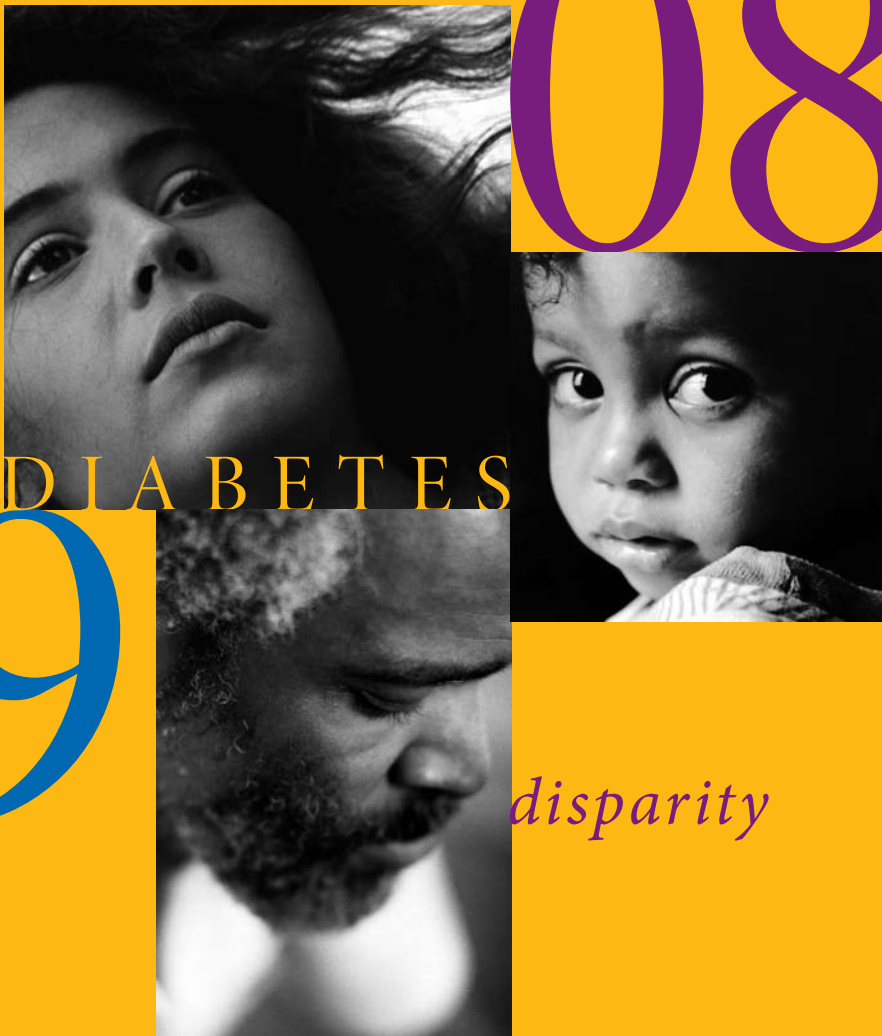


09

DIABETES

08

disparity



Diabetes and Disparity: A Plan to Prevent and Control Diabetes in Texas, 2008-2009



TEXAS DIABETES
COUNCIL

VISION:

A Texas free of diabetes and its complications

MISSION:

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

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A MESSAGE FROM THE CHAIR

Diabetes affects 1.3 million adult Texans estimated to be diagnosed with the disease and another 418,134 adults believed to be undiagnosed. Overall, it's the sixth leading cause of death in Texas; however, it's the fourth leading cause among African Americans and Hispanics. These disparities in diabetes mortality across racial and ethnic groups are a grim reminder that not all Texans with diabetes have equal opportunity to manage it. While new medications and treatment protocols promise healthier lives for persons with diabetes, many Texans with diabetes still have limited access to culturally appropriate health care and diabetes self-management training which are critical to successful health outcomes.

Addressing the risk factors and conditions contributing to disparities in health outcomes for the diverse populations that make up our state is the theme for the Texas Diabetes Council's plan to control diabetes for 2008–09. Each year, we learn more about the disparities in diabetes prevalence, management, and complications which contribute to our overall burden of diabetes. On a more positive note, we also meet new partners and community resources that will ultimately hold the key to controlling this epidemic among the populations they serve.

In general, persons with diabetes are more likely to be affected by complications such as cardiovascular disease, stroke, eye disease, kidney disease and neuropathy than those who do not have diabetes. Geographic disparities related to complications are evident. Hospital discharge data tell us that counties along the Texas-Mexico border have higher diabetes-related amputation rates than non-border counties – 8.3 per 100,000

persons compared to 4.5 per 100,000 persons. The difference in these amputation rates among persons diagnosed with diabetes is striking – 53.6 per 100,000 persons in border counties compared to 39.9 per 100,000 persons in non-border counties.

Women with a history of gestational diabetes have an increased lifelong risk of developing type 2 diabetes and their children also have an increased risk for obesity and diabetes.

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 life. For Hispanic females, the risk is predicted to be even higher – one in two.

A key strategy for addressing disparities in diabetes has been community-based diabetes programs funded through the Texas Diabetes Program and the Centers for Disease Control and Prevention. Community Diabetes Service Projects continue to bring culturally appropriate diabetes education and prevention messages to those at risk for diabetes and its complications. Through increased partnership with the state's academic health centers, advocacy groups, local health departments, community health centers, and local health care providers, resources for quality patient and professional diabetes education can be further expanded to underserved areas.

The Texas Diabetes Council continues to advocate for quality health care for Texans with diabetes. While diabetes medication, supplies, equipment, and self-management training are currently covered under state-regulated health plans, coverage for self-management training and prescription medications may not be adequate for optimal management of diabetes for some persons who are Medicaid or CHIP recipients. Defining and promoting minimum standards of care for this and other segments of our state population remain priorities for the Council.

Along with the American Diabetes Association and other advocates, the Council supported passage of House Bill 984 relating to care of students with diabetes in Texas schools during the 79th Legislative Session. As a result, public school students in Texas who have diabetes can be further guaranteed a safer, healthier educational experience through the development of medical management and treatment plans and training of school personnel who may need to assist them. Our commitment to youth with diabetes continues through advocacy for a Texas Childhood Diabetes Research Resource to define the prevalence of diabetes among those under 18 years of age and conduct research that could potentially improve treatment and contribute to a cure for the disease.

Diabetes treatment has always involved a team approach, including a number of medical specialties that come together to provide the best diabetes management possible. In much the same way, diabetes prevention and control at the state level involves a multidisciplinary team of experts and health professionals who volunteer their time and expertise to serve on Council committees and work to accomplish Council goals. Our

team expands each year as local efforts to control diabetes are presented to the Council as model programs for the state.

In the biennium ahead, the Council will continue to strive to identify the inequities that impair the abilities of individuals, communities and our health care system to combat diabetes. We proudly present the efforts of our ongoing partnerships and proposals for expanded or enhanced diabetes prevention activities that hold promise for a Texas free of diabetes and its complications.



Lawrence B. Harkless, DPM, Chair
Texas Diabetes Council

EXECUTIVE SUMMARY

Diabetes and Disparity: A Plan to Prevent and Control Diabetes in Texas, 2008–2009

As the number of persons with diabetes continues to climb in Texas and the nation, the Texas Diabetes Council’s State Plan for fiscal years 2008 and 2009 looks at the distinct characteristics of our state’s population that will be catalysts for a greater burden of diabetes in the years ahead.

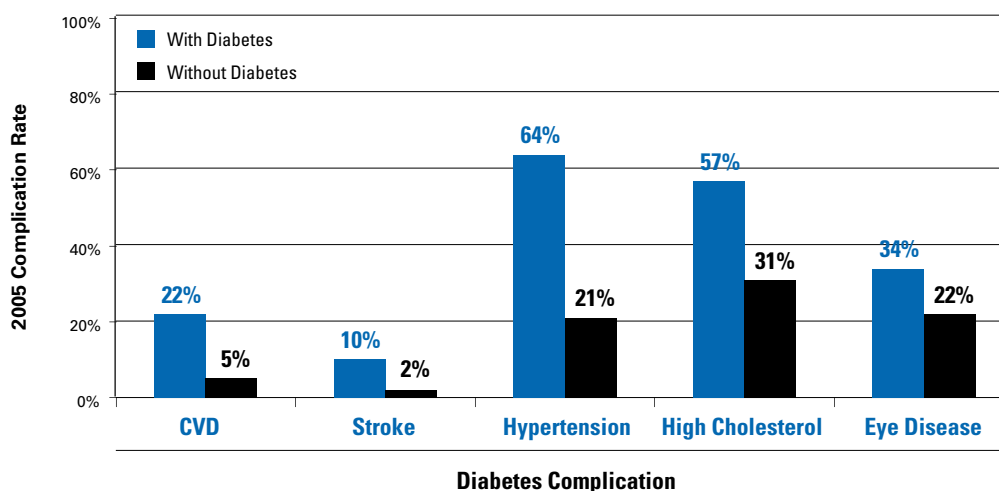
Texas has seen a steady increase in diabetes from 2000 through 2005, with prevalence rising from 6.2 percent (927,834) to 7.9 percent (1,325,244) — a 27 percent increase.¹ The estimated 1.3 million⁴ Texas adults diagnosed with diabetes face complications that disproportionately affect them, including heart disease,

stroke, amputations, kidney disease, eye disease, neuropathy, and depression (Figure 1).

Since 1998, prevalence rates for non-Hispanic blacks have been increasing at a higher rate than rates for Hispanics and non-Hispanic whites. However, population projections indicate that Texas’ Hispanic population will more than double in the next thirty years.² It is estimated that the total number of diabetes cases in Texas will increase by 77 percent in the next thirty years from 1.3 million in 2005 to almost 2.3 million in 2040 (Figure 2).³ By 2040, Hispanics are projected to comprise the majority of diabetes cases.³

Access to health care is critical for persons with diabetes. In 2005, 34 percent of Hispanics or Latinos diagnosed with diabetes

FIGURE 1. Prevalence of Selected Diabetes Complications by Diabetes Status: 2005 Texas Behavioral Risk Factor Surveillance System



reported that they did not have health care coverage, compared to 11 percent of non-Hispanic whites diagnosed with diabetes and 18 percent of all persons diagnosed with diabetes in Texas. That same year, 33 percent of Hispanics or Latinos diagnosed with diabetes reported they could not see a doctor due to the cost, versus 18 percent of non-Hispanic whites and 24 percent of all persons diagnosed with diabetes. Furthermore, 13 percent of non-Hispanic blacks diagnosed with diabetes reported they did not have health care coverage, and 28 percent reported they could not see a doctor due to the cost. In general, persons with diabetes are more likely than those without diabetes to be unable to see a doctor because of cost (24 percent and 19 percent respectively).⁴

The Texas Diabetes Council advocates for diabetes prevention and control program activities that improve access to quality diabetes education, care and services, including self-management training, with priority on high-risk and disproportionately affected populations. Council priorities for 2008 and 2009 are as follows:

- advancing public policy
- improving routine diabetes care and preventing complications associated with the disease
- promoting professional awareness and education

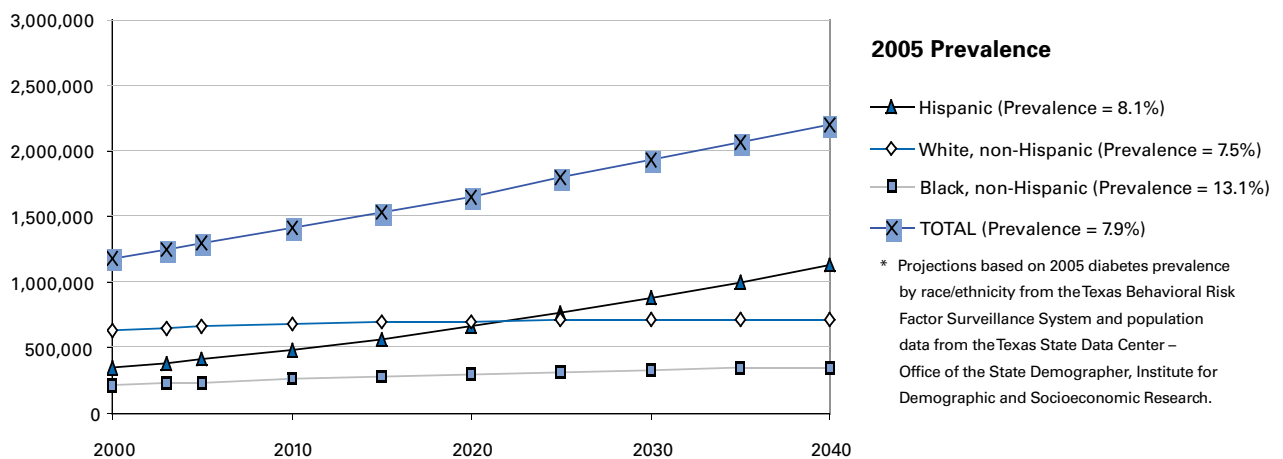
- increasing public awareness and education
- promoting community outreach and education, and
- monitoring and evaluating data.

The following priority issues illustrate the need for increased surveillance to identify at-risk populations in the state, improved diabetes education and treatment services for those with diabetes, and expansion of programs to underserved areas of the state.

SURVEILLANCE: DIABETES AMONG YOUTH

Diabetes in childhood is mainly type 1, an autoimmune disorder that destroys insulin-producing cells, requiring multiple daily insulin injections or a pump. It is estimated that approximately one in every 400 to 600 children and adolescents has type 1 diabetes.⁵ Alarming, recent years have also seen recognition of increases in type 2 diabetes, or adult-onset diabetes, in persons less than 18 years of age. An early onset of type 2 diabetes can lead to complications at a younger age, decreased quality of life, and shortened life expectancy for the next generation of Texans.

FIGURE 2. Texas Projected Diabetes Cases, 2000-2040*



While doctors report seeing more children with type 2 diabetes in their own practices, representative data that would be needed to monitor diabetes trends in youth by type are not available for Texas.

The Texas Diabetes Council continues to recommend that diabetes diagnosed before the age of 18 years (type 1 and type 2) be a reportable disease to the Texas Department of State Health Services, and supports the establishment of a Texas Childhood Diabetes Research Resource.

MEDICAID

In fiscal year 2003, two Texas programs — Medicaid and the Children’s Health Insurance Program (CHIP) — spent \$417 million on claims with diabetes diagnoses. Of that, \$408 million was spent on 95,332 Medicaid clients with diabetes and nearly \$9 million was spent on 2,210 children with diabetes who were CHIP clients.⁷

The Medicaid population represents a significant portion of Texans with diabetes, yet it remains unclear as to whether those enrolled are receiving adequate self-management training to control the disease. While regulated insurance plans and Medicare require a set number of educational hours with providers who meet specified qualifications, quantity and quality of education received under Medicaid varies across delivery systems. This disparity in patient education can have significant effects on the ability of Medicaid recipients to control the disease and its complications.

EXPANSION OF STATE DIABETES PREVENTION AND EDUCATION SERVICES

In Texas, state and federal expenditures for the activities of the Department of State Health Services Diabetes Program are

estimated to be \$3,177,659 for fiscal year 2006. A significant portion of this funding is placed in community-based programs providing education and outreach activities to persons with or at risk for diabetes.

The state programs in Table 1 spend more than \$11 million a year to provide adults with complications of diabetes special care or aids that allow them to continue gainful employment.

TABLE 1:
Cost of Select Services for People with Diabetes in Texas

DEPARTMENT	NUMBER SERVED	COST
<i>State Health Services/FY 2005</i>		
†Kidney Health Care (KHC)	6,931	\$7,640,978
<i>Assistive and Rehabilitative Services/FY 2005</i>		
†† Rehabilitation Services	2,824	\$3,574,609
*Blind Services	2,412	\$345,970

† Data Source: ASKIT-Public Reports-Expenditure Report as of 06/09/2006.

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

* Vocational Rehabilitation and Independent Living Programs, costs for education services not including supplies

A growing Texas population with significant risk factors for diabetes demands expansion of prevention and education services. Fortunately a number of organizations in the state are partnering to propose new and innovative approaches to the Texas Legislature, such as the University of Texas Medical Branch Stark Diabetes Center, the Texas Renal Coalition, the American Heart Association, the American Diabetes Association, the Texas Council on Cardiovascular Disease and Stroke, and others. Funding for the additional and/or enhanced programs and services realized through these partnerships can maximize the impact of dollars spent on diabetes prevention through shared goals and strategies.

TEXAS DIABETES FACT SHEET, 2006

I. 2005 DIABETES PREVALENCE

Prevalence of Diagnosed⁸ Diabetes in Persons 18 and Older

An estimated 1.3 million persons aged 18 years and older in Texas (7.9 percent of this age group) have been diagnosed with diabetes. Nationwide, 15.3 million persons 18 years of age and older have been diagnosed with diabetes (7.3 percent of this age group).

Prevalence of Undiagnosed⁹ Diabetes in Persons 18 and Older

Another estimated 418,134 persons aged 18 years and older in Texas are believed to have undiagnosed diabetes (based on 1999–2000 NHANES age-adjusted prevalence estimate of 2.5 percent of the 2004 adult population). The total for both diagnosed and undiagnosed diabetes is 1,739,437.

Prevalence of Diagnosed⁸ Diabetes by Sex in Persons 18 and Older

Male 612,716 (7.4%)
 Female 709,414 (8.4%)

Prevalence of Diagnosed⁸ Diabetes by Race/Ethnicity in Persons 18 and Older

White, non-Hispanic 663,603 (7.5%)
 Black, non-Hispanic 240,674 (13.1%)
 Hispanic 435,328 (8.1%)

Prevalence of Diagnosed⁸ Diabetes by Age Group in Persons 18 and Older

18-29 Years..... 0.6%
 30-44 Years..... 3.3%
 45-64 Years..... 14.1%
 65+..... 17.6%

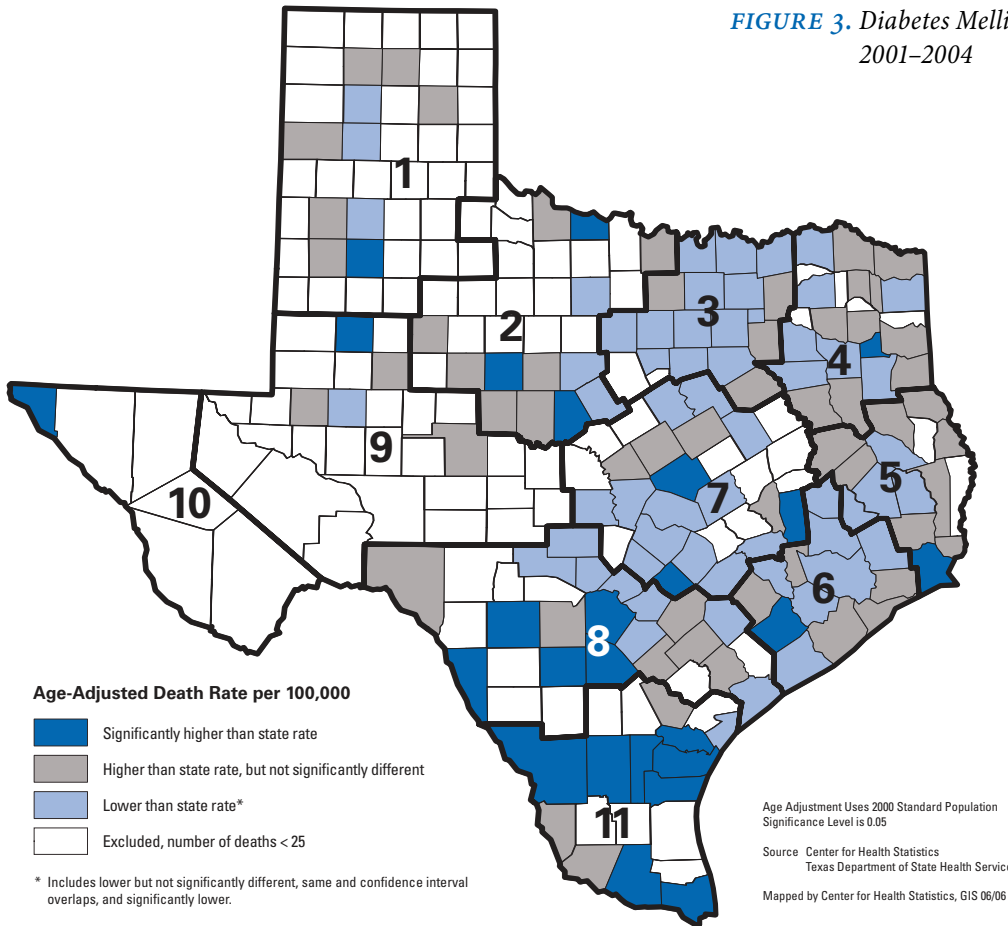
TABLE 2:
Prevalence of Diagnosed Diabetes by Race/Ethnicity and Age Group⁸

Age Group	White non-Hispanic	Black non-Hispanic	Hispanic
18-44	2.2%	4.5%	1.6%
45-64	10.1%	21.2%	24.8%
65+	14.8%	32.5%	27.3%
Overall	7.8%	13.1%	8.1%

Prevalence of Diagnosed⁸ Diabetes by Educational Level in Persons 18 and Older

No High School Diploma 10.6%
 High School Graduate 9.1%
 Some College..... 7.0%
 College + 5.8%

FIGURE 3. *Diabetes Mellitus as Underlying Cause of Death, 2001–2004*



II. DIABETES MORTALITY¹⁰

Deaths Among Persons with Diabetes

Diabetes was the sixth leading cause of death in Texas in 2002 through 2004. In 2004, 5,426 deaths were directly attributed to diabetes. Diabetes was also the sixth leading cause of death nationally in 2002 through 2004. 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 3 shows the age-adjusted mortality rates per 100,000 persons for Texas by county for the years 2001 through 2004,

with diabetes as the underlying cause of death. The state rate for the four years was **31.3 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.

Diabetes Mortality¹⁰ Rate (Per 100,000) by Race/Ethnicity, Texas, 2004

The 2004 diabetes mortality rate for Texas was 30 per 100,000. Mortality rates for each race/ethnicity were applied to the 2004 population by race/ethnicity.

Of persons who have diabetes, in 2004:

- 30 per 100,000 were likely to die from it.
- 23 per 100,000 whites (non-Hispanic) were likely to die from it.
- 52 per 100,000 blacks (non-Hispanic) were likely to die from it.
- 47 per 100,000 Hispanics were likely to die from it.
- 17 per 100,000 persons who fall in the “other” category were likely to die from it.

Based on the rates above, the 2004 mortality rates (per 100,000) for blacks (non-Hispanic) and Hispanics were more than double that of whites (non-Hispanic).

III. DIABETES IN PERSONS LESS THAN 18 YEARS OF AGE

Diabetes in childhood is mainly type 1, an autoimmune disorder that destroys insulin-producing pancreatic cells, requiring multiple daily insulin injections or a pump. An estimated one in every 400 to 600 Texas children and adolescents has type 1 diabetes. 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.

Addressing High Risk

Individuals at high risk for developing type 2 diabetes can be identified through risk assessments at any health care 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, health care professionals, and health care systems should encourage behavioral habits for a healthy lifestyle.¹¹

Pre-Diabetes

“Pre-diabetes” is a term used to explain higher-than-normal blood sugar levels that can progress quickly to type 2 diabetes if action is not taken. It means a person’s blood sugar levels are higher than normal, but not high enough for a diagnosis of diabetes. Doctors refer to this state of elevated blood glucose levels as impaired glucose tolerance or impaired fasting glucose, depending on which test is used to detect it.

People who have pre-diabetes may already be experiencing adverse health effects. For example, they have a higher risk for cardiovascular disease compared to people with normal blood sugar levels. Recent studies have found that obese people with pre-diabetes may be able to delay or prevent the onset of type 2 diabetes through lifestyle changes to reduce excess body weight by increasing physical activity and improving eating habits.

Preventing or Delaying Type 2 Diabetes

The Diabetes Prevention Program (DPP)¹² 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, increased physical activity, and lost a little excess weight could prevent or delay type 2 diabetes. The study included adults who were “high risk” due to blood glucose levels higher than normal, but not yet high enough to be diabetes. All participants were sedentary, overweight, most were obese, and most had a family history of type 2 diabetes.
- Participants who made lifestyle changes and lost 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 percent.

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 percent weight reduction, and three-fourths did at least 150 minutes per week of moderately intense activity.¹³

Impaired Fasting Glucose/Impaired Glucose Tolerance

Impaired fasting glucose (IFG) is a fasting plasma glucose value between 100 and 125 milligrams per deciliter of blood plasma. These glucose values are higher than the level considered normal, but lower than the level that is diagnostic of diabetes.

Impaired glucose tolerance (IGT) is the same as IFG but is the term used to describe the result of a blood test administered two hours after a high-glucose drink (oral glucose tolerance test). Patients with IFG or IGT may have been told that they have “borderline” diabetes or “high sugar” or “a little sugar,” but may not think they need to take action. But they do need to take action to reduce the risk of developing type 2 diabetes. It is estimated that 1.6 million Texans, 7 percent of the population, have IFG or IGT.^{9, 14}

Diagnostic Criteria for Diabetes

The usual diagnostic test for diabetes is a fasting plasma glucose test¹⁵ 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 confirmed¹⁶ 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.

Four Types of Diabetes¹⁷

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 percent to 10 percent 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 accounts for 90 to 95 percent 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 (20 percent or more over ideal weight), family history of diabetes, previous diabetes during pregnancy or had 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 percent to 10 percent of women with gestational diabetes are found to have type 2 diabetes. Women who have had gestational diabetes have a 20 percent to 50 percent 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 percent to 5 percent of all diagnosed cases.

Treatment of Diabetes

Diabetes knowledge, treatment, and prevention strategies advance daily. Treatment aims to keep blood glucose near normal levels at all times. Training in self management is integral to the treatment of diabetes. Treatment must be individualized and must address medical, psychosocial, and lifestyle issues.

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.¹⁷ Heart disease is the leading cause of death among persons with diabetes. Heart disease and stroke account for about 65 percent of deaths in people with diabetes. Adults with diabetes have heart disease death rates about two to four times higher than adults without diabetes. The risk for stroke is two to four times higher among people with diabetes.

High blood pressure.¹⁷ About 73 percent of adults with diabetes have blood pressure greater than or equal to 130/80 millimeters of mercury or use prescription medication for hypertension.

Blindness.¹⁷ Diabetes is the leading cause of new cases of blindness in adults 20 to 74 years old. Diabetic retinopathy causes 12,000 to 24,000 new cases of blindness in the United States each year.

Kidney disease.¹⁸ As of December 31, 2005, there were 4,364 newly diagnosed and 14,802 living (active) dialysis patients with end stage renal disease (ESRD) resulting from diabetes. Also in 2005, 386 Texans with a primary diagnosis of diabetes received renal transplants, and 3,139 dialysis deaths occurred as a result of diabetes.

Nervous system disease.¹⁷ About 60 percent to 70 percent 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 percent 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.

Amputations.¹⁹ More than half of lower limb amputations in the United States occur among people with diabetes. According to Texas hospital discharge data, 7,284 hospitalizations for amputations occurred in persons with diabetes in 2003. The cost of these amputations is approximately \$324 million.

Dental disease.¹⁷ 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. 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.¹⁷ Poorly controlled diabetes before conception and during the first trimester of pregnancy can cause major birth defects in 5 percent to 10 percent of pregnancies and spontaneous abortions in 15 percent to 20 percent 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.

Other complications.¹⁷ Uncontrolled diabetes leads to biochemical imbalances that can cause acute life-threatening events, such as diabetic ketoacidosis²⁰ and hyperosmolar nonketotic syndrome.²¹ 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.

Diabetes Costs

Diabetes contributes to a number of chronic complications and is associated with an increased utilization of health care services.²² With an increasing prevalence of diabetes and an aging population, the burden of diabetes in Texas continues to grow. The cost of hospitalizations attributed to diabetes nationwide has been estimated to be greater than \$40 billion according to data from the American Diabetes Association (ADA). Using methods similar to the ADA, total cost of hospitalizations attributed to diabetes in Texas were estimated to be \$3.7 billion in 2003. General medical conditions accounted for 47 percent (\$1.7 billion) of the cost while admissions for cardiovascular conditions/procedures accounted for 40 percent (\$1.5 billion).

Sixty-one percent of the charges (\$2.2 billion) were for patients aged 65 years and older.²³

An authoritative study of the direct and indirect costs of diabetes conducted by the American Diabetes Association and endorsed by the National Institutes of Health and the Centers for Disease Control and Prevention revealed that the direct and indirect costs of diabetes in the United States reached more than \$131 billion in the United States in 2002 (Table 3).²⁴ This study estimates the per capita medical expenditures in 2002 totaled \$13,243 for people with diabetes and \$2,560 for people without diabetes.²⁴ Adjusted for age and geography, the medical expenditures for people with diabetes are 2.4 times more than those for people without diabetes.²⁴

TABLE 3: Cost of Diabetes in the United States

TYPE	AMOUNT IN BILLIONS
Direct	\$ 91.8
Indirect	\$ 39.8
TOTAL	\$ 131.6

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)

www.cdc.gov/diabetes

The Health Plan Employer Data and Information Set (HEDIS)

www.ncqa.org/Programs/HEDIS

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

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

2008-2009

The legislation creating the Texas Diabetes Council charges the group with developing and implementing a state plan for diabetes treatment, education, and training. To fulfill this charge, the Diabetes Council members conduct a strategic planning session every other year to identify priorities and goals for the coming biennium. This document serves as the map for leading Texas into the future and advancing the Diabetes Council's vision of "A Texas Free of Diabetes and Its Complications."

PRIORITY 1: ADVANCING PUBLIC POLICY

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) insurers in Texas cover diabetes equipment, supplies, and self-management education
- Advocate that coverage is 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, page 17)

PRIORITY 2: IMPROVING ROUTINE DIABETES CARE AND PREVENTING COMPLICATIONS ASSOCIATED WITH THE DISEASE

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.

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, page 17)

PRIORITY 3: PROMOTING PROFESSIONAL AWARENESS AND EDUCATION

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 health care 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 numerous journal articles and promotes their products at CME events statewide.

Goals:

- 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 health care professionals
- Design strategies and incentives to help more health care 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 for people with diabetes (see potential partner list, page 17)

**PRIORITY 4:
INCREASING PUBLIC AWARENESS
AND 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 the public partner with their health care 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, Texans can expect to contain the growing rate of type 2 diabetes and the number of disabling complications and deaths for Texans of all ages.

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, page 17)

**PRIORITY 5:
PROMOTING COMMUNITY OUTREACH
AND EDUCATION**

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:

- 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, page 17)

**PRIORITY 6:
MONITORING AND EVALUATING DATA**

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 health care providers who treat patients who have diabetes
- Expand collection 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 a new 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. (The new system was developed in 2004.)
- 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)

POTENTIAL PARTNER LIST

Advocacy Groups

- American Diabetes Association
- American Heart Association
- Juvenile Diabetes Research Foundation (JDRF)
- Texas Renal Coalition

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
- CHIP/Children's Medicaid

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
- American Association of Diabetes Educators

Peer Review Organizations

- 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

ACTIVITIES AND SERVICES UPDATE

The Diabetes Program at the Texas Department of State Health Services (DSHS) undertakes and sponsors a number of key activities that support the six priority areas in the Diabetes Council's state plan. These activities are described in the following pages. As funding allows, the Program will expand its activities to include those proposed in the strategic plan for fiscal years 2008 and 2009 (September 1, 2007 through August 31, 2009).

PRIORITY 1: ADVANCING PUBLIC POLICY

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 Council's Advocacy and Outreach Committee is composed of representatives of the American Diabetes Association, Juvenile Diabetes Research Foundation International, American Dietetic Association, American Association of Diabetes Educators, Texas Medical Association, and Texas School Nurses Organization. These and other organizations meet quarterly to investigate new ways to effectively meet health challenges related to diabetes. The

Advocacy and Outreach Committee has developed positions on twelve issues for the 80th Texas Legislature:

- Pediatric diabetes research;
- Medicaid and Children's Health Insurance Program (CHIP) coverage of self-management training and prescriptions;
- Support 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;
- Adequate funding for the DSHS Kidney Health Care Program;
- 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.

*State of Diabetes in Texas:
“Striving for Better Control” Summits*

In August 2005, GlaxoSmithKline (GSK) and the National Black Caucus of State Legislators sponsored the “Striving for Better Control” Diabetes Summit as a forum for legislators, civic leaders, and those affected by diabetes to discuss policies and strategies that contribute to effective diabetes care and improved health outcomes. Over the following year, the Texas Diabetes Council partnered with GSK and Texas legislators to hold similar summits in Texas to increase awareness of state and local diabetes prevention initiatives:

- **January 17, 2006:** State Representative Jim McReynolds hosted the first *State of Diabetes in Texas: “Striving for Better Control”* Summit at Angelina College in Lufkin.
- **April 12, 2006:** Diabetes Program staff participated in the “*Texas Diabetes State Plan in the African American Community*” roundtable discussion sponsored by the Houston Area Urban League.
- **November 6, 2006:** State Senator Leticia Van de Putte hosted a “*Striving for Better Control*” Summit at the Texas Diabetes Institute in San Antonio.

**PRIORITY 2:
IMPROVING ROUTINE DIABETES CARE AND
PREVENTING COMPLICATIONS ASSOCIATED
WITH THE DISEASE**

Standards of Diabetes Care

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

and approval. In response to the increasing occurrence of diabetes in youth, the HCPAC has expanded its scope of work to include the development of recommendations for treating children. The HCPAC promotes the review and adaptation of these recommendations by pediatric endocrinologists.

HCPAC key activities include:

- Publish and distribute in print, on compact disc, and on the Web the Diabetes Tool Kit, a comprehensive teaching aid for health care 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 health care providers; and
- Develop methods to evaluate the extent to which recommended care is delivered, e.g., measuring A1c and trends in patient status.

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 regimens. Legislation passed during the 78th Legislature (Regular Session, 2003) directed the Health and Human Services Commission to implement a comprehensive Medicaid disease management (DM) program for eligible fee-for-service (House Bill 727) and managed care/CHIP clients (House Bill 1735).

The varying methods of implementing a disease management system in the Medicaid population has given rise to a number of questions regarding disparities in the diabetes management provided. Specifically, the Texas Diabetes Council 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 require that diabetes self-management education be a covered benefit, reports from health care professionals across the state and review of policy indicate that the education services provided to Medicaid recipients vary across Medicaid delivery systems — fee-for-service, health maintenance organizations (HMO), and primary care case management (PCCM).

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

Because the amount of time spent with each patient and level of expertise of those providing education services can have a direct impact on the patient's ability to properly manage the disease throughout his/her life, the Council continues to recommend that Medicaid and CHIP recipients receive, upon diagnosis, ten hours of initial instruction and self-management training with the goal of sustaining recommended A1c levels. All Medicaid benefit plans should also evaluate the medical needs of patients individually when determining allowed prescriptions, rather than adhering to pre-determined limits on numbers of prescriptions.

During the 2006-2007 biennium, the Council sought data from Medicaid disease management contractors and HMOs to better assess the quantity and quality of education offered by Medicaid and CHIP. Unfortunately this data currently does not exist. PCCM disease management contracts must be finalized

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.

before baseline quality indicator data can be collected for clients who enroll in diabetes disease management groups. Quality measures are also to be tracked and monitored in HMO disease management programs; however, newly effective contracts currently provide no outcomes data. The Council continues to seek opportunities to ensure the quality of diabetes services for Medicaid recipients.

Diabetes Learning Collaborative

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 health care improvement models that have been shown to delay or prevent the complications of diabetes.

In support of the Collaborative, TDC/P furnishes professional and patient education materials and links to other diabetes resources.

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.

Entering its fifth year in 2006, the CID focuses 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 percent). The majority were female (63 percent), age 50 and older (73 percent), and Hispanic (79 percent). More than 90 percent were overweight or obese, and almost half were uninsured.

Diabetic Eye Disease Program

The Diabetic Eye Disease Program (DEDP) helps prevent blindness by paying for funduscopic examinations for 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 percent of poverty and lack other insurance coverage. Approximately 350 ophthalmologists and licensed optometrists in Texas provide reduced-cost exams. The DEDP reimbursed providers for almost 6,000 exams in each of fiscal years 2003 and 2004.

The funduscopic eye examination includes:

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

**PRIORITY 3:
PROMOTING PROFESSIONAL AWARENESS
AND EDUCATION**

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 health care 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 health care 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.
- The Council 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 Academy of Clinical Endocrinologists, and the American Diabetes Association.
- The Diabetes Council builds partnerships with and publicizes the efforts of the Texas Academy of Family Physicians, the Texas School Nurses Organization, Texas Medical Association, TMF Health Quality Institute, and other institutions that offer continuing education.
- During 2005, the Diabetes Program contributed materials to the Texas Pediatric Society's Childhood Obesity Toolkit which includes physician tools for addressing this risk factor for diabetes among children.
- The *Texas Diabetes* newsletter updates more than 27,000 health care professionals and other readers on programs, activities, and legislation. The Program publishes and distributes the newsletter.

- Other publications for health care professionals include the Diabetes Tool Kit and treatment algorithms.

Web Site Resources—www.texasdiabetescouncil.org

The Diabetes Council Web site is comprehensive, authoritative, and user friendly and features a sub-site for health care professionals. Other sub-sites provide information for people with diabetes and their families, health plans, purchasers of health plans (employers), parents of children with diabetes, policymakers, community-based diabetes programs, and the media.

Medicare

The Centers for Medicare and Medicaid Services, a federal agency within the US Department of Health and Human Services, has contracted with TMF Health Quality Institute to conduct Medicare quality improvement in the state. The prevalence of diabetes among Texans age 65 years and older, the Medicare-eligible population, is more than 16 percent.

The Diabetes Program publicized the Institute's training course, "A Family Physician's Practical Guide to Culturally Competent Care." The course helps practices incorporate culturally competent policies, structures, and methods to provide services for people from diverse ethnic, racial, cultural, and linguistic backgrounds.

**PRIORITY 4:
INCREASING PUBLIC AWARENESS
AND EDUCATION**

Public Health Education

Public Information Campaign

The Texas Diabetes Council/Program's public information campaign promotes prevention, early diagnosis, and careful management of diabetes. The primary audiences for these

messages are health care professionals who treat diabetes and people who have or who are at risk for diabetes. A comprehensive review and evaluation of the Program's existing materials provides guidance for refreshing existing materials and developing new materials. The most recent public information activities include:

- Development and distribution of a CD-ROM and print versions of the third edition of the Diabetes Tool Kit, a teaching aid and educational resource for health care professionals;
- Quarterly distribution of *Texas Diabetes* newsletter, 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 27,000 physicians, diabetes educators, community leaders, and others, and 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 English and Spanish radio spots about diabetes prevention in targeted markets;
- Development of 60-second radio news features in English and Spanish on diabetes care and prevention, which were aired on 235 stations free of charge and reached an estimated audience of 1.6 million radio listeners; and
- Grassroots efforts by Council members and other diabetes advocates in their home media markets which have increased attention paid to diabetes issues. KIII-TV in Corpus Christi conducted a year-long community service campaign for South Texas called "Be S.A.F.E. From Diabetes," featuring local diabetes experts on talk shows and tips for successful diabetes management during newscasts.

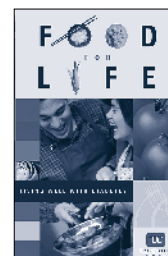


Educational Materials

The Texas Diabetes Council/Program offers easy-to-read, low-literacy educational materials at no charge on request. TDC/P works with the National Diabetes Education Program to assure

that these materials deliver accurate, consistent messages about risks for diabetes, how to prevent or delay type 2 diabetes, and how to manage diabetes to avoid or delay its complications. During fiscal year 2006, the Diabetes Program distributed more than 250,000 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:

- *You Have the Power: Controlling Diabetes One Day at a Time*, a kit designed to support educational classes or groups;
- *You Have the Power: 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;
- *Diabetes Record Card*, 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 health care 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; and
- *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 Diabetes Council/Program works with the Special Supplemental Nutrition

Program for Women, Infants, and Children (WIC) to distribute information on gestational diabetes to 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 and television public service announcements produced by the Texas Diabetes Council/Program. NDEP resources are featured in the *Texas Diabetes* newsletter and the Diabetes Council's Diabetes Tool Kit, a teaching aid for health care professionals who work with people who have diabetes.

Diabetes Council 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 decision makers and promotes prevention of diabetes through worksite interventions. The Web site, 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 Texas Diabetes Council included the NDEP publication, *Helping the Student with Diabetes Succeed*, as part of its training guidelines for the implementation of House Bill 984, passed in the 79th Regular Session (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 promoted the *New Beginnings Discussion Guide for Living Well with Diabetes*. The Guide accompanies a video, "The Debilitator," which follows the experiences of a man who is diagnosed with diabetes as he learns more about how diabetes can impact his life and how he can manage it. Both the film and discussion guide were distributed to community-based diabetes programs for use during group discussion with project audiences.

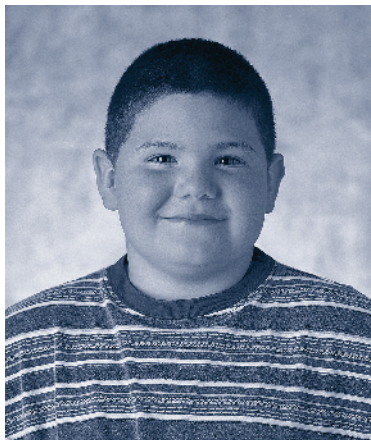
The National Kidney Disease Education Program (NKDEP) is working to increase early detection of chronic kidney disease (CKD) and to improve patient outcomes by encouraging more routine testing of at-risk patients and use of estimated glomerular filtration rate (GFR). NKDEP supports the use of an equation for estimating GFR from serum creatinine 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).

The Texas Diabetes Council's Medical Professionals Advisory Subcommittee incorporated estimated GFR in the Texas Diabetes Council's Minimum Practice Recommendations distributed online and through the Council's Diabetes Tool Kit. Both the Texas Diabetes Council and the Texas Renal Coalition support physician education and public information efforts to decrease the growing number of persons with diabetes developing end-stage renal disease.

Children and Youth at Risk for or with Diabetes

It is estimated that approximately 1 in 400 to 600 (10,000) Texas children have type 1 diabetes.

While some risk factors for type 2 diabetes cannot be controlled, others can. Type 2 diabetes appears to have a genetic basis. But it also is related to obesity and sedentary lifestyle. Studies show



that, regardless of ethnicity, more than 20 percent of severely obese children and adolescents have impaired glucose tolerance, or pre-diabetes.²⁵

Lifestyle is key to preventing obesity and being fit, and for many, lifestyle habit changes are urgently needed. The family is primary, but schools and communities must be included in instituting and supporting positive dietary and physical activity changes. Children are influenced and limited by their environment. Maintaining a diet balanced in fat calories and nutrients, increasing moderate to vigorous physical activity to at least 30 minutes a day, and limiting sedentary activities, e.g., playing video games and watching television, are essential lifestyle changes that need reinforcement.

Youth with type 2 diabetes in Texas are disproportionately of Hispanic, American Indian, and African American heritage. Children in these ethnic groups who have type 2 diabetes usually are overweight, and their immediate families are overweight and have a high incidence of type 2 diabetes. But obesity is reaching epidemic proportions among children in all ethnic groups. If the current trend in overweight and type 2 diabetes continues, persons born in the year 2000 face a one in three chance of developing diabetes some time in their lives. Hispanic females have an even higher risk of one in two. Data indicate that the Texas Hispanic population will more than double in the next thirty years (approximately 7.8 million in 2005 to almost 17

million in 2035).² The Diabetes Program has responded to this growing problem with the following activities:

HB 984. House Bill (HB) 984, passed in the 79th Regular Session, 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 Texas Diabetes Council develop guidelines for training school personnel to be diabetes care assistants.

The Diabetes Program developed 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 the DSHS School Health Program.

Texas School Nurses Organization has aided Education Service Centers in conducting “train the trainer” seminars for implementation of HB984 and has placed checklists and forms for use in implementing HB984 on its Web site. Richardson ISD and Garland ISD have developed videos for training of UDCAs with a reminder that UDCAs need to be trained each year.

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

For FY2007, the Diabetes Program has allocated funding to Education Service Centers to provide training for school districts regarding HB984. The Diabetes Program will assist in training the DSHS School Health Network to expand implementation of HB984 along with efforts to establish coordinated school health programs.

Consulting services. The Diabetes Program 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 type 1 diabetes engage in necessary self care at school. Staff reviews school guidelines prepared by the DSHS School Health Program and similar programs in other states, participates in events for school nurses, and examines insurance plans, including the Children's Health Insurance Program, DSHS Children with Special Health Care Needs Program, and Medicaid, to help families access resources such as insulin pumps. The Diabetes Program also helps develop and increase 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 National Association of School Nurses' Pediatric Education for Diabetes in Schools curriculum.

Liaisons. The Diabetes Program participates in planning activities that support the Strategic Plan for the Prevention of Obesity in Texas 2005-2010 (www.eatsmartbeactivetx.org).

Physical activity promotion. Recognizing that the increasing rate of overweight children is related to the increasing rate of type 2 diabetes, and that individual behavior change is at the core of all strategies to reduce overweight, the Texas Diabetes Council is a champion for increased physical activity for youth. During the 77th Legislature, the Council advocated for Senate Bill 19, which resulted in the State Board of Education requiring elementary school students to participate in daily physical activity. During the 78th Legislature, the Council supported SB 1357, establishing local school health advisory councils. The 79th Legislature produced SB 42 which gave the State Board of Education the authority to create rules regarding physical activity in middle schools and created a state-level School Health Advisory Committee at the Department of State Health Services

to establish a leadership role for the department in support for and delivery of coordinated school health programs and school health services.

Resource Guide: Physical Activity/Adiposity in Children.

Through a Diabetes Program contract, the University of Texas at Austin Department of Kinesiology and Health Education developed a resource guide including a detailed review of literature regarding predictive factors for physical activity and adiposity in children. The guide helps determine what methods are available to measure both adiposity and physical activity in children, identify which methods are most suitable for use in communities and which are more useful in research settings, and provides a discussion of the values and limitations of each of the methods identified. Quick reference resource charts are provided for health professionals/health educators to use in making evidence-based decisions when either developing or reviewing any proposed projects.

Education for Law Enforcement Personnel

Following review by its Advocacy and Outreach Committee, the Texas Diabetes Council endorsed the training video, *Treating Diabetes Emergencies: What Police Officers Need to Know*. The video, developed by the City of Philadelphia and the American Diabetes Association, followed a lawsuit stemming from numerous reports of persons with diabetes being detained for extended periods without access to insulin, medications, or food. A poster was also developed for placement in areas where prisoners are detained which describes diabetes emergencies and appropriate treatment. The Council recommends that law enforcement officers carry a fast-acting sugar source for use in diabetes emergencies and a quick-reference to help officers recognize persons with low or high blood sugars. When possible, the Council will recommend appropriate changes or additions to diabetes curricula used by organizations that offer law enforcement training in emergency medical assistance.

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.

PRIORITY 5: PROMOTING COMMUNITY OUTREACH AND EDUCATION

Community Diabetes Service Projects

The Texas Diabetes Program is one of 29 state diabetes control programs that receive comprehensive basic implementation funding from the Division of Diabetes Translation, Centers for Disease Control and Prevention, US 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.

To achieve these goals, the Texas Diabetes Program contracts with 17 organizations (local health departments, DSHS Regional Offices, community health centers, and grassroots organizations) serving 70 counties in Texas. These Community Diabetes Service Projects (CDSPs) have established successful programs for promoting wellness, physical activity, weight and blood pressure control, and smoking cessation for people with diabetes. The CDSPs are found in both rural and urban settings and target racial and ethnic minorities who have disproportionate rates of diabetes and limited access to health services.

One of the CDSPs’ 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 and Prevention are:

- Migrant Clinicians Network, Inc., Austin;
- Texas Association of Community Health Centers, Austin;
- Jefferson County Family Focused Diabetes Project;
- Corpus Christi-Nueces County Public Health District;
- Dallas Concilio of Hispanic Service Organizations;
- El Paso Diabetes Association;
- City of Fort Worth Public Health Department;
- Prairie View A&M University Cooperative Extension Program, Houston;
- St. Mark’s Medical Center, La Grange;
- Gateway Community Health Center, Inc., Laredo;
- DSHS Public Health Region 4 & 5;
- Community Health Center of Lubbock;
- Migrant Health Promotions, Inc., Progreso;

- San Antonio Metropolitan Health District;
- Community Health Development, Inc., Uvalde;
- Victoria City-County Health Department; and
- Waco-McLennan County Public Health District

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

The Texas Diabetes Council supports the UTMB's efforts to expand diabetes prevention and control programs in underserved communities.

With funding requested from the 80th 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 developed by the Council.

The Council recommends that funding by the Legislature be directly appropriated to UTMB as opposed to an appropriation to the Texas Department of State Health Services or another third party to ensure that dollars are at work in communities and reduce administrative costs.

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

Additional funding dedicated to Stark Diabetes Center's geographically expanded services will strengthen state capacity for professional and patient education in underserved areas. The partnership will facilitate:

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 further distribution of Council algorithms for management of diabetes in adults and children.
- Assure Stark Diabetes Center's participation in the Council's Outcomes Subcommittee evaluating the use of minimum standards and algorithms by health care providers who treat patients with diabetes.

Patient Education

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

'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 Diabetes Council/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>).

Report on Diabetes Groups Pilot Program

House Bill 2692 (78th Legislative Session, 2003) required the Texas Diabetes Council to develop a pilot program to promote and facilitate operation of diabetes groups, limiting the pilot program to one to two counties with a high proportion of low-income households along the Texas-Mexico border. It further required the Texas Department of State Health Services (DSHS) to cooperate with TDC to provide meeting space at no cost, if

available. It disallowed TDC from providing direct financial assistance to groups.

Support Groups are ongoing meetings held in a community location for people with a common condition. Some include family members/friends who also learn more about the condition and how to manage it to prevent or limit its impact. Groups can include specific lessons to help members develop new or improved skills. Groups can be led by a trained facilitator who has a similar condition such as diabetes. If the group needs a content expert, this expert can be invited to present on a specific medical topic. The sponsoring organization staff or volunteers are responsible for meeting space, guest speakers, and scheduling. Members may make donations for meeting expenses.

In contrast, **Diabetes Self-Management Education (DSME)** is offered by a certified diabetes educator (CDE) in an outpatient medical center or clinic that has been “recognized” by the American Diabetes Association (ADA) or Indian Health Services to conduct this education. DSME focuses on information, skill demonstration, practice, and feedback about self-care skills for diabetes control. The education follows a specific curriculum approved by the ADA and a prescribed number of hours for a charge. For patients with medical insurance, this diabetes education is covered while those without insurance have to pay out of pocket. A prescribed number of hours of DSME is optimal for diabetes management; however, the costs involved for the uninsured or under-insured often place it out of their reach.

Pilot Program Activities

The Texas Diabetes Program developed and mailed a “Diabetes Group Survey” to community health centers and medical clinics that target the uninsured and low-income families in Texas/Mexico border counties in the Lower Rio Grande Valley. There were 31 surveys mailed, but only six returned. The surveys indicated that there were no “diabetes groups” reported as targeted in the HB 2692 legislation.

Further investigation found a few diabetes support groups offered through Mission Hospital and Valley Baptist Memorial Hospital-Jessie Crump Diabetes Center in Harlingen. The American Diabetes Association offered weekly evening English diabetes support group meetings at the McAllen Public Library, and the Rio Grande Regional Hospital’s Diabetes Management Center in McAllen offered monthly grocery store food tours by a registered dietitian.

In contrast, several medical centers along the Rio Grande Valley offered diabetes self-management education classes for a charge. These programs were usually two full days costing \$250 to \$350.

Rio Grande City

Diabetes Program staff learned of a diabetes management education program (*Do Well, Be Well*) provided by Starr County Extension Service in Rio Grande City. The program had met for six weeks with growing attendance rates. Another series of bilingual diabetes education classes had been conducted in Rio Grande City through a grant from Baylor University that provided incentives for people to attend such as glucose meters and testing supplies. Despite the incentives, attendance lessened over time.

Texas A&M University’s School of Rural Public Health in McAllen conducted the South Texas Health Status Assessment and produced a report that motivated community leaders to form the “La Estrella Saludable” Starr County Health Partnership. Two task groups were formed to address diabetes and mental health issues. At the Starr County Health Summit in May 2004, the Diabetes Task Group recommended the establishment of a diabetes support group along with nutrition, education, and physical activity strategies utilizing existing resources.

With technical assistance from the Texas Diabetes Program, the recommended support group met three times in the fall of 2004 at the Fort Ringgold Multi-Purpose Center in Rio Grande City, with the largest attendance of community members and

volunteers being 30. In 2005, the meetings were moved to the Knights of Columbus Hall in Rio Grande City and scheduled prior to popular bingo game activities. Participation rose to 60.

Conclusions

This Diabetes Group Pilot Program demonstrated the complexity of community leaders coming together to plan, coordinate, and assist in conducting diabetes groups and interventions.

The Rio Grande City community examined by this pilot had been involved in several diabetes studies and research where interventions were initiated and discontinued after a set period of time. While it is difficult to determine why some support groups are successful and others aren't, a possible explanation could be group burn-out due to lack of stability in group sponsorship.

In contrast, the county extension agent whose successful efforts were identified by the pilot lived in the community and maintained a familiarity with group participants that could have contributed to more successful recruitment of group members.

Diabetes Program recommendations resulting from Pilot activities include:

- A variety of innovative activities to assist individuals in managing their diabetes on a daily basis.
- Convenient group meeting times for working adults offered in the language most appropriate for the group in safe, accessible locations.
- Increased referral by clinics, medical centers, and community health centers to established community education resources with follow-up to assure participation by the patient.

**PRIORITY 6:
MONITORING AND EVALUATING DATA**

Behavioral Risk Factor Surveillance System

The Texas Behavioral Risk Factor Surveillance System (BRFSS) is an annual, statewide telephone survey of Texas adults aged 18 years and older that is conducted through a collaborative effort between the Texas Department of State Health Services and the Behavioral Surveillance Branch of the Centers for Disease Control and Prevention. One of the major strengths to the Texas BRFSS is that key indicators can be tracked over time to see the progress that has been gained. Six out of 17 diabetes-related Healthy People 2010 objectives are tracked using the Texas BRFSS; three of these (annual eye and foot exams and receiving at least two A1c tests per year) are listed in Table 4. Texas has met the A1c testing target, but has not met national targets for annual eye and foot exams among adults with diabetes. Improvement in all three of these preventive care practices are priority areas for the Texas Diabetes Council.

TABLE 4:
Age-Adjusted Prevalence of Adults With Diabetes Aged ≥ 18 Years Receiving Preventive Care Services, Texas Behavioral Risk Factor Surveillance System, 2004–2005*

<i>Diabetes Preventive Service</i>	<i>Age-Adjusted Prevalence</i>	<i>National Target</i>
<i>Annual Eye Exam</i>	63.5%	76.0%
<i>Annual Foot Exam</i>	68.4%	91.0%
<i>≥ 2 A1c tests per year</i>	65.1%	65.0%
<i>Multiple Preventive Care Services**</i>	39.0%	N/A

* Age-adjusted for persons aged <65 and ≥65 years on the basis of the 2000 U.S. standard population.

** Receiving one or more eye exams, one or more foot exams, and two or more A1c tests during the preceding year.

Source: Community Assessment Team, Texas Department of State Health Services

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 percent of border residents have type 2 diabetes and an additional 14 percent have pre-diabetes. Almost 75 percent of the border adult population is 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

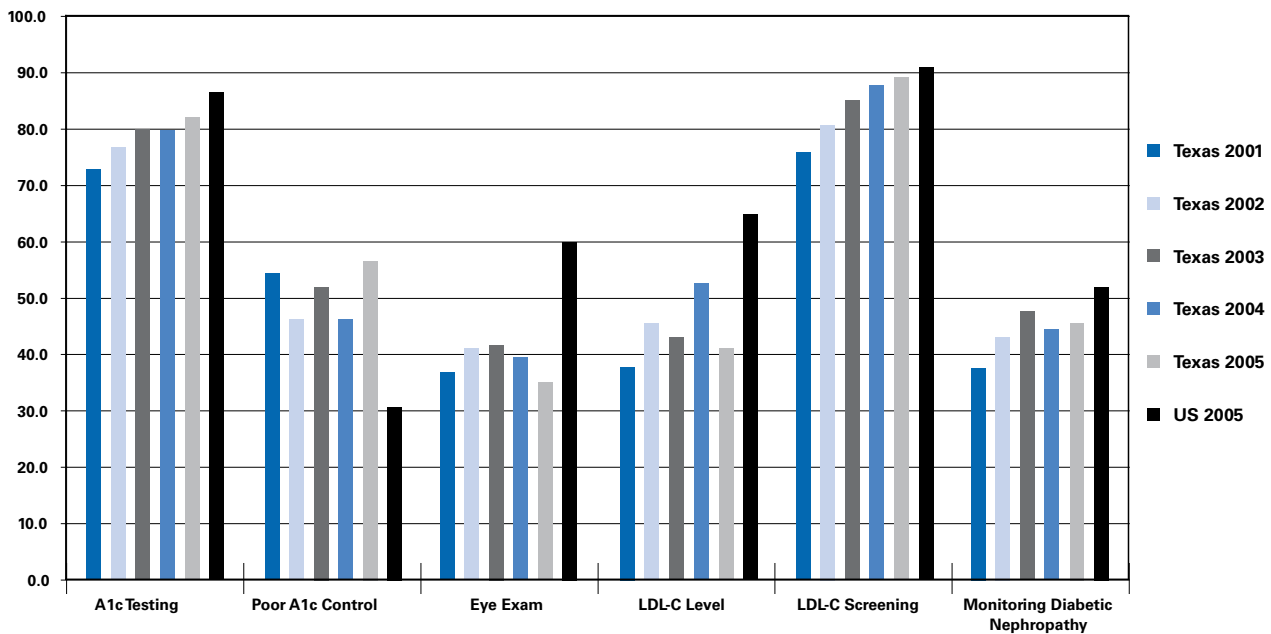
percent of the people on the US side had diabetes that was not previously diagnosed.

The Texas Diabetes Council/Program and the diabetes control programs of the other border states in Mexico and the United States support the Collaborative US-Mexico Border Diabetes Prevention and Control Project study. It is led by the US Centers for Disease Control and Prevention, the Mexico Secretariat of Health, and the Pan American Health Organization. Other partners include the Paso del Norte Health Foundation, El Paso Diabetes Association, US-Mexico Border Health Association, Border Health Foundation, the California Endowment, and Project Concern International. In the next phase of the project, intervention programs that promote prevention and control will be implemented and evaluated in select border communities through designated health clinics.

HEDIS: Health Care Plan Performance

State law requires basic-service health maintenance organizations (HMOs) to report their performance on six measures related to diabetes. These reports are included in the Health Plan Employer Data and Information Set (HEDIS), which is sponsored,

FIGURE 4. Comprehensive Diabetes Care: HEDIS Measures for Texas, 2001–2005 Data, State of Texas vs. US Average



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 4). In an effort to encourage improvement in Texas performance measures, the Texas Diabetes Council 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. Based on averages presented in the *2004 Guide to HMO Quality for 2003* — part of the Texas Health Care Information Collection at the Texas Department of State Health Services — six HMOs in seven Texas markets exceeded the state average in 2003.

Texas Diabetes Public Health System Assessment

In November 2003, the Diabetes Program (TDP) contracted with the University of Texas Health Science Center at Houston, School of Public Health, Center for Health Policy Studies, to carry out the state diabetes public health system assessment.

This assessment project collected information relevant to the State Diabetes Public Health System Performance Standards using two complementary methods: a two-stage survey of organizations that provide one or more of the ten essential public health services, and a meeting of key informants representing those organizations. The survey made it possible to (1) identify and describe the network of system partners involved in providing each essential service and (2) estimate the frequency, awareness of, and perceptions about standards-related activities in the state. The assessment meeting provided a forum for exchanging information and opinions among system partner organizations. It also produced numerical estimates of system performance and the Texas Diabetes Program's contribution to that performance. Finally, meeting participants identified performance gaps that might be addressed in efforts to improve system functioning.

Essential Public Health Services

1. Monitor health status to identify health problems.
2. Diagnose and investigate health problems and health hazards.
3. Inform, educate, and empower people about health issues.
4. Mobilize partnerships to identify and solve health problems.
5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.
7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable.
8. Assure a competent public and personal health care workforce.
9. Evaluate effectiveness, accessibility and quality of personal and population-based health services.
10. Research for new insights and innovative solutions to health problems.

Source: US Public Health Service Core Functions Steering Committee, 1994.

Program Management and Tracking System (PMATS)

The Diabetes Program and the University of Texas – Austin, Department of Kinesiology and Health Education are developing a Web-based reporting system called the Program Management and Tracking System or PMATS. Community Diabetes Service Projects and Diabetes Program staff will use PMATS to report on program activities and performance measures. Other DSHS programs already utilizing this system have found it to be an excellent planning and tracking tool providing significant insights into program management, monitoring of contractor activities, local implementation, process evaluation, and identification of technical assistance needs. A goal for PMATS is

to establish one online system for all chronic disease prevention activities conducted by DSHS, including prevention activities targeting tobacco, obesity, and cardiovascular disease.

Time and Cost Analysis of the Average Clinic Visit for Patients with Diabetes

The Texas Diabetes Council’s Medical Professionals Advisory Subcommittee collected data regarding the cost-effectiveness of implementing recommended minimum standards and algorithms in a clinical setting. While these practice tools are designed to provide optimal care for the person with diabetes, results summarized below indicate that current reimbursement rates for services provided are not sufficient to cover costs:

Summary

Objective: Determine if delivery of diabetes care per American Diabetes Association and Texas Diabetes Council practice guidelines is financially feasible at the current rates of reimbursement.

Setting: University-based ADA-recognized diabetes center

Assumptions:

- Patient population consists of established patients returning for routine follow-up care
- The visit begins when the nurse/MA meets the patient and ends when referrals and return visits have been scheduled
- Payment is expected and reimbursement per patient is approximately the same
- Physician dictation time to document the visit is not included

Components of a clinic visit:

Check-in requires approximately 10 minutes:

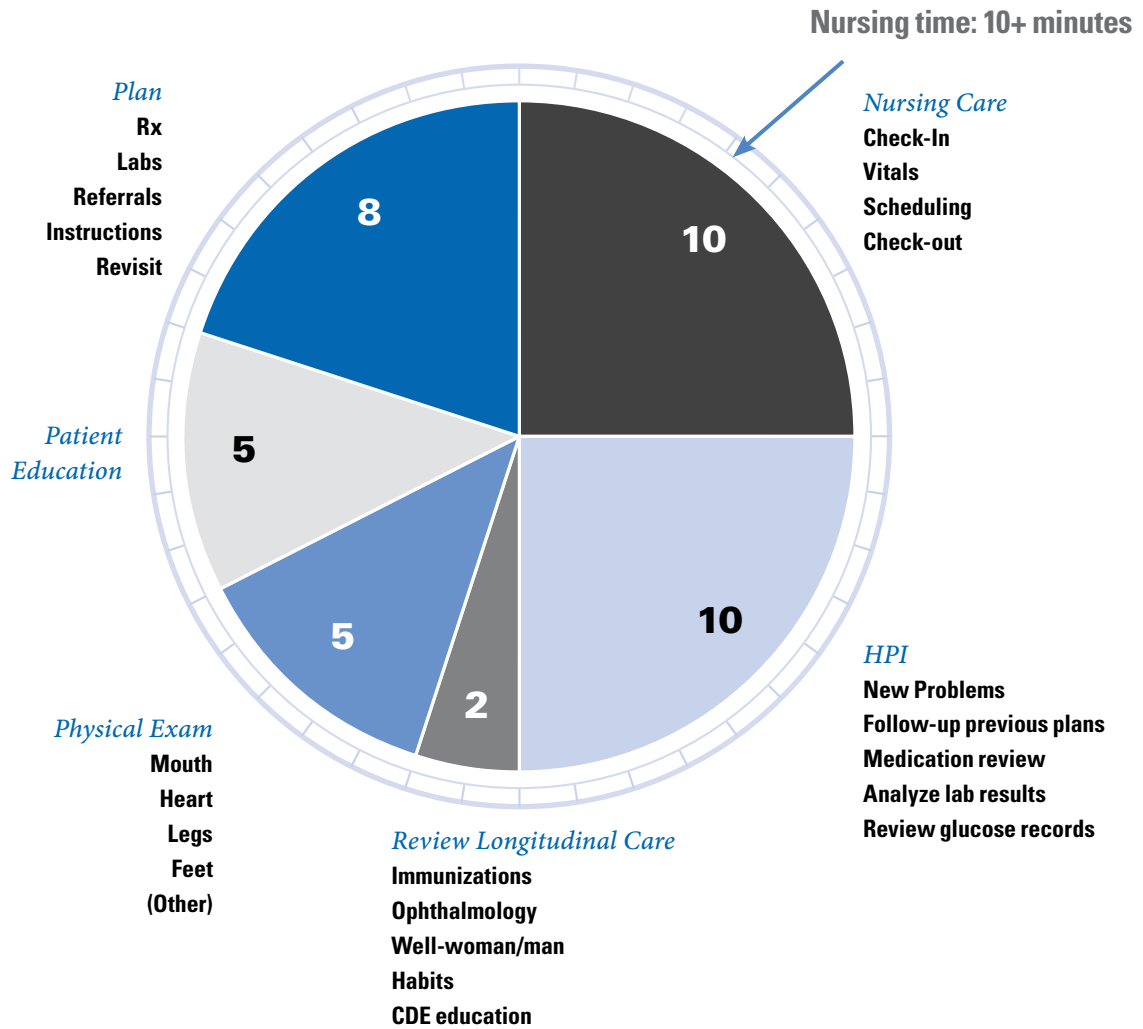
- Obtain vital signs (height, weight, blood pressure, heart rate, respiration, temperature)
- Download glucose meter data, office-based A1c measurement

- Escort patient to exam room
- Remove shoes

Physician/Provider-patient interaction ranges from 20-30 minutes

- A. Address new problems
 - Review previous plan
 - Perform formal review of medications
 - Analyze patient’s self-monitored blood glucose records
- B. Review and update longitudinal care as required per ADA or TDC Flow Sheet and enter new data
- C. Physical examination: The minimum examination required at each visit includes evaluation of the mouth/dentition, heart, legs, and feet. Complete physical examination of all systems is required each year.
- D. Patient education is part of every visit and involves at least one topic from the ADA education curriculum.
- E. Clinical decision making:
 - Generate new therapeutic plans for metabolic control
 - Provide medical intervention or referral for new problems, diabetes education, and medical nutrition therapy
 - Write prescriptions
 - Order specific laboratory studies
 - Update longitudinal care:
 - A1c, urine albumin/creatinine ratio, lipids, comprehensive metabolic panel, hemoglobin/hematocrit, eGFR as required
 - Immunizations, ophthalmology, podiatry, etc.
 - Give specific written instructions to patient
 - Plan follow-up visit
- F. Generate progress note
 - Check-out time ranges from 5-10 minutes on average but may take much longer if referrals or outside studies need to be setup.

FIGURE 5. Physician-Patient Encounter: 20-30 minutes



FINANCIAL FEASIBILITY

Data from University of North Texas Health Science Center (UNTHSC) at Fort Worth, TX

The current rate of reimbursement per patient leads to a 6.1 percent deficit per year after expenses. Current reimbursement for services rendered is insufficient to sustain a viable business if services are provided in a manner comparable to this recommended model.

Nueces County Physician's Pilot Study

Through a social marketing contractor, the Texas Diabetes Council conducted a pilot project in Nueces County to determine the best methodology to distribute the TDC Minimum Practice Recommendations Flow Sheet, algorithms, and patient education materials to physicians, and the impact of the use of the materials on diabetes care.

Surveys conducted as part of the project show:

- More than half of the practicing physicians in the study said 50 percent or more of their patients have type 2 diabetes.
- Doctors are frustrated at the lack of compliance with treatment guidelines among their patients with type 2 diabetes.
- According to study participants, the majority of patients do not receive any diabetes education beyond what their doctors offer.
- Doctors reported offering limited diabetes education because of time constraints and issues with patients' lack of compliance.

- Doctors said there is a lack of materials to assist Hispanic South Texans with culturally appropriate diet modifications for type 2 diabetes.
- Doctors are challenged to follow the Texas Diabetes Council Standards of Care flow sheet because insurance companies do not cover expenses for all of the recommended exams and tests.
- Medical school residents are the most likely to use algorithms and found the TDC diabetes algorithms helpful. All were familiar with the TDC algorithms prior to the pilot study because they are used by their supervising diabetes instructor. They plan to use them when they enter into practice.
- Doctors were enthusiastic about the Texas Diabetes Council education materials. They said the materials were popular and effective with clients. The most popular item was the DVD/video *Controlling Diabetes One Day at a Time*. Doctors reported the TDC materials helped educate patients as well as build rapport between patient and doctor.

APPENDIX 1

Texas Diabetes Council Membership

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

The Texas Diabetes Council is composed of 11 citizen members appointed from the public and one representative each from 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

Lawrence B. Harkless, DPM, Chair, San Antonio

Gene Bell, RN, CFNP, CDE, Secretary, Lubbock

Terrence E. “Woody” Fluharty, Austin

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

Victor Hugo Gonzalez, MD, McAllen

Judith L. Haley, Vice Chair, Houston

Richard (Rick) S. Hayley, Corpus Christi

Lenore F. Katz, Plano

Margaret G. Pacillas, RN, El Paso

Avery Rhodes, Diboll

Dora Rivas, MS, RD, SFNS, Dallas

State Agency Representatives (Non-Voting Members)

Grace Elinsway, MEd

Texas Department of Assistive and Rehabilitative Services
(Rehabilitative Services)

Philip Huang, MD, MPH

Texas Department of State Health Services

Marissa Rathbone

Texas Education Agency

Linda G. Robinson

Texas Department of Assistive & Rehabilitative Services
(Services for the Blind)

Michael P. Wilson, PhD

Texas Department of Aging & Disability Services

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ENDNOTES

- 1) Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2000. Population data from the Texas State Data Center - Office of the State Demographer, Institute for Demographic and Socioeconomic Research, College of Business, University of Texas at San Antonio.
- 2) Texas State Data Center – Office of the State Demographer, Institute for Demographic and Socioeconomic Research, College of Business, University of Texas at San Antonio, uses 0.5 migration scenario.
- 3) Uses 2003 Texas diabetes prevalence of 8.1, and population data from the Texas State Data Center. Uses 0.5 migration scenario.
- 4) 2005 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.
- 5) 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.
- 6) 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.
- 7) Texas Health and Human Services Commission, presentation to the House Committee on Public Health, Texas Legislature, Feb 18, 2004.
- 8) 2005 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.
- 9) 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.
- 10) Texas Department of State Health Services, Texas Vital Statistics. Data include male and female, and all ages.
- 11) American Diabetes Association and the National Institute of Diabetes, Digestive, and Kidney Diseases [NIDDK].
- 12) For more information, visit <http://diabetes.niddk.nih.gov/dm/pubs/preventionprogram/>.
- 13) *New Engl J Med* 346:393-403, 2002 Feb 7.

- 14) Texas State Data Center – Office of the State Demographer, Institute for Demographic and Socioeconomic Research, College of Business, University of Texas at San Antonio. Uses 0.5 migration scenario.
- 15) 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.
- 16) Except in certain specified circumstances, abnormal tests must be confirmed by repeat testing on another day.
- 17) 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.
- 18) The End Stage Renal Disease Network of Texas, Inc. #14: 2005 Annual Report. Contract #500-03-NW14 with the Centers for Medicaid & Medicare Services, Baltimore, MD. www.esrdnetwork.org.
- 19) Texas Hospital Inpatient Discharge Public Use Data file, 2003. Texas Department of State Health Services, Center for Health Statistics-THCIC, Austin, Texas. 2003.
- 20) 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.
- 21) 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.
- 22) Hogan P, Dall T, Nikolov P, American Diabetes Association. Economic costs of diabetes in the U.S. in 2002. *Diabetes Care* 2003; 26:917-932.
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