



# Shumate Brokerage Corp.

Member American Brokerage Centers, LLC

## Ask the Underwriter!

Tuff Case? Let us help you!

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## TYPE 1 DIABETES

### Introduction:

**Type 1** diabetes sometimes referred to as Juvenile Diabetes or Insulin Dependent Diabetes, is a chronic condition whereby the pancreas produces little or no insulin. While Diabetes can occur at any age it usually appears during childhood or adolescence. **Type 2** Diabetes is similar but in the case of **Type 2** the body becomes resistant to the effects of insulin or the body produces some but not enough insulin to maintain a normal blood sugar level. Despite extensive research **Type 1** diabetes has no cure. Advances in blood sugar monitoring and insulin delivery have simplified the daily routine of managing **Type 1** diabetes.

### Signs and Symptoms:

Onset is usually abrupt with progressive thirst, frequent urination, extreme hunger, and weight loss. The weight loss occurs because despite the increased amount of food, fat stores shrink because of a lack of insulin to process the sugar. Presentation maybe life threatening with ketoacidosis and even coma. Blurriness of vision and changes in the lens characteristics caused by high levels of blood glucose. Fatigue due to the body being deprived of sugar. Complications such as infections and or vascular disease are more common in **Type 2** diabetes than **Type 1**.

### Causes:

Glucose comes from 2 major sources the food one eats and the liver. Sugar enters the cells with the help of insulin. The insulin hormone comes from the pancreas. With eating the pancreas secretes insulin into the blood stream. Insulin lowers the amount of sugar. The liver acts as a glucose storage and manufacturing area. When insulin levels are low the liver releases stored glucose to keep the glucose level within normal range.

In **Type 1** Diabetes the immune system (which normally fights harmful bacteria or viruses) attacks and destroys the insulin producing cells in the pancreas. This leaves the body with little or no insulin. Instead of sugar being transported into the cells it circulates in the bloodstream. The exact cause of **Type 1** diabetes is not known. Genetics may play a role as well as exposure to certain viruses might act as a trigger. While **Type 1** diabetes cannot be prevented researchers

are testing whether an insulin capsule taken by mouth once a day can prevent or delay **Type 1** diabetes in people who have antibodies to insulin in the blood. In other studies researchers are looking at ways to slow the development of **Type 1** diabetes and preserve insulin production in people recently diagnosed.

### **Screening and Diagnosis:**

Various blood tests are used for screening for diabetes:

1) Random blood sugar test. In this test a blood sample is taken at a random time. A blood sugar level of over 200mg/dl or higher is suggestive of diabetes.

2) Fasting blood sugar test. In this test a blood sample is taken after an overnight fast. A fasting blood sugar of 70 to 100 is normal. If it is over 126 mg/dl is considered diabetes. In **Type 1** diabetes the body has little or no ability to produce insulin. Levels between 100 and 126 are considered prediabetes.

3) The Glyco A1C test measures the average blood sugar for the past 2 to 3 months. In clinical practice a target of 7% or less is desirable.

### **Complications:**

The chronic complications are the primary cause of morbidity and early mortality these complications can be divided into two major types. First those that are related to vascular disease not specific to diabetes. These are called macro vascular. The other type is those specifically related to diabetes or microvascular complications. The major complications associated with diabetes are:

Macrovascular disease include early atherosclerosis with stroke or transient ischemic attack myocardial infarction and peripheral vascular disease develop 2 to 50 times more frequently in diabetics compared to non diabetic populations.

Diabetic Nephropathy is a microvascular complication affecting kidneys it is manifested by microalbuminuria. Approximately 25% of those diagnosed with type 1 diabetes prior to the age of 30 progresses to end stage renal failure. Clinical proteinuria takes 10 to 20 years to develop and is usually accompanied by progressive retinopathy and hypertension cardiovascular disease and renal insufficiency.

Diabetic Retinopathy is another form of microvascular disease and remains the most common cause of acquired blindness in people aged 30 to 64 years. Over 90% of those with Type 1 diabetes have some form of retinopathy after 20 years of diabetes. The introduction of laser therapy for diabetic retinopathy has resulted in the preservation of vision in many cases. Diabetic neuropathy may present in a number of ways. Impotence develops in 50% of men . Diabetics can have difficulties with the immune system and are more prone to the development of infections. Diabetic foot ulcers and ketoacidosis are adding ional complications.

Diabetes in and of itself might not kill you but the complications will. With Type 1 diabetes onset at a much earlier age than Type 2 these complications have a longer period to develop. Excellent control of diabetes can stave off the onset of some of the complications.

### **Treatment:**

The goal of treatment of Type 1 diabetes is to keep the blood sugar level as close to normal as possible. The basis of treatment for type 1 diabetes is a prescribed diet with appropriate balance of protein fat carbohydrates and calories. The intake of simple sugars and alcohol is limited. Appropriate exercise and weight loss are encouraged. Anyone with type1 diabetes needs insulin therapy to survive. Insulin is injected using a fine needle and syringe or an insulin pen. The Insulin Pump may also be an option. The pump is a device that is about the size of a cell phone and is worn on the outside of the body. A tube connects the reservoir of insulin to a catheter that is inserted under the skin of the abdomen. Pump is programmed to dispense insulin automatically. Basically there are 3 types of insulin Rapid acting long acting and intermediate options. Depending upon the needs the doctor may prescribe a mixture of insulin types to use throughout the day and night.

Depending upon the type of insulin therapy used frequent monitoring of up to 3 to 4 times daily is required. Careful monitoring is the only way to insure proper blood sugar levels. Contrary to popular opinion there is no diabetes diet. Rather a mixture of fruits vegetables and whole grains are required. And fewer animal products and sweets. Physical Activity is encouraged as it lowers blood sugar.

The only potential cure for diabetes is a pancreas transplant. (Not insurable). Islet Cell and Stem cell transplants are being studied at this time.

### **Prognosis:**

Prognosis worsens with increasing duration of diabetes; Onset of diabetes prior to the age of 10 is associated with a mortality rate 9 to 10 times normal. Smoking increases the vascular effects of diabetes. The presence of macrovascular complications such as PVD or CAD. Microalbuminuria is a predictor of excess cardiovascular and renal mortality. Studies indicate that the mortality rate in a poorly controlled diabetic group is 2.5 times higher than a well controlled group.

### **Risk Classification:**

Ratings for **Type 1** Diabetes are determined by the following:

- 1) Age at diagnosis of Type 1 Diabetes.
- 2) Duration of diabetes.

The Glyco A1C is considered the gold standard in terms of assessment of control of diabetes. The extent of medical supervision and compliance, the presence of risk factors for vascular disease, vascular complications, the development of neuropathy and or retinopathy, the presence of microalbuminuria.

Generally Glyco A1C  $s < 7.00$  is considered good control. Average is considered 7.1 to 8.5 %. Uncontrolled is considered  $>10\%$ , with optimal control a credit of up to 50 can be considered. However microalbuminuria in excess of 31 will be rated and if over 300 will be declined.

Underwriters will use the age at application and the duration of diabetes to establish the base rate. Since **Type 1** diabetes is at an earlier onset for the most part than **Type 2** the base ratings will be higher. For Example a 45/m that has had type 1 diabetes since age 32 would be rated in the area of Table 6 with average control. That rate assumes no vascular complications. Most applicants who were diagnosed below the age of 10 will be individual consideration at best.

Another example would be a 25/m that had had Type 1 Diabetes 10 years would be Table 8 assuming average control.

If an applicant has evidence of CAD or Peripheral Vascular Disease that is mild to moderate they would have the base disease rating plus 50 plus the Diabetic rating.

Example a 55/m who has single vessel disease and it was stented at age 53. He has had Type 1 Diabetes since age 35. His base Diabetes rating would be Table 6. The CAD would be an additional 2 tables or so. And then because of the combo another 2 tables would be added now putting him in the range of Table 10. Again with Type 1 Diabetes the onset is usually at a much younger age. So the base ratings will be that much higher than many Type 2 Diabetics. Generally if an applicant in addition to Type 1 Diabetes has CAD and Cerebrovascular and or Peripheral Vascular disease they will be declined.

Applicants who smoke will have an additional 2 tables or more added to the base diabetic rating.

Credits against the base rating of one or more tables can be given for optimal blood pressure control and LDL of less than 100 and absence of microvascular complications after 20 years of diabetes. Credit can also be given for favorable exercise test or coronary angiogram in diabetic over the age of 50 with diabetes duration of over 15 years.

Generally credits will be limited to 2 tables or so against the base rate.

### **Conclusion:**

With meticulous control the complications of **Type 1** diabetes can be controlled. Control does take the full cooperation of the applicant. With the development of better longer acting insulin, more widespread use of the insulin pump diabetics are achieving better long term control. However one does not die of diabetes they die of the complications of diabetes. Because type 1 diabetes onset is usually much younger than type 2 the base ratings are much higher. With any real complications ratings can become prohibitively high.

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