# RESPONDING TO THE EPIDEMIC:

## *STRATEGIES FOR IMPROVING DIABETES CARE IN TEXAS*

Texas Health Institute

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The Texas Health Institute (THI) is an independent 501(c)3 non-profit organization committed to finding feasible solutions to Texas' health problems. THI provides leadership to improve the health of Texans and their communities through education, research, and health policy development. This mission is achieved through a non-biased, non-partisan approach and multi-sector collaboration with community leaders, businesses, policy makers, healthcare providers, and consumers. THI has 15 years experience in developing and managing cross-sector collaboratives at local, state, and regional levels.

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We also thank the staff and members of the Texas Diabetes Council; the Texas Diabetes Program at the Department of State Health Services; the Office for the Elimination of Health Disparities; the Health Disparities Task Force; and the American Diabetes Association, which provided essential advice and support throughout the entire project, from developing the roundtable format to providing input on the strategies presented in this report.

Finally, our thanks go to the more than 300 Texans who participated in the regional roundtables. Your strong interest in improving life for people with diabetes is a great inspiration to us.

If you are interested in hosting a discussion about diabetes or another chronic disease in your organization or community, please contact Klaus Krøyer Madsen at 512.279.3905 or kmadsen@texashealthinstitute.org.

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# EXECUTIVE SUMMARY

Diabetes is a modern-day epidemic recently referred to as a "public health humiliation."[1] Type 2 diabetes is preventable, but annual incidence rates continue to grow, and the associated costs of treating diabetes and its complications represent a significant threat to the financial solvency of the Texas public and private health infrastructure. The reach, impact and diabetes-associated costs to the State of Texas, its taxpayers and those suffering from the disease must be addressed.

This report is a call to action and a suggested blueprint for change for policymakers and other stakeholders concerned about the overall health of Texans and Texas communities. Despite numerous efforts to improve the social and lifestyle factors that often lead to diabetes, the age-adjusted incidence rate for diabetes among Texas adults almost quadrupled between 1995/1997 and 2005/2007, according to a study by the Office of the State Demographer[2]. This translates into approximately 156,000 new cases of diabetes each year. The State Demographer projects a quadrupling of the number of adult Texans with diabetes from approximately 2.2 million in 2010 to almost 8 million by 2040.

While primary prevention, i.e., reducing obesity, is essential, it is crucial to prioritize cost-effective ways of improving healthcare and health status of the more than 2 million Texas adults currently living with diabetes and the more than 1 million Texas adults living with pre-diabetes.

To better inform a response to this crisis, the Texas Health Institute (THI) convened a series of three roundtables across the state to listen to those battling diabetes on the front lines. With generous funding by Novo Nordisk and Roche Diagnostics, the events were conducted in close collaboration with the Texas Diabetes Program at the Texas Department of State Health Services, the Texas Diabetes Council, the Texas Health Disparities Task Force, the Office for the Elimination of Health Disparities at the Texas Health and Human Services Commission, and the American Diabetes Association.

This paper serves as a summary of information learned from the roundtables and further research conducted by THI as a result of those findings. Several of the themes that emerged from the roundtables centered on the need for improved care for Texas adults already diagnosed with diabetes. Participants at all the roundtables talked of the need to improve clinical and community care coordination and the need for improved access to care.

The goal of this report is to identify action strategies for Texans to begin controlling the epidemic of diabetes. A summary of recommended strategies is on page 5.

## No-Cost Strategies

1. Conduct an assessment of the reach and scope of the state's current work on diabetes prevention and treatment.

2. Recalibrate all ongoing public health activities to focus on reaching those living with diabetes today, given that diabetes in the current population is the cause of the current crisis and costs in the healthcare system (including Medicaid).

3. Ensure that the Medicaid program biannually identifies its priorities for addressing diabetes in a report to the Legislature and Governor.

4. Develop a budget blueprint identifying needs, costs and resources for diabetes and its complications to guide policymakers and elected officials on how best to fight the disease.

5. Consider establishing diabetes as one of the priority areas in the implementation of the Health Disparities Task Force Strategic Plan 2010 - 2015. Evaluate existing programs throughout the state that address health disparities with a focus on diabetes, and identify best practices within those programs.

6. As Texas implements health information technology throughout the state, look for ways to focus on improved outcomes for patients with diabetes and support the use of best information technology available to enable better diabetes management.

7. Maximize potential federal resources available to the tate to battle diabetes.

## Strategies with Costs

1. Implement a statewide screening program consistent with current recommendations so that adults and children at increased risk for diabetes can be tested within the health care setting.

2. Expand Medicaid self-management training and other cost effective interventions for those diagnosed with diabetes. Focus first on those populations already consuming healthcare services and already needing cost cost-effective interventions.

3. Pursue a federal-state plan amendment to close the benefit gap between Medicaid and CHIP, so pregnant mothers covered by CHIP perinate benefits can have access to essential diabetes supplies to monitor the disease, such as glucose meters, test strips, lancets and syringes.

# THE DIABETES CRISIS

## DEFINING DIABETES

The disease is characterized by a condition wherein the body does not produce or properly use insulin, a naturally produced hormone. Insulin is required for the body's tissues to have access to sugar, starches and other foods for energy.

There are three main forms of diabetes:

- Type 1 diabetes is usually, but not always, diagnosed in children and young adults as a result of an autoimmune disorder.
- Type 2 diabetes is the most common form of diabetes and accounts for 90-95 percent of the cases diagnosed today. Historically diagnosed in adults, this form of diabetes is now also being diagnosed in children.
- Gestational diabetes occurs when a pregnant woman who may never have had diabetes before experiences elevated blood sugar levels during pregnancy. While requiring management and attention during pregnancy, the condition is transient and usually reverses itself upon childbirth. When left untreated, the woman and child run substantial risk of a complicated birth process, ranging from premature birth to the birth of a child with excessive weight. Development of the condition also greatly increases the mother's risk of developing diabetes again later in life.

The American Diabetes Association estimates that 5.7 million Americans do not know they have Type 2 diabetes.[3] Another 57 million have a condition called pre-diabetes, a precursor to Type 2 diabetes.[4] Diabetes is asymptomatic in its earliest stages. Many cases remain undiagnosed for long periods of time, leading to a greater chance for complications such as heart attack, kidney disease, nerve damage, stroke, eyesight problems and infections.[5]

All forms of diabetes are treatable. While there is no known cure, daily and often more frequent treatments allow people with diabetes to live relatively healthy, normal lives. Early screening, diagnosis and treatment also prevent or reduce serious consequences of the disease, including heart attack, stroke, blindness, kidney failure, emergency room visits, hospitalizations, loss of sight and limbs.

Once diagnosed, diabetes requires active self-management, which often includes daily insulin injections, blood glucose monitoring, medications, dietary modifications and exercise. Because treatment requires patient education, medications, special treatment and supplies, diabetes can be costly to patients. However, the daily self-management needs of people with diabetes are remarkably affordable when compared to the hospital costs associated with diabetes complications.

## TEXANS CURRENTLY AFFECTED

According to Texas Diabetes Council estimates for 2008, about 1.7 million or one in 12 Texas adults have been diagnosed with diabetes. [6] For 2010, the State Demographer projects that about 2.2 million or one in eight Texas adults are projected to have been diagnosed with diabetes in 2010.[7]

Another 425,000 Texas adults are undiagnosed,[8] and more than one million are estimated to have pre-diabetes and are at high risk for developing the disease within 10 years.[9] Altogether, approximately one in four Texas adults is affected by diabetes or pre-diabetes.
The rising rate of individuals with diabetes in Texas is staggering. Statistics confirm that diabetes, the sixth leading cause of death in Texas, is a statewide epidemic. Experts speculate that diabetes is underreported as a cause of death because reporting on death certificates can be inconsistent. In some localities, diabetes ranks as high as the third leading cause of death, with disease rates continuing to rise steadily.

There is no reliable data available regarding the growing epidemic of Type 2 diabetes in children ages 17 and younger.[10] The American Diabetes Association recently convened a panel of experts to develop consensus about the prevention, diagnosis and treatment of Type 2 diabetes in children.[11] The limited public health data concerning this issue shows an unprecedented increase in the number of Texas children who are overweight and at high risk for developing Type 2 diabetes. Texas is among eight states with the highest rates of childhood obesity, totaling greater than 20 percent of the childhood population.[12]

Gestational diabetes occurs among three to eight percent of pregnant women.[13] Gestational diabetes can cause significant complications in pregnancy. The Harris County Hospital District estimates[14] that out-of-pocket expenses for a woman with gestational diabetes are approximately $1,065 for glucose monitoring supplies for 14 weeks. Without adequate diabetes control and monitoring, the pregnancy may result in a high-risk birth, with the premature infant having to spend two weeks to two months in a neonatal intensive care unit at an average cost of $3,300 per day. Currently, Texas Medicaid provides coverage for glucose monitoring supplies for women with gestational diabetes, but Texas CHIP does not.

The rate of diabetes in Texas continues to rise steadily, keeping pace with the national average rate of increase. Experts note, however, that this rate of increase may be offset by the fact that diabetes remains grossly underreported.[15] According to the Texas Behavioral Risk Factor Surveillance System (BRFSS) survey, diabetes prevalence among adults in Texas rose from 7.9 percent in 2005 to 9.3 percent in 2009.[16]

## HEALTH DISPARITIES

More than two-thirds of the 1.6 million new cases of diabetes occurring in America each year occur in Hispanics, African-Americans and Native Americans.[17] Higher rates of diabetes among these populations are created by a number of factors, including a hereditary predisposition to diabetes, gaps in access to healthcare delivery systems, quality of care provided by physicians and other health providers, and limited access to preventive services and healthy foods.

Though diabetes is the sixth leading cause of death in Texas, it is the fourth leading cause of death among Hispanics and African-Americans.[18] The State Demographer's study[19a] projects that the Hispanic population will increase by 77 percent over the next 30 years and, by 2040, Hispanics will account for the majority of diabetes cases.[20]

Texas' rate of diabetes among Hispanic populations is higher than the national average. Today, 680,351 people, or 11.1 percent of the Hispanic population in Texas, have diabetes.[21] The National Institute of Diabetes and Digestive and Kidney Diseases conducted several studies in Bexar County, Starr County and the City of San Antonio to ascertain the prevalence of diabetes among the Hispanic population.[22] There are a large number of Hispanic residents at high-risk of developing diabetes, particularly in South Texas, where obesity rates are very high and health insurance coverage is very low. Among African-Americans in Texas ages 18 and older, 251,543 people, or 13 percent of the population, have diabetes. This is higher than the Hispanic diabetes rate, but represents a lower number of individuals, overall.[23] In fact, Wood, Brewster, Val Verde, Starr and Midland counties have among the highest rates of obesity and diabetes in the state.[24]

The Texas Health Disparities Task Force (HDTF) was statutorily created to address health disparities among multicultural, disadvantaged and regional populations. The Health and Human Services Commission's Office for the Elimination of Health Disparities (OEHD) staffs the HDTF and provides technical assistance and leadership within the HHSC enterprise, and promotes health disparities issues at the local and regional levels.

In 2010, the HDTF created a 2010-2015 Strategic Plan[25] to align the duties of the HDTF with the needs of the state, and establish long-term objectives and strategies. According to statute, the OEHD is the lead entity charged with implementing these strategies, so the two entities work closely together. The HDTF adopted four overall goals in the 2010-2015 Strategic Plan. One of the goals is to develop three priority areas of focus to address health disparities in collaboration with HHSC agencies.

National and statewide efforts to identify populations impacted by health disparities are ongoing. Efforts to address health disparities through various education and intervention programs are also underway. However, there is not much documented evidence on best practices or evidence-based interventions to help those disproportionately affected by diabetes and suffering from health disparities.

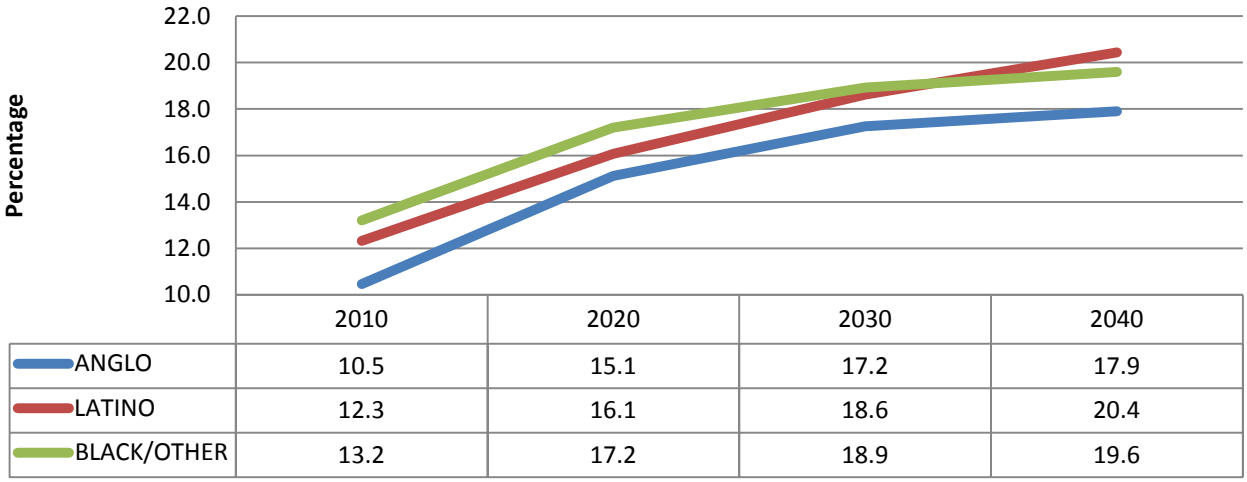
[a] The data projections were prepared by the Office of the State Demographer in close collaboration with Methodist Health Care Ministries of South Texas, Inc. who funded the study, the Office of the State Epidemiologist and Texas Health Institute. The summary of the study is provided in Appendix A.

## PROJECTIONS

The State Demographer's study projects a quadrupling of the number of Texas adults diagnosed with diabetes, from an estimated 2.2 million in 2010 to almost 8 million in 2040. The diabetes prevalence rate among diagnosed adults will increase from one in about eight adults now to one in four adults by 2040.[26]

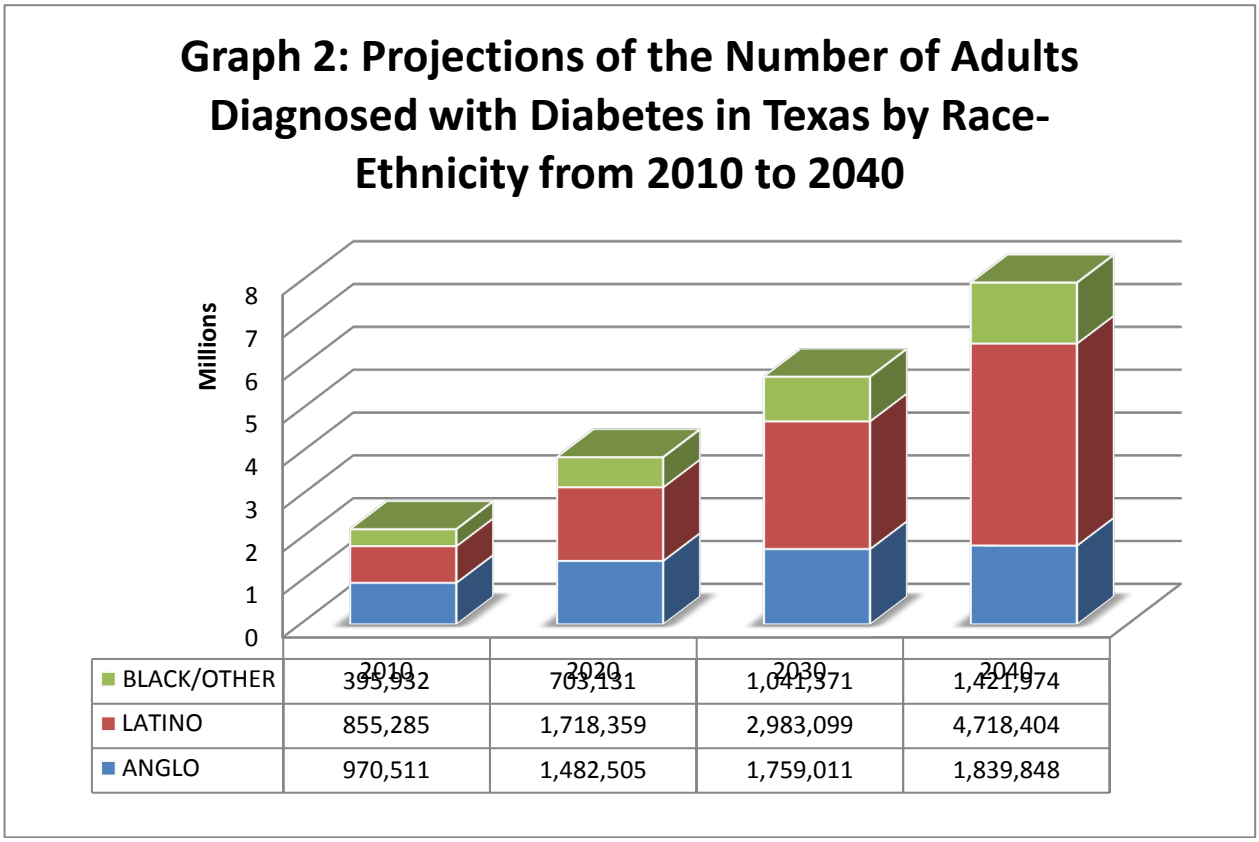
Graphs 1 and 2 show the changes in prevalence of diagnosed adult diabetes among different racial/ethnic groups.

**Graph 1. Projections of the Percentage of Adults with Diabetes in Texas by Race-Ethnicity from 2000 to 2040**




| | 2010 | 2020 | 2030 | 2040 |
|---|---|---|---|---|
| ANGLO | 10.5 | 15.1 | 17.2 | 17.9 |
| LATINO | 12.3 | 16.1 | 18.6 | 20.4 |
| BLACK/OTHER | 13.2 | 17.2 | 18.9 | 19.6 |

SOURCE: Office of the State Demographer study funded by Methodist Healthcare Ministries of South Texas, Inc. 2010.




SOURCE: Office of the State Demographer study funded by Methodist Healthcare Ministries of South Texas, Inc. 2010.

# GOVERNMENT RESPONSE TO DIABETES

## NATIONAL EFFORTS

Research conducted last year by the National Conference of State Legislatures (NCSL) strongly suggests current resources are falling far short of what is required to credibly prevent, diagnose, treat and address complications of diabetes.[27] This review identified the Centers for Disease Control and Prevention (CDC) as the primary source of government support for state and national activities associated with diabetes treatment and prevention. Further, the review found that of approximately $60 million available to address diabetes through the CDC during the last fiscal year, only $28.4 million in grants were available to the states and territories for diabetes control and prevention. This represents a 4.3 percent decrease in funds from the prior fiscal year. Resources available to states were further impacted by a new funding formula that ultimately reduced diabetes funding available last year to 40 states and government entities.[28]

For the past five years, CDC has encouraged states to improve efforts on general primary prevention and trended away from a disease-specific approach. While it is true some resources available from CDC still go toward helping those with diabetes, there has been a shift away from targeted efforts

aimed at disease treatment. Furthermore, CDC is directing state health departments to coordinate diabetes prevention activities with efforts aimed at general primary prevention and tobacco use cessation. The U.S. Preventive Services Task Force's Guide to Clinical Preventive Services (2nd edition, 1996) defines primary prevention measures as "those provided to individuals to prevent the onset of a targeted condition." Though it may seem advantageous to blend resources, there is a concern that scarce federal diabetes funds could go toward general prevention and tobacco cessation activities, as opposed to helping those with or at significant risk for diabetes.

## The Potential Impact of National Health Reform

It is unknown what impact the various coverage changes enacted through the new federal health reform law, the Patient Protection and Affordable Care Act (PPACA), will have on diabetes in Texas.

It is important for the state to consider implementing common-sense solutions to the problems presented by diabetes sooner, rather than later. Waiting on health reform to be fully enacted will delay state action on important, simple activities to fight diabetes. However, several PPACA public health provisions being implemented this year may be of interest to policymakers:

- The establishment of a national diabetes report card published by the Secretary of Health and Human Services that tracks the nation's work in battling diabetes;
- Improved collection of vital statistics related to diabetes, especially in the area of mortality, and causes of death attributable to diabetes;
- A study on the appropriate level of diabetes-related medical education for health professionals and doctors in residency; and
- Coverage for medical nutrition therapy for people living with pre-diabetes who are also in the Medicare program.

Additionally, the law envisions creating a $15 billion fund over a 10-year period to fund prevention-focused activities nationwide. However, Congress has yet to provide financial resources for the fund for future years.

As a result of passage of the American Recovery and Reinvestment Act in 2009 and PPACA in 2010, several pilot projects are planned or underway, and other funding is potentially available through sources such as Medicare, the Health Resources and Services Administration (HRSA), and health information technology grants.

## TEXAS EFFORTS

During the last fiscal year, Texas received $976,813 from the CDC to prevent diabetes and implement efforts aimed at helping those with diabetes.[29] Because of a change to the federal funding formula, Texas was one of a handful of states to benefit from an increase in CDC diabetes program funding of $31,193. This amounts to the state receiving about 44 cents in diabetes prevention funding for each of the 2.2 million adults living with diabetes in Texas.

Texas allocates approximately $6 million each biennium toward various diabetes and diabetes prevention activities throughout the state. When coupled with the CDC funding, the state spends approximately $6.98 million each biennium battling or preventing diabetes.[30] This means Texas is spending approximately $3.17 per Texan diagnosed with diabetes on public health measures to control the spread and increase of diabetes.

The $6.98 million in funding goes primarily toward the following activities in the state:[31]

Texas Department of State Health Services (DSHS) ($3.98 million annually):

- Support the work of federally qualified health centers;
- Continue the work of the diabetic eye disease programs;
- Provide support and technical assistance to community diabetes programs and coalitions;
- Send physicians to the border region to expand available resources, while also training physicians in diabetes matters facing Hispanic communities; and
- Staff the Texas Diabetes Council.

The University of Texas Community Outreach (UTCO) ($2.8 million annually):

- Support diabetes care services provided to the community;
- Implement community health worker/promotora programs to reach patients unable to access healthcare facilities; and
- Provide community education and public awareness initiatives related to diabetes.

The Texas Health and Human Services Commission reports diabetes is the number-one cause of office visits by Medicaid recipients. Arguably, diabetes is one of the most expensive chronic diseases covered by the Medicaid program, when the combined costs of its complications are considered.[32] The Agency for Healthcare Research and Quality analyzed the economic and health costs of diabetes and concluded the following:[33]

*National inpatient hospital costs for diabetes with complications were nearly $3.8 billion in 2001.*
*The risk of hospitalization from cardiovascular disease is two to four times higher for women with diabetes, as compared to women without diabetes.*

*Patients hospitalized with diabetes are 28 times more likely to have an amputation than patients without diabetes.*

*Healthcare costs are three times higher for diabetes patients with multiple hospitalizations, as compared to diabetes patients with a single stay in a given year.*

*Patients with diabetes who are racial/ethnic minorities, enrolled in public insurance programs, or living in low-income communities are more likely to experience multiple hospitalizations and have higher hospital costs than their counterparts.*

*With appropriate primary care for diabetes complications, nearly $2.5 billion in hospital costs might have been averted, with significant potential savings obtained in Medicare ($1.3 billion of total costs) and Medicaid ($386 million of total costs).*

The overall cost of diabetes among all age groups in Texas annually exceeds $12.5 billion, according to the American Diabetes Association's Diabetes Cost Calculator, based on their 2007 economic cost report.[34] This figure includes $8.1 billion in excess medical expenditures attributed to diabetes, as well as $4.4 billion in absenteeism, reduced productivity, unemployment and other indirect costs. Medical expenditures for people with diabetes are approximately 2.3 times higher than medical expenditures for those who are not diabetic. Further, approximately one in 10 healthcare dollars is attributable to diabetes.[35]

Recent estimates of Texas Medicaid reimbursements for diabetes-related services in 2009 reached almost $553 million, and Children's Health Insurance Plan (CHIP) payments for 2009 totaled approximately $3.8 million.[36]

Texas could improve these outcomes by focusing first on the population already diagnosed with diabetes and already consuming healthcare services to address this disease. Evidence supports the effectiveness of interventions such as self-management training, nutrition therapy programs and other interventions for patients with diabetes.[37] Texas has an important citizen membership body in the Texas Diabetes Council (TDC), which is charged with addressing issues affecting diabetes patients in Texas while advising the Governor, Legislature and DSHS on what is needed to develop and maintain a statewide system of services to treat and prevent diabetes. The Texas Diabetes Council has issued a number of reports on preventing and treating diabetes in Texas. Improved collaboration between various state and local programs will maximize outcomes for those receiving state-funded healthcare services.

# DIABETES HEALTH DISPARITIES ROUNDTABLES

With significant growth in the number of people with diabetes at a time of limited fiscal resources, it is essential to understand where opportunities for improvement exist.

With this in mind, the Texas Health Institute, the Texas Diabetes Program at DSHS, the Texas Diabetes Council, the Texas Health Disparities Task Force, the Office for the Elimination of Health Disparities at the Texas Health and Human Services Commission, and the American Diabetes Association conducted a series of roundtable discussions in three diverse communities across Texas over the past three years:

- November 12, 2008, in Dallas, hosted by Baylor Medical Center at Irving;
- November 10, 2009, in Houston, hosted by Memorial Hermann and Gateway to Care; and
- January 12, 2010, in the Rio Grande Valley, hosted by the Valley Retina Institute, H-E-B and the American Diabetes Association.

The roundtables brought together more than 300 individuals to share knowledge and ideas about programs to effectively address diabetes in adults and children, especially those in underserved populations. The participants included local business owners, insurance industry representatives, healthcare providers, certified diabetes educators, hospital administrators, community leaders, government officials and healthcare suppliers (medical care, durable medical equipment and pharmaceuticals).

Panelists at Dallas Regional Diabetes Health Disparities Roundtable, November 12, 2008.
From L to R: Noel Santini, M.D., Medical Director, COPC, Parkland Health and Hospital System; Tuala Williams, General Manager, The Dallas Examiner; Liz Treviño Dawson, DrPH, Manager, Health Equity, Baylor Health Care System; Florencia Velasco Fortner, Chief Executive Officer, Dallas Concilio of Hispanic Service Organizations; Charles Bell, MD, Deputy Executive Commissioner, Texas Health and Human Services Commission; and Victor H. Gonzalez, M.D., Chair, Texas Diabetes Council.

At each roundtable, participants heard presentations about the epidemic of diabetes in Texas. These presentations were delivered by Dr. Charles Bell, Deputy Executive Commissioner of the Texas Health and Human Services Commission; Dr. Victor Gonzalez, Chair of the Texas Diabetes Council; Dr. Ben Raimer, Chair of The Health Disparities Task Force; and other leaders in diabetes patient care and advocacy. Special guest Ann Albright, Director of the Division of Diabetes Translation at the CDC,

presented at the roundtable in Rio Grande Valley about the CDC's efforts to curb the diabetes rate through structured lifestyle interventions.

The purpose of the roundtables was to showcase innovative ways healthcare providers and community organizations are addressing diabetes health disparities, develop new local partnerships with all stakeholders, and identify successful local and regional programs to inform policy changes at the state and federal levels. Several themes that emerged from the roundtable discussions centered on the need for improved care for the 2.2 million Texas adults living with diabetes. Participants at all roundtables discussed the need to improve both clinical and community care coordination and access to care.

Funding for these roundtables was provided by Novo Nordisk and Roche Diagnostics.

# STRATEGIES FOR ACTION

Available evidence strongly suggests more must be done to control, diagnose and treat the growing diabetes epidemic in order to contain the costs being borne by the state. The State Demographer's projections regarding the growth of the diabetes epidemic over the next 30 years constitute a difficult challenge for Texas families, healthcare providers, communities and policymakers.

During the series of roundtables, THI heard many innovative ideas from patients, providers, employers, local officials and other stakeholders. There is a strong interest at the community level in addressing Texas' diabetes epidemic. The proposed strategies discussed below emerged as a result of listening to and talking with Texans across the state. To help guide policymakers, proposed action steps are divided as follows:

No-Cost Strategies –These are activities the state could implement immediately to fight diabetes with no financial impact to the state.

Cost Strategies with cost – Recommendations in this category will likely cost the state some money; however, their benefits could offset the costs and, potentially, save the state money.

## NO COST STRATEGIES

1. **Conduct an assessment of the reach and scope of the state's current work on diabetes prevention and treatment.**
   Texas needs a full assessment of the successes, failures and resource needs for its existing activities on diabetes. The state also needs an assessment of the number of patients, healthcare professionals and others served by these programs. Obtaining this information is essential to ensuring Texas policymakers are able to establish a baseline and set priorities for battling diabetes.

2. **Recalibrate all ongoing public health activities to focus on reaching those living with diabetes today, given that is where the healthcare system (including Medicaid) is experiencing the current crisis and costs.**
   The costs of diabetes and its complications to the state are huge and growing. Texans with diabetes receiving services through public programs, such as Medicaid, are driving the costs borne by the state today. Given these realities, it is important for the state to consider focusing existing resources on ensuring those with the disease are obtaining the care necessary to combat and control it. Such a recalibration makes strong fiscal and public health sense.

3. **Ensure the Medicaid program biannually identifies its priorities for addressing diabetes in a report to the Legislature and Governor.**
   In coordination with TDC, HHSC should provide a biannual report that identifies how to fight diabetes most effectively, while directing public health entities on the implementation of programs to help control and reduce the burden of diabetes in Texas.

4. **Develop a budget blueprint identifying needs, costs and resources for diabetes and its complications to guide policymakers and elected officials on fighting the disease effectively.**
   The University of Texas LBJ School of Public Affairs assessed the costs of diabetes to Texas in 1992.[38] This information should be updated so the state can prepare a budget blueprint to guide policymakers as they consider future plans and programs to address diabetes.

5. **Consider establishing diabetes as one of the priority areas in the implementation of the Health Disparities Task Force Strategic Plan 2010 - 2015. Evaluate existing programs throughout the state that address health disparities, with a focus on diabetes, and identify best practices within those programs.**
   Statistics show significant disparities exist in the burden of diabetes among Texans. In recognition of the epidemic among racial/ethnic minorities, the state should establish diabetes as a priority among its efforts to address disparities. As a first step, the state needs to understand which programs are most effective in addressing diabetes and its complications in racial/ethnic minorities. A large proportion of counties along the Texas-Mexico border have significantly higher mortality rates from diabetes than the rest of the State. For this reason, this area should be a priority.

6. **As Texas implements health information technology throughout the state, look for ways to focus on improved outcomes for patients with diabetes and support the use of best information technology available to enable better diabetes management.**
   Studies show improved compliance and control for patients with diabetes through the use of electronic health records. The American Relief and Recovery Act of 2009 authorized funding to states, providers and other organizations for health information technology investments. During the roundtables, the need for improved clinical and community care coordination for patients with diabetes was stressed repeatedly. This need could be addressed by focusing health information technology implementation efforts on the needs of patients with diabetes.

7. **Maximize potential federal resources available to the state to battle diabetes.**
   Passage and implementation of healthcare reform, the availability of federal funding for health information technology and other opportunities may become available to the state for diabetes prevention and control activities. The state must pursue any and all available federal dollars, with a focus on improving care and reducing costs for Texans battling diabetes.

## STRATEGIES WITH COST

1. **Implement a statewide screening program consistent with current recommendations that adults and children at increased risk for diabetes be tested within the healthcare setting.**
   The current recommendation for screening people for Type 2 diabetes begins, generally, at age 45; however, a new study finds that screening earlier, particularly those who are overweight, is not only cost-effective, but also can curb future diabetic complications.[39] People unknowingly living with diabetes will cost the state scarce resources today and in the future. This is because the longer they live with diabetes or pre-diabetes in an undiagnosed state, the greater the likelihood their complications and resulting medical costs will be significantly higher than if the disease was diagnosed in its early stages. By diagnosing, treating and managing the disease early, the state not only will save resources, but also will improve the lives of Texans living with diabetes.

2. **Expand Medicaid self-management training and other cost-effective interventions for those diagnosed with diabetes. Focus first on those populations already consuming healthcare services and already needing cost-effective interventions.**
   Self-management training for persons diagnosed with diabetes is a covered benefit of Medicare and private insurance, but not Medicaid in Texas. Persons newly diagnosed with diabetes often need to learn how and when to administer insulin, how to modify their food preparation and eating habits, and how to exercise effectively. Self-management training covers these skills. The alternative is often poor health management that can result in major complications and costs.

   HB 1990, passed by the 81st Texas Legislature, creates a Medicaid diabetes self-management training pilot program. Self-management training should be expanded statewide to all Medicaid recipients with diabetes to reduce costs and improve health outcomes.

3. **Pursue a federal state plan amendment to close the benefit gap between Medicaid and CHIP, so pregnant women covered by CHIP benefits can have access to essential diabetes monitoring supplies, such as glucose meters, test strips, lancets and syringes.**
   Diabetes supplies are excluded for pregnant women under the state CHIP program. This inequity in state policy impedes access only to the CHIP mother and family, since both Medicaid and commercial insurers cover such benefits. Excluding mothers in the CHIP program actually increases costs, given the research finding that an increase in HA1C from noncompliance due to poor access equates to an increase in healthcare costs for both CHIP and the population at large. The Legislature should close this gap and allow for state coverage of diabetes supplies under CHIP as a perinate benefit for pregnant mothers.

# APPENDICES

# APPENDIX A: SUMMARY REPORT ON DIABETES IN TEXAS 2007-2040

# Summary Report on Diabetes Projections in Texas, 2007 to 2040




The methodology and content of this report was developed by Karl Eschbach, Ph.D., previous Texas State Demographer, and Vincent Fonseca, M.D., M.P.H., previous State Epidemiologist. This report was made possible by the generous support of Methodist Healthcare Ministries of South Texas, Inc.. Texas Health Institute served as an essential partner in defining and realizing this effort. Edward Codina, Ph.D., of Methodist Healthcare Ministries and Klaus Krøyer Madsen, M.P.H, of Texas Health Institute contributed substantively to the conceptualization and realization of this report.

**Summary Report on Diabetes Projections in Texas, 2007 to 2040**

1. **Adult diabetes rates have been increasing at an alarming rate in Texas**. These increases have occurred across the board for all ethnic groups and all ages. There are especially dramatic increases among young adults, for who diagnosed diabetes rates more than doubled from 2004 to 2007. These increases are of tremendous concern. If people in their 20s are already having diabetes, the rates for this cohort may be dramatically higher in 20 years, when the current generation of persons in their 20s reaches their 40s.

2. **Texas is among the states with the highest incidence rates for diabetes**. New cases of diabetes have been soaring in the past decade. During the period from 1995-1997 to 2005-2007, age-adjusted incidence rate for diabetes more than tripled and increased from 3.6 to 11.1 per 1,000 persons in Texas. This latest incidence rate means that an average of 156, 000 new cases of diabetes were added each year to the State. If this trend for new cases continues, we can only expect to see a higher prevalence rate in the future because there is currently no cure for diabetes.

3. **Demographic changes in the state's population alone will diabetes rates**. The Texas population is aging and is changing in ethnic makeup. Body weight and risk for diabetes increases throughout the lifespan, so as the state's population gets older, the prevalence for diabetes will likely get higher. The majority of persons with diagnosed diabetes are currently Anglos, while diabetes rates are higher for African Americans and for Latinos. Those most likely to have diabetes, the older population and the Latino population, are the fastest growing populations in the state, accounting for most of the projected change.

4. **New methodology developed for projecting diabetes**. The new projections for diabetes produced by the Office of the State Demographer not only takes into account the current diabetes prevalence rates and the projected demographic changes, but also incorporated recent patterns in incidence rates for diabetes, differences in mortality between people with and without diabetes as well as its new projections on obesity. Under these projections, the

number of adult Texans with diabetes will account for 24% of the population and reaches 7,980,225.

5. **Increasing diabetes will lower the quality of life for Texas population and put burden on the health care system.** Diabetes is the sixth leading cause of death in Texas. If the diabetes burden in Texas is not addressed, quality of life for Texas' population may decline, and we might anticipate the possibility of decreased economic competitiveness of the state resulting from an increasing burden of health care costs on employers, and an increased burden on the health care system.

6. **Diabetes rates are highest in the border and rural counties.** These counties are more likely to have very low rates of insurance coverage, and low physician-to-population ratios. The projections indicated that these same counties may lead the state in developing higher levels of diabetes.

Table 1. Projected numbers and rates for diabetes in Texas, 2007 to 2040

| Year | Number | Percent |
|---|---|---|
| **2005/7** | 1,732,447 | 9.9% |
| **2010** | 2,221,727 | 11.9% |
| **2020** | 3,903,995 | 17.1% |
| **2030** | 5,783,481 | 20.8% |
| **2040** | 7,980,225 | 23.8% |

Table 2. Projected numbers for diabetes by race/ethnicity in Texas, 2007 to 2040

| | 2005/7 | 2010 | 2020 | 2030 | 2040 |
|---|---|---|---|---|---|
| **Diabetes** | | | | | |
| Anglo | 774,863 | 970,511 | 1,482,505 | 1,759,011 | 1,839,848 |
| African American | 256,448 | 321,216 | 516,220 | 673,035 | 805,228 |
| Latino | 648,766 | 855,285 | 1,718,359 | 2,983,099 | 4,718,404 |
| Other | 52,369 | 74,716 | 186,911 | 368,336 | 616,746 |
| Total | 1,732,447 | 2,221,727 | 3,903,995 | 5,783,481 | 7,980,225 |

Texas Projections for Percent of the Adult Population with Diabetes by County, 2010, 2020, 2030, 2040

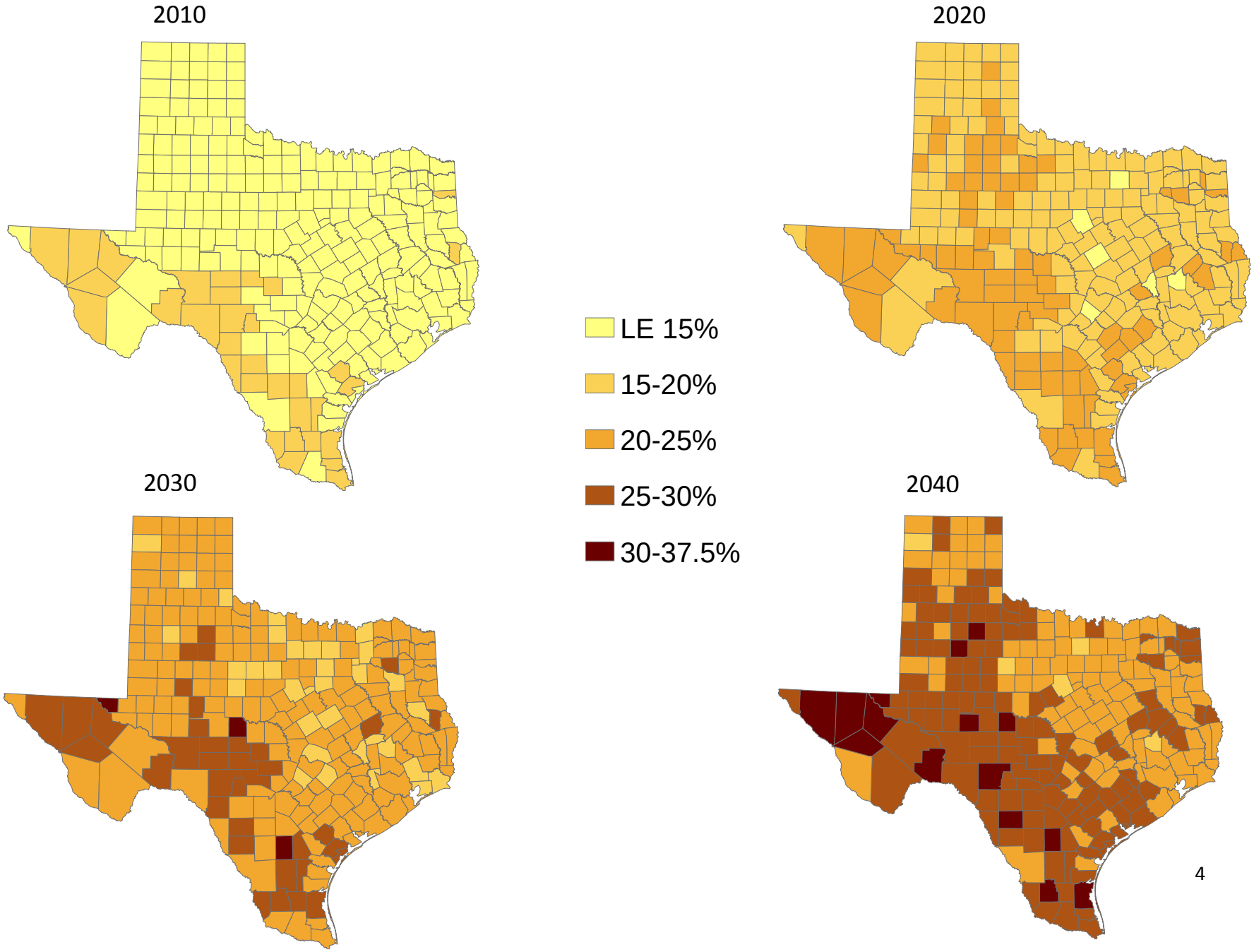


Table 3. Projected Percent of the Population with Diabetes by County, 2010 to 2040

| | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 |
|---|---|---|---|---|
| State of Texas | 11.9 | 17.1 | 20.8 | 23.8 |
| Anderson County | 11.8 | 18.7 | 24.2 | 28.8 |
| Andrews County | 13.0 | 19.1 | 21.9 | 25.2 |
| Angelina County | 12.2 | 17.6 | 21.2 | 24.1 |
| Aransas County | 14.5 | 21.7 | 25.9 | 28.2 |
| Archer County | 10.9 | 16.0 | 18.8 | 21.4 |
| Armstrong County | 12.3 | 17.6 | 19.5 | 20.1 |
| Atascosa County | 14.2 | 20.3 | 24.3 | 27.6 |
| Austin County | 13.0 | 19.4 | 23.3 | 26.2 |
| Bailey County | 14.0 | 19.6 | 22.0 | 24.0 |
| Bandera County | 13.1 | 19.9 | 23.4 | 25.0 |
| Bastrop County | 11.8 | 16.8 | 19.9 | 22.3 |
| Baylor County | 13.9 | 20.5 | 24.1 | 25.8 |
| Bee County | 12.2 | 17.5 | 21.2 | 24.4 |
| Bell County | 10.7 | 16.3 | 21.0 | 24.9 |
| Bexar County | 13.5 | 19.0 | 22.6 | 25.7 |
| Blanco County | 13.0 | 19.8 | 23.5 | 25.3 |
| Borden County | 13.2 | 20.3 | 24.6 | 28.6 |
| Bosque County | 13.0 | 19.1 | 22.0 | 23.7 |
| Bowie County | 12.4 | 18.4 | 23.3 | 27.3 |
| Brazoria County | 11.6 | 17.2 | 21.0 | 24.1 |
| Brazos County | 8.2 | 12.5 | 16.4 | 20.3 |
| Brewster County | 14.1 | 20.0 | 23.4 | 26.7 |
| Briscoe County | 13.9 | 19.8 | 23.2 | 25.6 |
| Brooks County | 18.3 | 23.4 | 26.0 | 28.9 |
| Brown County | 12.5 | 18.5 | 22.2 | 25.3 |
| Burleson County | 13.6 | 20.0 | 23.4 | 25.4 |
| Burnet County | 13.0 | 20.0 | 24.2 | 26.6 |
| Caldwell County | 13.0 | 18.3 | 21.8 | 25.2 |
| Calhoun County | 13.9 | 19.4 | 22.7 | 25.4 |
| Callahan County | 12.1 | 17.8 | 20.5 | 22.6 |
| Cameron County | 15.1 | 20.6 | 23.8 | 27.1 |
| Camp County | 13.8 | 19.6 | 23.0 | 24.7 |
| Carson County | 11.6 | 17.2 | 20.0 | 22.7 |
| Cass County | 13.5 | 19.5 | 23.1 | 25.7 |
| Castro County | 14.2 | 20.1 | 23.4 | 26.7 |
| Chambers County | 11.1 | 16.1 | 19.2 | 22.1 |
| Cherokee County | 12.4 | 18.1 | 21.7 | 24.4 |
| Childress County | 11.5 | 15.9 | 18.3 | 20.5 |
| Clay County | 11.8 | 17.4 | 20.7 | 22.4 |
| Cochran County | 14.4 | 20.8 | 23.9 | 27.1 |

Table 3. Projected Percent of the Population with Diabetes by County, 2010 to 2040

| | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 |
|---|---|---|---|---|
| State of Texas | 11.9 | 17.1 | 20.8 | 23.8 |
| Coke County | 13.7 | 20.0 | 23.5 | 26.8 |
| Coleman County | 13.5 | 19.3 | 22.4 | 24.5 |
| Collin County | 9.9 | 15.6 | 20.1 | 23.5 |
| Collingsworth County | 13.8 | 19.9 | 23.8 | 27.2 |
| Colorado County | 14.3 | 20.8 | 24.7 | 27.8 |
| Comal County | 12.6 | 19.1 | 22.9 | 25.1 |
| Comanche County | 13.3 | 19.1 | 22.6 | 25.4 |
| Concho County | 13.4 | 23.8 | 32.7 | 37.4 |
| Cooke County | 11.8 | 18.0 | 22.0 | 25.0 |
| Coryell County | 8.9 | 13.7 | 18.0 | 21.8 |
| Cottle County | 14.8 | 21.1 | 24.7 | 27.4 |
| Crane County | 13.9 | 20.6 | 24.5 | 27.5 |
| Crockett County | 15.9 | 22.8 | 26.3 | 29.0 |
| Crosby County | 14.9 | 20.6 | 23.6 | 27.1 |
| Culberson County | 16.6 | 23.1 | 27.2 | 31.2 |
| Dallam County | 12.0 | 17.7 | 21.3 | 24.3 |
| Dallas County | 11.5 | 16.8 | 20.8 | 24.0 |
| Dawson County | 13.8 | 19.2 | 21.8 | 24.1 |
| Deaf Smith County | 13.7 | 19.0 | 22.2 | 25.2 |
| Delta County | 12.4 | 18.5 | 22.4 | 25.7 |
| Denton County | 9.0 | 13.8 | 17.9 | 21.6 |
| De Witt County | 14.6 | 21.0 | 24.8 | 28.0 |
| Dickens County | 13.7 | 21.0 | 27.1 | 31.6 |
| Dimmit County | 17.1 | 22.9 | 26.6 | 29.9 |
| Donley County | 13.2 | 20.2 | 24.6 | 27.6 |
| Duval County | 17.5 | 23.2 | 26.3 | 29.2 |
| Eastland County | 12.9 | 18.7 | 21.8 | 24.0 |
| Ector County | 13.0 | 18.9 | 22.8 | 26.5 |
| Edwards County | 15.6 | 22.4 | 26.8 | 31.1 |
| Ellis County | 11.2 | 16.5 | 20.2 | 24.1 |
| El Paso County | 14.4 | 19.5 | 23.0 | 26.5 |
| Erath County | 9.1 | 13.3 | 16.0 | 18.7 |
| Falls County | 13.1 | 17.7 | 20.1 | 22.8 |
| Fannin County | 11.7 | 16.9 | 19.5 | 20.7 |
| Fayette County | 13.5 | 19.6 | 22.8 | 24.5 |
| Fisher County | 14.4 | 20.4 | 24.3 | 27.5 |
| Floyd County | 14.4 | 20.6 | 24.3 | 27.7 |
| Foard County | 13.8 | 19.8 | 23.8 | 26.8 |
| Fort Bend County | 12.4 | 19.1 | 23.2 | 26.1 |
| Franklin County | 12.9 | 19.3 | 23.1 | 24.5 |

Table 3. Projected Percent of the Population with Diabetes by County, 2010 to 2040

| | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 |
|---|---|---|---|---|
| State of Texas | 11.9 | 17.1 | 20.8 | 23.8 |
| Freestone County | 12.7 | 18.3 | 21.1 | 22.7 |
| Frio County | 14.8 | 20.6 | 24.3 | 27.3 |
| Gaines County | 12.2 | 17.8 | 20.8 | 23.9 |
| Galveston County | 12.5 | 17.8 | 21.1 | 23.9 |
| Garza County | 13.9 | 22.1 | 28.0 | 33.0 |
| Gillespie County | 14.4 | 21.8 | 26.2 | 28.1 |
| Glasscock County | 12.6 | 19.2 | 23.3 | 26.2 |
| Goliad County | 15.5 | 22.1 | 25.7 | 27.7 |
| Gonzales County | 14.2 | 20.3 | 24.0 | 27.5 |
| Gray County | 12.0 | 17.0 | 20.1 | 22.4 |
| Grayson County | 11.5 | 17.0 | 20.4 | 23.2 |
| Gregg County | 12.2 | 17.4 | 20.5 | 22.7 |
| Grimes County | 13.3 | 19.4 | 22.7 | 24.6 |
| Guadalupe County | 12.6 | 18.1 | 21.7 | 24.9 |
| Hale County | 13.0 | 18.5 | 22.0 | 25.1 |
| Hall County | 14.3 | 20.2 | 24.6 | 28.5 |
| Hamilton County | 12.9 | 19.1 | 22.5 | 24.2 |
| Hansford County | 12.7 | 18.3 | 20.8 | 22.4 |
| Hardeman County | 13.1 | 19.1 | 22.7 | 25.6 |
| Hardin County | 11.4 | 16.9 | 20.3 | 23.3 |
| Harris County | 11.6 | 16.4 | 20.1 | 23.3 |
| Harrison County | 12.6 | 18.3 | 21.4 | 23.6 |
| Hartley County | 11.3 | 15.8 | 17.6 | 18.4 |
| Haskell County | 14.3 | 20.4 | 23.1 | 24.7 |
| Hays County | 9.6 | 14.6 | 19.0 | 23.1 |
| Hemphill County | 12.3 | 18.3 | 21.1 | 24.3 |
| Henderson County | 12.8 | 18.8 | 22.0 | 23.7 |
| Hidalgo County | 14.0 | 19.2 | 22.9 | 26.7 |
| Hill County | 13.0 | 18.8 | 21.9 | 24.0 |
| Hockley County | 12.9 | 18.8 | 22.7 | 26.5 |
| Hood County | 12.7 | 18.9 | 22.2 | 24.1 |
| Hopkins County | 12.3 | 18.2 | 21.6 | 23.8 |
| Houston County | 13.7 | 19.5 | 22.9 | 25.4 |
| Howard County | 13.6 | 21.0 | 25.9 | 29.2 |
| Hudspeth County | 15.7 | 22.2 | 27.9 | 33.3 |
| Hunt County | 11.0 | 15.9 | 19.1 | 21.5 |
| Hutchinson County | 12.2 | 18.2 | 21.6 | 24.0 |
| Irion County | 14.2 | 21.3 | 26.3 | 30.2 |
| Jack County | 11.0 | 15.9 | 18.6 | 20.0 |
| Jackson County | 13.7 | 19.9 | 23.5 | 26.7 |

Table 3. Projected Percent of the Population with Diabetes by County, 2010 to 2040

| | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 |
|---|---|---|---|---|
| State of Texas | 11.9 | 17.1 | 20.8 | 23.8 |
| Jasper County | 12.8 | 18.7 | 22.1 | 24.5 |
| Jeff Davis County | 15.7 | 23.4 | 28.9 | 34.4 |
| Jefferson County | 12.6 | 17.1 | 19.5 | 21.2 |
| Jim Hogg County | 18.3 | 23.8 | 26.8 | 30.2 |
| Jim Wells County | 16.2 | 22.1 | 25.4 | 28.3 |
| Johnson County | 10.8 | 15.6 | 18.5 | 21.3 |
| Jones County | 11.5 | 16.0 | 18.2 | 19.8 |
| Karnes County | 12.9 | 18.8 | 22.9 | 26.1 |
| Kaufman County | 11.2 | 16.5 | 19.9 | 23.1 |
| Kendall County | 12.7 | 19.6 | 23.7 | 25.4 |
| Kenedy County | 18.3 | 24.9 | 29.2 | 33.7 |
| Kent County | 14.6 | 21.7 | 25.1 | 27.1 |
| Kerr County | 14.4 | 21.2 | 25.4 | 27.7 |
| Kimble County | 14.6 | 21.7 | 25.8 | 28.4 |
| King County | 11.7 | 18.1 | 23.3 | 26.4 |
| Kinney County | 17.2 | 23.3 | 26.7 | 29.4 |
| Kleberg County | 13.4 | 18.6 | 22.7 | 26.3 |
| Knox County | 14.2 | 20.1 | 23.4 | 26.3 |
| Lamar County | 12.4 | 18.5 | 22.2 | 24.6 |
| Lamb County | 14.5 | 20.4 | 24.2 | 27.7 |
| Lampasas County | 12.0 | 18.0 | 21.6 | 24.5 |
| La Salle County | 16.2 | 21.5 | 23.5 | 26.0 |
| Lavaca County | 13.7 | 20.0 | 23.7 | 26.2 |
| Lee County | 12.3 | 17.8 | 21.2 | 24.6 |
| Leon County | 14.3 | 21.2 | 25.2 | 27.3 |
| Liberty County | 11.4 | 16.7 | 19.9 | 22.4 |
| Limestone County | 13.2 | 19.2 | 22.9 | 25.0 |
| Lipscomb County | 12.9 | 19.2 | 23.0 | 25.2 |
| Live Oak County | 14.4 | 21.5 | 26.1 | 29.1 |
| Llano County | 14.5 | 19.8 | 21.2 | 20.7 |
| Loving County | 14.9 | 23.9 | 31.0 | 35.9 |
| Lubbock County | 10.9 | 15.7 | 19.2 | 22.5 |
| Lynn County | 14.4 | 20.6 | 23.9 | 27.1 |
| McCulloch County | 14.3 | 20.3 | 23.4 | 25.5 |
| McLennan County | 11.3 | 15.7 | 19.1 | 22.5 |
| McMullen County | 16.4 | 24.4 | 30.5 | 36.2 |
| Madison County | 11.9 | 17.4 | 19.8 | 20.9 |
| Marion County | 15.0 | 21.5 | 24.8 | 26.8 |
| Martin County | 13.4 | 19.0 | 21.9 | 24.5 |
| Mason County | 15.5 | 23.0 | 27.2 | 29.5 |

Table 3. Projected Percent of the Population with Diabetes by County, 2010 to 2040

| | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 |
|---|---|---|---|---|
| State of Texas | 11.9 | 17.1 | 20.8 | 23.8 |
| Matagorda County | 13.4 | 19.1 | 22.6 | 25.6 |
| Maverick County | 16.0 | 21.5 | 24.4 | 27.2 |
| Medina County | 13.6 | 19.7 | 23.4 | 26.3 |
| Menard County | 15.8 | 23.6 | 27.0 | 28.0 |
| Midland County | 12.5 | 18.4 | 22.2 | 25.8 |
| Milam County | 13.7 | 19.6 | 22.9 | 25.6 |
| Mills County | 13.3 | 19.1 | 21.1 | 21.7 |
| Mitchell County | 12.9 | 18.8 | 22.4 | 25.2 |
| Montague County | 12.8 | 19.0 | 22.4 | 24.1 |
| Montgomery County | 10.8 | 16.4 | 20.1 | 22.9 |
| Moore County | 12.1 | 17.9 | 22.3 | 26.5 |
| Morris County | 14.0 | 20.0 | 23.6 | 26.4 |
| Motley County | 14.2 | 20.2 | 24.1 | 27.2 |
| Nacogdoches County | 10.9 | 16.1 | 19.4 | 21.9 |
| Navarro County | 12.3 | 17.4 | 20.6 | 23.4 |
| Newton County | 12.7 | 18.0 | 20.8 | 23.0 |
| Nolan County | 13.6 | 19.4 | 22.8 | 25.9 |
| Nueces County | 13.6 | 18.5 | 21.6 | 24.5 |
| Ochiltree County | 11.6 | 17.1 | 20.2 | 22.6 |
| Oldham County | 11.2 | 17.0 | 20.7 | 24.7 |
| Orange County | 11.8 | 17.7 | 21.3 | 24.1 |
| Palo Pinto County | 12.3 | 17.8 | 20.7 | 23.2 |
| Panola County | 12.9 | 18.8 | 22.1 | 24.4 |
| Parker County | 10.9 | 16.7 | 20.6 | 23.9 |
| Parmer County | 13.1 | 18.9 | 22.5 | 26.0 |
| Pecos County | 13.6 | 18.7 | 22.1 | 25.6 |
| Polk County | 13.4 | 20.1 | 24.1 | 26.3 |
| Potter County | 11.5 | 16.6 | 20.4 | 24.0 |
| Presidio County | 16.4 | 21.3 | 22.8 | 24.7 |
| Rains County | 13.2 | 20.3 | 24.8 | 27.1 |
| Randall County | 10.7 | 16.1 | 20.2 | 24.0 |
| Reagan County | 13.5 | 20.4 | 24.7 | 28.0 |
| Real County | 15.6 | 22.4 | 26.6 | 29.2 |
| Red River County | 13.5 | 18.9 | 21.4 | 23.0 |
| Reeves County | 16.7 | 23.8 | 28.2 | 31.7 |
| Refugio County | 16.0 | 22.4 | 25.3 | 27.9 |
| Roberts County | 13.1 | 20.4 | 23.9 | 24.8 |
| Robertson County | 14.2 | 19.9 | 22.8 | 24.8 |
| Rockwall County | 10.5 | 15.9 | 19.4 | 22.1 |
| Runnels County | 13.8 | 19.6 | 22.6 | 25.1 |

Table 3. Projected Percent of the Population with Diabetes by County, 2010 to 2040

| | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 |
|---|---|---|---|---|
| State of Texas | 11.9 | 17.1 | 20.8 | 23.8 |
| Rusk County | 12.9 | 18.8 | 21.9 | 23.8 |
| Sabine County | 14.8 | 21.3 | 24.6 | 26.3 |
| San Augustine County | 15.1 | 21.8 | 25.1 | 27.8 |
| San Jacinto County | 13.3 | 19.3 | 22.5 | 24.4 |
| San Patricio County | 13.6 | 19.4 | 22.8 | 25.5 |
| San Saba County | 12.8 | 18.8 | 22.2 | 25.2 |
| Schleicher County | 15.1 | 21.8 | 25.3 | 29.3 |
| Scurry County | 12.5 | 18.0 | 21.6 | 25.1 |
| Shackelford County | 12.1 | 17.5 | 19.8 | 20.9 |
| Shelby County | 12.9 | 18.6 | 21.9 | 24.0 |
| Sherman County | 12.4 | 18.3 | 22.3 | 26.0 |
| Smith County | 12.3 | 17.2 | 19.9 | 22.1 |
| Somervell County | 11.2 | 16.5 | 19.4 | 21.4 |
| Starr County | 15.3 | 20.4 | 23.2 | 26.1 |
| Stephens County | 11.9 | 16.9 | 19.2 | 21.5 |
| Sterling County | 13.5 | 20.6 | 25.2 | 29.4 |
| Stonewall County | 13.9 | 20.0 | 23.4 | 25.5 |
| Sutton County | 15.4 | 22.2 | 25.7 | 27.8 |
| Swisher County | 12.9 | 18.0 | 20.9 | 23.7 |
| Tarrant County | 10.9 | 15.9 | 19.4 | 22.3 |
| Taylor County | 10.7 | 15.7 | 19.6 | 22.9 |
| Terrell County | 17.6 | 24.5 | 29.8 | 35.0 |
| Terry County | 13.6 | 19.1 | 22.1 | 25.3 |
| Throckmorton County | 13.1 | 18.7 | 21.5 | 23.1 |
| Titus County | 12.3 | 18.1 | 22.1 | 25.3 |
| Tom Green County | 12.3 | 17.7 | 21.5 | 25.1 |
| Travis County | 10.3 | 15.9 | 21.0 | 25.2 |
| Trinity County | 14.2 | 20.8 | 24.1 | 26.1 |
| Tyler County | 12.4 | 17.7 | 20.3 | 21.9 |
| Upshur County | 12.3 | 18.0 | 20.9 | 22.9 |
| Upton County | 14.7 | 21.3 | 24.2 | 27.0 |
| Uvalde County | 14.7 | 19.8 | 22.6 | 25.2 |
| Val Verde County | 15.3 | 21.2 | 24.6 | 27.8 |
| Van Zandt County | 12.4 | 18.2 | 21.3 | 23.0 |
| Victoria County | 13.1 | 18.4 | 21.8 | 24.9 |
| Walker County | 9.2 | 13.3 | 16.3 | 18.7 |
| Waller County | 11.1 | 15.7 | 18.8 | 21.8 |
| Ward County | 14.4 | 20.2 | 23.3 | 26.6 |
| Washington County | 12.6 | 18.6 | 22.5 | 24.9 |
| Webb County | 13.7 | 18.1 | 21.1 | 24.0 |

Table 3. Projected Percent of the Population with Diabetes by County, 2010 to 2040

| | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 |
|---|---|---|---|---|
| State of Texas | 11.9 | 17.1 | 20.8 | 23.8 |
| Wharton County | 13.6 | 19.4 | 23.2 | 26.8 |
| Wheeler County | 12.9 | 18.3 | 21.4 | 24.1 |
| Wichita County | 10.8 | 15.4 | 18.6 | 21.3 |
| Wilbarger County | 12.5 | 18.2 | 22.1 | 25.6 |
| Willacy County | 15.5 | 20.8 | 23.8 | 26.8 |
| Williamson County | 10.3 | 15.8 | 19.7 | 22.8 |
| Wilson County | 13.1 | 19.3 | 23.0 | 25.6 |
| Winkler County | 13.8 | 19.9 | 23.2 | 26.3 |
| Wise County | 10.6 | 15.7 | 18.1 | 19.4 |
| Wood County | 14.0 | 21.3 | 25.5 | 27.8 |
| Yoakum County | 13.4 | 19.8 | 22.7 | 25.8 |
| Young County | 12.4 | 17.7 | 20.5 | 22.9 |
| Zapata County | 15.9 | 21.6 | 25.2 | 28.9 |
| Zavala County | 16.8 | 22.8 | 26.8 | 30.4 |

Table 4. Projected Numbers of Persons with Diabetes by County level, 2010 to 2040

| County | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 | Change Rate 2010-2040 |
|---|---|---|---|---|---|
| State of Texas | 2,221,727 | 3,903,995 | 5,783,481 | 7,980,225 | 259% |
| Anderson County | 5,638 | 9,295 | 12,061 | 13,494 | 139% |
| Andrews County | 1,325 | 1,946 | 2,195 | 2,303 | 74% |
| Angelina County | 7,681 | 11,853 | 15,157 | 18,184 | 137% |
| Aransas County | 3,096 | 5,154 | 6,214 | 6,212 | 101% |
| Archer County | 817 | 1,256 | 1,450 | 1,563 | 91% |
| Armstrong County | 211 | 292 | 313 | 282 | 34% |
| Atascosa County | 4,976 | 8,698 | 11,930 | 14,473 | 191% |
| Austin County | 2,901 | 5,210 | 7,165 | 8,871 | 206% |
| Bailey County | 713 | 1,040 | 1,199 | 1,276 | 79% |
| Bandera County | 2,322 | 4,139 | 5,219 | 5,403 | 133% |
| Bastrop County | 8,156 | 18,249 | 32,331 | 52,555 | 544% |
| Baylor County | 464 | 664 | 712 | 619 | 33% |
| Bee County | 3,340 | 4,943 | 5,972 | 6,454 | 93% |
| Bell County | 21,132 | 35,516 | 49,407 | 59,598 | 182% |
| Bexar County | 160,603 | 254,303 | 333,804 | 399,422 | 149% |
| Blanco County | 1,108 | 2,035 | 2,682 | 2,922 | 164% |
| Borden County | 87 | 128 | 131 | 122 | 41% |
| Bosque County | 1,923 | 3,019 | 3,591 | 3,799 | 98% |
| Bowie County | 9,166 | 14,174 | 17,882 | 19,899 | 117% |
| Brazoria County | 26,714 | 50,708 | 76,419 | 105,195 | 294% |
| Brazos County | 11,072 | 18,738 | 26,119 | 32,440 | 193% |
| Brewster County | 1,075 | 1,574 | 1,841 | 1,979 | 84% |
| Briscoe County | 206 | 285 | 304 | 296 | 43% |
| Brooks County | 1,131 | 1,483 | 1,666 | 1,764 | 56% |
| Brown County | 3,842 | 5,831 | 6,863 | 7,183 | 87% |
| Burleson County | 1,983 | 3,278 | 4,057 | 4,237 | 114% |
| Burnet County | 4,604 | 8,821 | 12,423 | 14,419 | 213% |
| Caldwell County | 3,915 | 6,814 | 9,677 | 12,436 | 218% |
| Calhoun County | 2,209 | 3,117 | 3,511 | 3,595 | 63% |
| Callahan County | 1,307 | 1,959 | 2,187 | 2,170 | 66% |
| Cameron County | 42,990 | 69,668 | 94,565 | 116,611 | 171% |
| Camp County | 1,458 | 2,462 | 3,254 | 3,804 | 161% |
| Carson County | 589 | 818 | 867 | 831 | 41% |
| Cass County | 3,220 | 4,482 | 4,774 | 4,353 | 35% |
| Castro County | 900 | 1,316 | 1,481 | 1,521 | 69% |
| Chambers County | 2,939 | 5,617 | 8,431 | 11,941 | 306% |
| Cherokee County | 4,736 | 7,399 | 9,186 | 10,290 | 117% |
| Childress County | 710 | 955 | 1,049 | 1,084 | 53% |
| Clay County | 1,085 | 1,615 | 1,805 | 1,681 | 55% |
| Cochran County | 443 | 643 | 757 | 798 | 80% |

Table 4. Projected Numbers of Persons with Diabetes by County level, 2010 to 2040

| County | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 | Change Rate 2010-2040 |
|---|---|---|---|---|---|
| State of Texas | 2,221,727 | 3,903,995 | 5,783,481 | 7,980,225 | 259% |
| Coke County | 438 | 626 | 686 | 689 | 57% |
| Coleman County | 957 | 1,313 | 1,448 | 1,402 | 46% |
| Collin County | 62,432 | 168,052 | 341,622 | 606,480 | 871% |
| Collingsworth County | 349 | 483 | 528 | 518 | 48% |
| Colorado County | 2,531 | 4,009 | 5,040 | 5,579 | 120% |
| Comal County | 10,852 | 22,011 | 32,844 | 40,840 | 276% |
| Comanche County | 1,463 | 2,098 | 2,386 | 2,480 | 69% |
| Concho County | 471 | 790 | 936 | 839 | 78% |
| Cooke County | 3,704 | 6,307 | 8,162 | 9,330 | 152% |
| Coryell County | 5,208 | 8,042 | 9,803 | 10,383 | 99% |
| Cottle County | 223 | 299 | 318 | 309 | 39% |
| Crane County | 453 | 707 | 831 | 854 | 88% |
| Crockett County | 543 | 795 | 872 | 852 | 57% |
| Crosby County | 821 | 1,167 | 1,314 | 1,408 | 71% |
| Culberson County | 417 | 608 | 691 | 720 | 73% |
| Dallam County | 591 | 914 | 1,076 | 1,108 | 87% |
| Dallas County | 199,578 | 320,296 | 444,100 | 560,291 | 181% |
| Dawson County | 1,642 | 2,248 | 2,465 | 2,456 | 50% |
| Deaf Smith County | 1,900 | 2,737 | 3,284 | 3,538 | 86% |
| Delta County | 536 | 799 | 899 | 861 | 61% |
| Denton County | 51,140 | 131,003 | 263,008 | 461,977 | 803% |
| De Witt County | 2,375 | 3,417 | 3,993 | 4,153 | 75% |
| Dickens County | 349 | 556 | 721 | 749 | 115% |
| Dimmit County | 1,326 | 1,795 | 2,044 | 2,088 | 57% |
| Donley County | 457 | 736 | 875 | 858 | 88% |
| Duval County | 1,757 | 2,326 | 2,588 | 2,624 | 49% |
| Eastland County | 1,921 | 2,782 | 3,118 | 3,010 | 57% |
| Ector County | 12,276 | 19,222 | 25,117 | 30,004 | 144% |
| Edwards County | 286 | 398 | 432 | 431 | 51% |
| Ellis County | 13,087 | 27,894 | 49,163 | 82,592 | 531% |
| El Paso County | 79,057 | 118,613 | 152,108 | 179,599 | 127% |
| Erath County | 2,660 | 4,093 | 5,126 | 6,055 | 128% |
| Falls County | 1,923 | 2,613 | 2,877 | 3,023 | 57% |
| Fannin County | 3,345 | 5,407 | 6,699 | 7,291 | 118% |
| Fayette County | 2,648 | 4,372 | 5,608 | 6,339 | 139% |
| Fisher County | 476 | 634 | 661 | 618 | 30% |
| Floyd County | 856 | 1,287 | 1,522 | 1,660 | 94% |
| Foard County | 178 | 246 | 261 | 247 | 38% |
| Fort Bend County | 52,631 | 126,268 | 219,316 | 338,090 | 542% |
| Franklin County | 1,043 | 1,608 | 1,836 | 1,753 | 68% |

Table 4. Projected Numbers of Persons with Diabetes by County level, 2010 to 2040

| County | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 | Change Rate 2010-2040 |
|---|---|---|---|---|---|
| State of Texas | 2,221,727 | 3,903,995 | 5,783,481 | 7,980,225 | 259% |
| Freestone County | 2,012 | 3,179 | 3,956 | 4,331 | 115% |
| Frio County | 1,886 | 2,701 | 3,129 | 3,208 | 70% |
| Gaines County | 1,366 | 2,068 | 2,484 | 2,712 | 99% |
| Galveston County | 28,035 | 46,861 | 63,308 | 79,532 | 184% |
| Garza County | 577 | 978 | 1,244 | 1,410 | 144% |
| Gillespie County | 2,891 | 5,045 | 6,410 | 6,542 | 126% |
| Glasscock County | 149 | 241 | 270 | 269 | 81% |
| Goliad County | 924 | 1,344 | 1,506 | 1,465 | 58% |
| Gonzales County | 2,202 | 3,320 | 4,111 | 4,623 | 110% |
| Gray County | 2,037 | 2,736 | 2,964 | 2,897 | 42% |
| Grayson County | 10,968 | 17,665 | 22,931 | 27,345 | 149% |
| Gregg County | 10,960 | 17,189 | 23,206 | 30,972 | 183% |
| Grimes County | 2,772 | 4,385 | 5,255 | 5,332 | 92% |
| Guadalupe County | 11,575 | 22,751 | 34,907 | 48,721 | 321% |
| Hale County | 3,500 | 4,975 | 5,709 | 5,832 | 67% |
| Hall County | 413 | 583 | 706 | 772 | 87% |
| Hamilton County | 875 | 1,285 | 1,402 | 1,311 | 50% |
| Hansford County | 532 | 790 | 928 | 1,001 | 88% |
| Hardeman County | 489 | 695 | 760 | 720 | 47% |
| Hardin County | 4,572 | 7,220 | 8,658 | 9,268 | 103% |
| Harris County | 340,886 | 583,537 | 865,388 | 1,187,469 | 248% |
| Harrison County | 6,264 | 9,270 | 10,992 | 12,151 | 94% |
| Hartley County | 510 | 696 | 721 | 678 | 33% |
| Haskell County | 680 | 905 | 970 | 904 | 33% |
| Hays County | 13,168 | 32,693 | 65,340 | 112,455 | 754% |
| Hemphill County | 335 | 485 | 514 | 519 | 55% |
| Henderson County | 8,519 | 14,163 | 18,167 | 20,900 | 145% |
| Hidalgo County | 75,725 | 140,401 | 220,069 | 313,551 | 314% |
| Hill County | 3,660 | 5,973 | 7,480 | 8,434 | 130% |
| Hockley County | 2,281 | 3,309 | 3,989 | 4,242 | 86% |
| Hood County | 5,424 | 10,199 | 14,563 | 18,926 | 249% |
| Hopkins County | 3,271 | 5,123 | 6,222 | 6,572 | 101% |
| Houston County | 2,695 | 3,938 | 4,499 | 4,714 | 75% |
| Howard County | 3,563 | 5,309 | 6,111 | 5,932 | 66% |
| Hudspeth County | 471 | 794 | 1,039 | 1,202 | 155% |
| Hunt County | 7,708 | 13,088 | 18,494 | 25,271 | 228% |
| Hutchinson County | 2,095 | 2,870 | 3,042 | 2,796 | 33% |
| Irion County | 224 | 323 | 346 | 319 | 42% |
| Jack County | 775 | 1,104 | 1,208 | 1,129 | 46% |
| Jackson County | 1,524 | 2,204 | 2,489 | 2,524 | 66% |

Table 4. Projected Numbers of Persons with Diabetes by County level, 2010 to 2040

| County | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 | Change Rate 2010-2040 |
|---|---|---|---|---|---|
| State of Texas | 2,221,727 | 3,903,995 | 5,783,481 | 7,980,225 | 259% |
| Jasper County | 3,579 | 5,112 | 5,640 | 5,368 | 50% |
| Jeff Davis County | 353 | 594 | 732 | 820 | 132% |
| Jefferson County | 24,379 | 33,741 | 40,949 | 49,032 | 101% |
| Jim Hogg County | 759 | 1,020 | 1,131 | 1,186 | 56% |
| Jim Wells County | 4,881 | 6,911 | 7,996 | 8,322 | 70% |
| Johnson County | 13,477 | 26,776 | 44,258 | 73,396 | 445% |
| Jones County | 1,887 | 2,517 | 2,692 | 2,609 | 38% |
| Karnes County | 1,660 | 2,408 | 2,860 | 3,013 | 82% |
| Kaufman County | 9,230 | 20,758 | 38,213 | 67,837 | 635% |
| Kendall County | 3,465 | 7,310 | 10,887 | 13,370 | 286% |
| Kenedy County | 65 | 100 | 114 | 113 | 74% |
| Kent County | 106 | 144 | 134 | 111 | 4% |
| Kerr County | 5,640 | 9,003 | 10,909 | 10,866 | 93% |
| Kimble County | 544 | 821 | 934 | 884 | 62% |
| King County | 37 | 59 | 66 | 64 | 74% |
| Kinney County | 458 | 589 | 641 | 649 | 42% |
| Kleberg County | 3,530 | 4,992 | 5,958 | 6,264 | 77% |
| Knox County | 466 | 639 | 702 | 714 | 53% |
| Lamar County | 4,853 | 7,365 | 8,447 | 8,202 | 69% |
| Lamb County | 1,643 | 2,359 | 2,882 | 3,157 | 92% |
| Lampasas County | 2,251 | 4,404 | 6,517 | 8,473 | 276% |
| La Salle County | 782 | 1,071 | 1,210 | 1,283 | 64% |
| Lavaca County | 2,109 | 3,136 | 3,638 | 3,699 | 75% |
| Lee County | 1,686 | 2,806 | 3,721 | 4,569 | 171% |
| Leon County | 2,042 | 3,343 | 4,034 | 3,964 | 94% |
| Liberty County | 7,327 | 13,080 | 18,523 | 24,582 | 236% |
| Limestone County | 2,406 | 3,683 | 4,435 | 4,654 | 93% |
| Lipscomb County | 314 | 461 | 518 | 498 | 58% |
| Live Oak County | 1,447 | 2,055 | 2,260 | 2,143 | 48% |
| Llano County | 2,343 | 3,386 | 3,769 | 3,789 | 62% |
| Loving County | 9 | 15 | 15 | 12 | 25% |
| Lubbock County | 21,309 | 30,983 | 37,563 | 41,228 | 93% |
| Lynn County | 757 | 1,090 | 1,216 | 1,246 | 65% |
| McCulloch County | 928 | 1,302 | 1,405 | 1,338 | 44% |
| McLennan County | 19,520 | 29,386 | 38,872 | 49,117 | 152% |
| McMullen County | 126 | 185 | 207 | 199 | 59% |
| Madison County | 1,363 | 2,113 | 2,416 | 2,406 | 76% |
| Marion County | 1,386 | 1,964 | 2,034 | 1,818 | 31% |
| Martin County | 497 | 756 | 892 | 950 | 91% |
| Mason County | 521 | 808 | 893 | 828 | 59% |

Table 4. Projected Numbers of Persons with Diabetes by County level, 2010 to 2040

| County | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 | Change Rate 2010-2040 |
|---|---|---|---|---|---|
| State of Texas | 2,221,727 | 3,903,995 | 5,783,481 | 7,980,225 | 259% |
| Matagorda County | 3,877 | 5,558 | 6,376 | 6,646 | 71% |
| Maverick County | 5,836 | 8,777 | 10,854 | 12,236 | 110% |
| Medina County | 4,726 | 7,791 | 9,927 | 11,083 | 134% |
| Menard County | 338 | 509 | 556 | 484 | 43% |
| Midland County | 11,485 | 18,211 | 23,854 | 28,867 | 151% |
| Milam County | 2,756 | 4,292 | 5,212 | 5,721 | 108% |
| Mills County | 548 | 757 | 786 | 707 | 29% |
| Mitchell County | 1,071 | 1,556 | 1,750 | 1,734 | 62% |
| Montague County | 2,042 | 3,088 | 3,465 | 3,309 | 62% |
| Montgomery County | 37,800 | 89,356 | 160,763 | 259,418 | 586% |
| Moore County | 1,842 | 2,900 | 3,636 | 4,074 | 121% |
| Morris County | 1,455 | 2,037 | 2,235 | 2,176 | 50% |
| Motley County | 165 | 221 | 222 | 197 | 19% |
| Nacogdoches County | 5,494 | 8,736 | 11,129 | 13,147 | 139% |
| Navarro County | 4,741 | 7,804 | 10,958 | 14,843 | 213% |
| Newton County | 1,533 | 2,114 | 2,171 | 1,973 | 29% |
| Nolan County | 1,613 | 2,220 | 2,419 | 2,404 | 49% |
| Nueces County | 32,651 | 44,917 | 52,309 | 56,624 | 73% |
| Ochiltree County | 832 | 1,310 | 1,648 | 1,891 | 127% |
| Oldham County | 209 | 319 | 358 | 363 | 74% |
| Orange County | 7,664 | 11,252 | 12,683 | 12,753 | 66% |
| Palo Pinto County | 2,692 | 4,072 | 4,868 | 5,539 | 106% |
| Panola County | 2,307 | 3,270 | 3,609 | 3,445 | 49% |
| Parker County | 10,247 | 21,257 | 34,612 | 53,199 | 419% |
| Parmer County | 1,009 | 1,528 | 1,804 | 1,951 | 93% |
| Pecos County | 1,816 | 2,501 | 2,880 | 3,005 | 65% |
| Polk County | 5,580 | 10,117 | 13,475 | 14,808 | 165% |
| Potter County | 10,656 | 16,944 | 22,914 | 28,641 | 169% |
| Presidio County | 982 | 1,376 | 1,632 | 1,850 | 88% |
| Rains County | 1,319 | 2,601 | 3,626 | 4,012 | 204% |
| Randall County | 9,647 | 15,902 | 20,797 | 24,687 | 156% |
| Reagan County | 375 | 598 | 739 | 790 | 111% |
| Real County | 422 | 640 | 706 | 665 | 58% |
| Red River County | 1,534 | 2,091 | 2,226 | 2,166 | 41% |
| Reeves County | 1,547 | 1,999 | 2,074 | 1,906 | 23% |
| Refugio County | 1,009 | 1,392 | 1,530 | 1,540 | 53% |
| Roberts County | 103 | 160 | 182 | 169 | 64% |
| Robertson County | 1,830 | 2,657 | 3,005 | 3,056 | 67% |
| Rockwall County | 6,824 | 19,824 | 43,295 | 87,308 | 1179% |
| Runnels County | 1,199 | 1,650 | 1,793 | 1,752 | 46% |

Table 4. Projected Numbers of Persons with Diabetes by County level, 2010 to 2040

| County | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 | Change Rate 2010-2040 |
|---|---|---|---|---|---|
| State of Texas | 2,221,727 | 3,903,995 | 5,783,481 | 7,980,225 | 259% |
| Rusk County | 4,996 | 7,551 | 8,912 | 9,456 | 89% |
| Sabine County | 1,332 | 1,891 | 1,984 | 1,785 | 34% |
| San Augustine County | 1,130 | 1,638 | 1,779 | 1,742 | 54% |
| San Jacinto County | 2,640 | 4,081 | 4,619 | 4,483 | 70% |
| San Patricio County | 7,032 | 10,393 | 12,145 | 12,623 | 80% |
| San Saba County | 646 | 926 | 1,075 | 1,140 | 77% |
| Schleicher County | 368 | 527 | 598 | 633 | 72% |
| Scurry County | 1,604 | 2,255 | 2,568 | 2,670 | 66% |
| Shackelford County | 315 | 445 | 473 | 440 | 39% |
| Shelby County | 2,615 | 3,924 | 4,703 | 5,015 | 92% |
| Sherman County | 319 | 478 | 546 | 556 | 74% |
| Smith County | 18,743 | 31,058 | 44,130 | 62,468 | 233% |
| Somervell County | 765 | 1,441 | 2,066 | 2,638 | 245% |
| Starr County | 6,699 | 10,820 | 14,601 | 17,985 | 168% |
| Stephens County | 915 | 1,278 | 1,451 | 1,543 | 69% |
| Sterling County | 161 | 242 | 276 | 271 | 68% |
| Stonewall County | 190 | 253 | 270 | 245 | 29% |
| Sutton County | 522 | 777 | 880 | 867 | 66% |
| Swisher County | 847 | 1,190 | 1,376 | 1,469 | 73% |
| Tarrant County | 144,686 | 271,035 | 434,284 | 658,438 | 355% |
| Taylor County | 10,756 | 15,647 | 19,139 | 21,064 | 96% |
| Terrell County | 167 | 232 | 235 | 220 | 32% |
| Terry County | 1,359 | 1,916 | 2,172 | 2,315 | 70% |
| Throckmorton County | 199 | 258 | 267 | 242 | 22% |
| Titus County | 2,812 | 4,789 | 6,480 | 7,881 | 180% |
| Tom Green County | 9,668 | 13,586 | 15,749 | 16,585 | 72% |
| Travis County | 74,631 | 131,400 | 190,885 | 238,859 | 220% |
| Trinity County | 1,745 | 2,665 | 3,068 | 2,998 | 72% |
| Tyler County | 2,190 | 3,179 | 3,468 | 3,300 | 51% |
| Upshur County | 3,668 | 5,727 | 6,979 | 7,910 | 116% |
| Upton County | 421 | 601 | 663 | 659 | 57% |
| Uvalde County | 2,923 | 4,129 | 4,845 | 5,194 | 78% |
| Val Verde County | 5,435 | 8,047 | 9,728 | 10,703 | 97% |
| Van Zandt County | 5,240 | 8,392 | 10,083 | 10,479 | 100% |
| Victoria County | 8,644 | 12,607 | 15,237 | 16,986 | 96% |
| Walker County | 5,310 | 7,714 | 9,055 | 9,252 | 74% |
| Waller County | 3,758 | 6,785 | 10,272 | 14,581 | 288% |
| Ward County | 1,242 | 1,705 | 1,886 | 1,940 | 56% |
| Washington County | 3,278 | 5,120 | 6,313 | 6,670 | 103% |
| Webb County | 23,821 | 40,914 | 60,442 | 81,627 | 243% |

Table 4. Projected Numbers of Persons with Diabetes by County level, 2010 to 2040

| County | Diabetes 2010 | Diabetes 2020 | Diabetes 2030 | Diabetes 2040 | Change Rate 2010-2040 |
|---|---|---|---|---|---|
| State of Texas | 2,221,727 | 3,903,995 | 5,783,481 | 7,980,225 | 259% |
| Wharton County | 4,489 | 6,684 | 8,146 | 8,974 | 100% |
| Wheeler County | 514 | 677 | 706 | 680 | 32% |
| Wichita County | 10,303 | 13,649 | 15,061 | 15,279 | 48% |
| Wilbarger County | 1,410 | 2,010 | 2,299 | 2,333 | 65% |
| Willacy County | 2,390 | 3,327 | 3,920 | 4,182 | 75% |
| Williamson County | 31,793 | 78,899 | 147,885 | 243,082 | 665% |
| Wilson County | 4,540 | 9,137 | 13,774 | 18,297 | 303% |
| Winkler County | 789 | 1,144 | 1,289 | 1,322 | 68% |
| Wise County | 4,901 | 8,696 | 11,511 | 13,713 | 180% |
| Wood County | 4,889 | 8,203 | 9,895 | 9,810 | 101% |
| Yoakum County | 778 | 1,203 | 1,419 | 1,539 | 98% |
| Young County | 1,732 | 2,421 | 2,753 | 2,877 | 66% |
| Zapata County | 1,821 | 3,226 | 4,772 | 6,555 | 260% |
| Zavala County | 1,470 | 2,092 | 2,471 | 2,613 | 78% |

# APPENDIX B MEDICAID UTILIZATION AND REIMBURSEMENT FOR DIABETES IN TEXAS 2008

Medicaid Utilization and Reimbursements for Diabetes
in Texas 2008

| | Inpatient Hospital Claims | | Outpatient Hospital Claims | | Physician Claims | |
|---|---|---|---|---|---|---|
| | N of recipient | Prevalence (%) | N of recipient | Prevalence (%) | N of recipient | Prevalence (%) |
| Gender Male | 3,119 | 40.6% | 22,417 | 32.2% | 60,737 | 32.0% |
| Female | 4,561 | 59.4% | 47,125 | 67.8% | 128,798 | 68.0% |
| Unknown | - | 0.0% | - | 0.0% | - | 0.0% |
| Total | 7,680 | 100.0% | 69,542 | 100.0% | 189,535 | 100.0% |
| Age | | | | | | |
| 0- 17 | 418 | 5.1% | 1,998 | 2.2% | 4,822 | 1.6% |
| 18-29 | 531 | 6.5% | 1,745 | 1.9% | 6,149 | 2.0% |
| 30-44 | 1,178 | 14.4% | 6,791 | 7.4% | 22,388 | 7.4% |
| 45-64 | 3,442 | 41.9% | 32,712 | 35.7% | 97,534 | 32.4% |
| 65+ | 2,637 | 32.1% | 48,347 | 52.8% | 170,056 | 56.5% |
| *Total | 8,206 | 100.0% | 91,593 | 100.0% | 300,949 | 100.0% |
| Unduplicated Total | 7,680 | | 69,542 | | 189,535 | |

| Calendar Year 2008 | Inpatient Hospital Claims | | Outpatient Hospital Claims | | Physician Claims | |
|---|---|---|---|---|---|---|
| Three Digit Code | Total Reimbursement Amount | Number of Claims | Total Reimbursement Amount | Number of Claims | Total Reimbursement Amount | Number of Claims |
| 250 | $ 25,535,514.81 | 9,903 | $ 12,719,058.22 | 185,964 | $ 47,500,914.70 | 1,296,641 |

| 2008 | | | | | | |
|---|---|---|---|---|---|---|
| Type of Care | Total Reimbursement Amount | Average Reimbursement Amount | Number of Claims | Number of Clients | Percent of Clients with Repeat Visits | Length of Stay ** |
| Inpatient Hospital | $25,535,514.81 | $2,578.56 | 9,903 | 7,680 | 17.8% | 6.35 |
| Outpatient Hospital | $12,719,058.22 | $68.40 | 185,964 | 69,542 | 57.8% | |
| Physician | $47,500,914.70 | $36.63 | 1,296,641 | 189,535 | 81.0% | |
| All Types of Care | $85,755,487.73 | $57.46 | 1,492,508 | 199,709 | 82.1% | |

Source: Paid and partially paid Medicaid Fee-for-Service and Patient Care Case Management claims for calendar year 2008 for persons with a primary diagnosis of diabetes (ICD-9: 250)

* = Total includes duplicated counts of N of recipient due to possibly presenting with different ages on claim during the year. (i.e. DOB - May: March claim - age 6, September claim - age 7).

** = Please note that Length of Stay is calculated by subtracting the "To Date of Service" from the "From Date of Service" as a proxy for length of stay. In cases where more than one claim was submitted for a single inpatient hospital stay, the number of hospital stays are overestimated and the average length of stay is underestimated.

Episode of care:

1. Inpatient Hospital Claims (Claim Types 040 and 050) from the AHQP Claims
   A person admitted to an inpatient bed at a hospital.
2. Outpatient Hospital (Claim Types 023 and 031) from the AHQP Claims
   A person who was not admitted as an inpatient but who is registered on a hospital or critical access hospital (CAH) records as an outpatient and received services directly from the hospital or CAH.
3. Physician Claims (Claim Types 020 and 030) from the AHQP Claims
   A person who received services from a physician.

Data Source: FFS and PCCM data were selected from the Texas Medicaid and Health Partnership (TMHP) Ad Hoc Query Platform (AHQP) Claims Universe.

Prepared By: Research Team, Strategic Decision Support, Texas Health and Human Services Commission, March 2010.

# ENDNOTES

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