

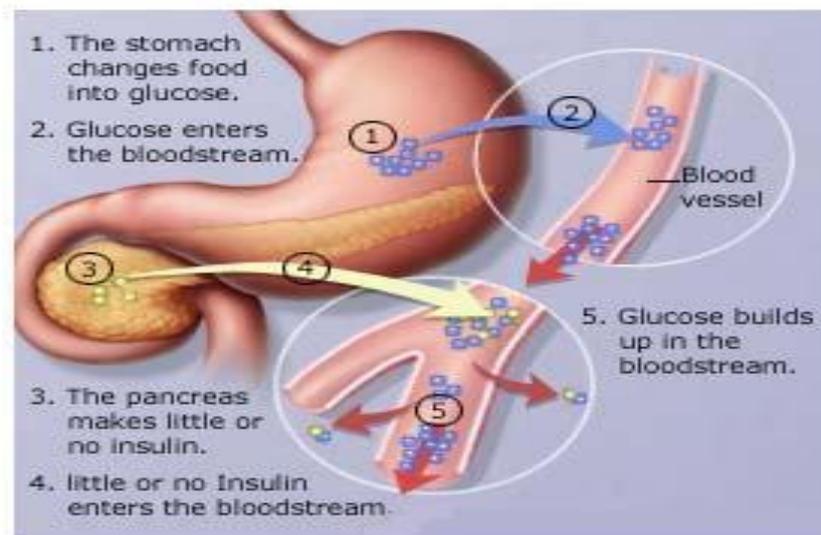
DIABETES :

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Diabetes mellitus, or simply diabetes, is a chronic disease affecting about 25.8 million people in the United States making it the seventh leading cause of death.

What is Diabetes?

Diabetes is a metabolic disorder in which there are high levels of sugar in the blood, a condition called hyperglycemia. Under normal conditions, food is broken down to glucose which then enters the bloodstream and acts as fuel for the body. The pancreas produces a hormone called insulin which helps to carry glucose from the bloodstream into muscle, fat and liver where it can be used as fuel. Diabetics are not able to move this sugar out of the bloodstream because of two primary reasons: 1) their pancreas does not produce enough insulin and/or 2) their cells do not respond normally to insulin, a condition called insulin resistance. This is why people with diabetes have high blood sugar levels.



Source: <http://www.natural-homeremedies.com/blog/top-8-risk-factors-of-type-2-diabetes/>

Types of diabetes:

- 1) **Type 1 diabetes (T1D)/ Juvenile diabetes/ Insulin dependent diabetes:** T1D affects both adults and children at any age and occurs when the person's pancreas stop producing insulin due to destruction of the pancreatic beta cells or by inactivity of these insulin-producing cells. Affected individuals depend on daily injections of insulin to maintain normal blood glucose levels. The causes of T1D are not entirely understood however; scientists believe that both genetic and environmental factors are involved.
- 2) **Type 2 diabetes/ Non-insulin dependent diabetes mellitus (T2D or NIDDM):** This is the most common form of diabetes that most often occurs in adulthood. However, because of increased obesity rates and sedentary lifestyles, teens and young adults are also being diagnosed with T2D or the precursor, pre-

diabetes. In T2D, fat, muscle and liver cells do not respond correctly to insulin. This is called insulin resistance. As a result, blood sugar cannot enter these cells to be stored for energy and builds up in the blood. Insulin resistance is a gradual process that develops slowly over time.

- 3) **Gestational diabetes:** This refers to diabetes that is first diagnosed during pregnancy. As many as eight out of 100 pregnant women in the U.S develop gestational diabetes. Weight gain and changing hormones that occur during pregnancy can impair insulin function, resulting in high blood sugar. This form of diabetes usually disappears after pregnancy, however, women who have had gestational diabetes have a 40-60% chance of developing T2D within 5 to 10 years.

Risk factors for Diabetes: The following factors contribute to the risk of developing diabetes -

Type 1 diabetes –

- 1) Family history of diabetes
- 2) Disease of the pancreas
- 3) Infection or illness that affects the pancreas

Type 2 diabetes –

- 1) Obesity
- 2) Family history of diabetes
- 3) History of gestational diabetes
- 4) Ethnic background - African Americans, Native Americans, Hispanic Americans and Asian Americans have a higher risk for developing diabetes.
- 5) Old age
- 6) Hypertension

Gestational diabetes –

- 1) Family history of diabetes
- 2) Being overweight before becoming pregnant
- 3) Belonging to a high risk ethnic group (as mentioned above)
- 4) Having gestational diabetes during a previous pregnancy
- 5) Giving birth to a baby over 9 pounds

Symptoms:

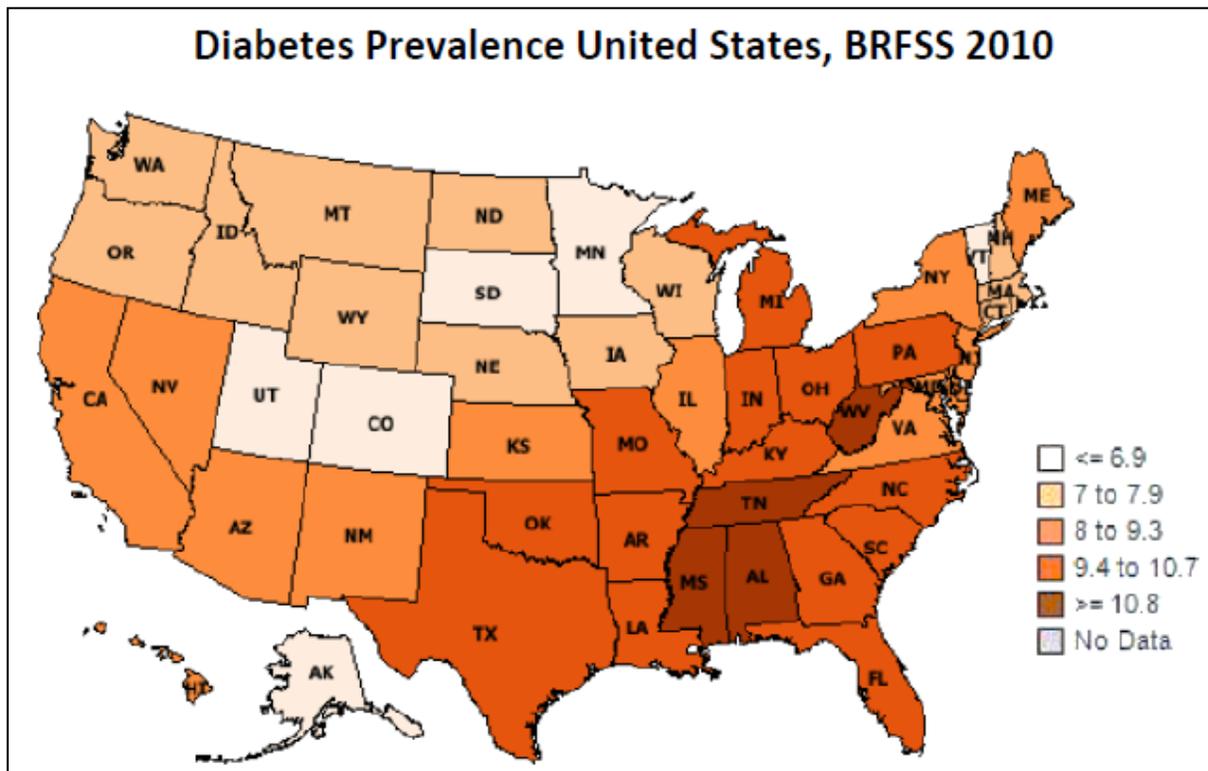
1. ***Type 1 diabetes*** – Symptoms of type 1 diabetes develop over a short period of time and include weight loss, frequent urination, excessive thirst and hunger, weakness and fatigue, nausea and vomiting.
2. ***Type 2 diabetes*** – Symptoms develop slowly with some people showing no symptoms at all. They include any of the symptoms of type 1 diabetes, blurred vision, hard to heal skin, gum or bladder infections, and tingling or numbness in the hands or feet.

3. **Gestational diabetes** – Symptoms may or may not develop during pregnancy and therefore individuals need to be tested for the condition. Symptoms are same as for type 2 diabetes.

Complications of diabetes: If not cared for appropriately, it may lead to the following complications –

1. Kidney disease (Diabetic nephropathy)
2. Blindness (Diabetic retinopathy)
3. Heart disease and stroke. Diabetics are 2 to 4 times more likely to have a heart disease and suffer a stroke.
4. Nerve damage
5. Sores on feet and skin possibly resulting in amputations
6. Diabetic coma due to extremely high blood sugar

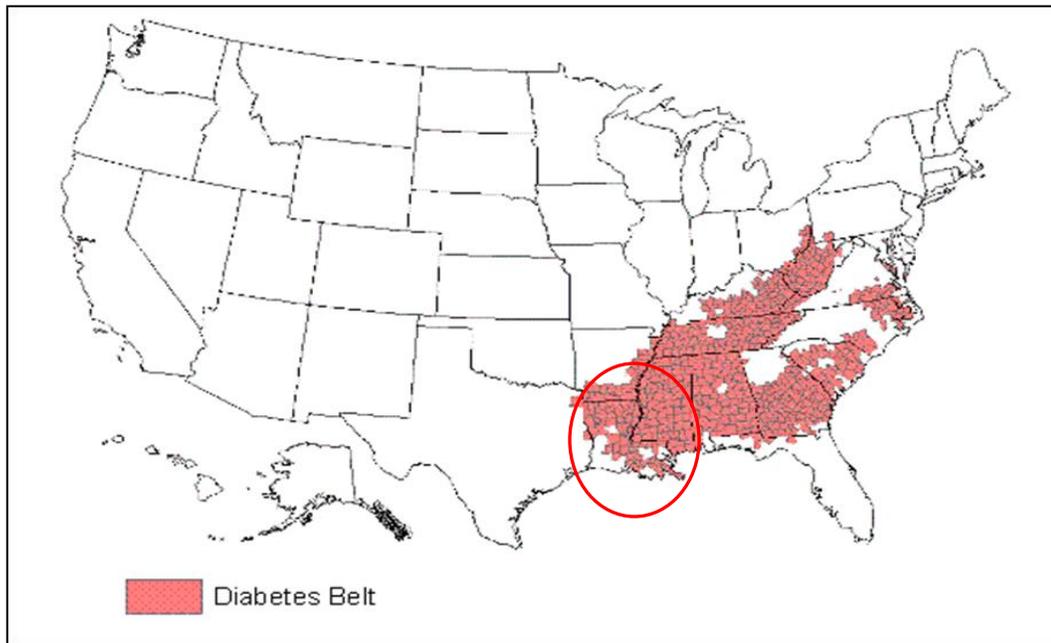
Diabetes statistics in Louisiana:



Source: Behavioural Risk Factor Surveillance System (BRFSS), 2010

Louisiana is ranked 11th in the nation for people diagnosed with diabetes and has the 2nd highest diabetes mortality rate. The prevalence of diabetes within the state has steadily increased from 6.6% to 10.3% between the years 2000 to 2010. Diabetes is the fifth leading cause of death among Louisiana residents. Furthermore, African Americans compose nearly 32% of Louisiana's population and have the highest prevalence of diabetes. African Americans are diagnosed at a rate of 12.9%, as compared to 8.1% of Hispanics and 9.2% of Caucasians living in

Louisiana. In 2010, total cost of hospitalization for people with diabetes and diabetic complications in Louisiana was approximately \$231,000,000. Louisiana has also been identified as one of the states with a portion of its counties in the **Diabetes belt** by the Centers for Disease Control and Prevention (CDC). This belt has higher rates of obesity and physical inactivity and therefore, a higher risk of developing type 2 diabetes than the rest of the country.



Source: Centers for Disease Control and Prevention (CDC)

How is Diabetes diagnosed?

1. **Fasting blood glucose level** – It is the preferred method of determining diabetes in children and non-pregnant adults. Diabetes is diagnosed if blood glucose level is 126 milligrams per decilitre (mg/dL) or higher after an 8-hour fast. Levels between 100-126 mg/dL are considered prediabetes, a condition where individuals have high blood sugar but not high enough to be classified as diabetes. Individuals with prediabetes have higher elevated risk of developing T2D.
2. **Hemoglobin A1c test** – This is a blood test that shows how well you are controlling diabetes. It shows the average level of blood glucose over the previous 3 months.
3. **Oral glucose tolerance test (OGTT)** – This is a test to check how well your body breaks down sugar. Diabetes is diagnosed if blood glucose level is 200mg/dL or higher after drinking a beverage containing 75 grams of glucose dissolved in water.

Gestational diabetes is diagnosed based on blood glucose levels measured during the OGTT. Screening for type 2 diabetes in people who have no symptoms is recommended for overweight children, overweight adults who have other risk factors and adults over the age of 45.

Treatment and management of diabetes:

Although there is no cure for diabetes, treatment and control of diabetes involves the following:

1. Insulin injections
2. Weight loss
3. Constant monitoring of blood glucose through frequent blood glucose tests or self-monitoring equipments such as glucometers.
4. Oral medications (recommended by physician) to lower blood glucose
5. Healthy diet including foods with fewer calories, an even amount of carbohydrates and healthy monostaurated fats. Patients should work with their doctor or dietician to design a meal plan to maintain near-normal blood glucose levels.
6. Exercise



In all, a healthy lifestyle, insulin and oral medications to maintain normal glucose levels are the foundations of diabetes management and treatment.

Links:

National Diabetes Information Clearinghouse (NDIC): <http://diabetes.niddk.nih.gov/dm/pubs/overview/>

American Diabetes Association: <http://www.diabetes.org/in-my-community/local-offices/new-orleans-louisiana/>

Centers for Disease Control and Prevention (CDC): <http://apps.nccd.cdc.gov/ddtstrs/FactSheet.aspx>

References and more information:

<http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0002194/>

<http://new.dhh.louisiana.gov/index.cfm/page/1233>

NDIC, American Diabetes Association, CDC.