation of ketones in the blood and urine. Ketone is a chemical produced when there is a shortage of insulin in the blood and the body breaks down body fat for energy. Signs of DKA are nausea and vomiting, stomach pain, fruity breath odor, and rapid breathing. Untreated DKA can lead to coma and death.

[15] An emergency condition in which one's blood glucose level is very high and ketones are not present in the blood or urine. If HHNS is not treated, it can lead to coma or death.

[16] Economic Costs of Diabetes in the U.S. in 2007, Diabetes Care 31:1–20, 2008.

[17] American Diabetes Association, Diabetes Cost Calculated, accessed 10/24/08, http://www.diabetes.org/advocacy-and-legalresources/cost-of-diabetes.jsp

Figures and Tables

TEXAS DIABETES COUNCIL

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

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