

Diabetes Mellitus

Diabetes Mellitus (DM) is characterized by abnormal sugar metabolism causing hyperglycemia (*high blood sugar*). Chronic hyperglycemia adversely affects the body. In the vascular system, there can be events such as strokes and heart attacks caused by atherosclerosis. There can also be renal disease, peripheral neuropathy, and blindness. In the United States, DM is a leading cause of end stage kidney disease, leg amputations, and blindness.

Blood sugar enters cells via the action of insulin, which is a hormone produced by the beta cells of the pancreas. Factors that contribute to hyperglycemia include reduced insulin secretion, decreased blood sugar (glucose) usage by the body, or increased glucose production.

Type 1 diabetes, formerly called juvenile-onset or insulin dependent (*IDDM*), has a peak age at onset of 12 years old. It is unusual to begin after age 40. Type 1 DM is due to beta cell destruction so that no insulin is produced and must be replaced by insulin injections. Symptoms include excessive thirst, excessive urination, and weight loss.

Type 2 diabetes was formerly called adult-onset or noninsulin dependent (*NIDDM*). It is characterized by 1) variable degrees of resistance to the action of insulin, 2) impaired insulin secretion by the beta cells, or 3) impaired glucose production. Type 2 DM usually develops over the age of 30, but its incidence is increasing in children and adolescents, especially those who are obese. (Eighty percent of Type 2 patients are obese. Many have excessive thirst or urination, but most have no symptoms. Type 2 may also require insulin in the later stages.) Type 2 is initially treated with diet and exercise. If decreased calorie intake and increased exercise does not result in blood glucose control, oral medication is added. Some oral medications include sulfonylureas, alpha-glucosidase inhibitors, thiazolidinedione, metformin, and repaglinide. Risk factors for the development of NIDDM are older age, obesity, positive family history, and history of gestational diabetes.

Secondary diabetes can result from pancreatic disease, hormonal syndromes (*Cushing's syndrome*), drug-induced disease (thiazide diuretics, steroids, phenytoin) or those associated with syndromes such as hemochromatosis and acromegaly.

Impaired glucose tolerance (IGT) and **impaired fasting glucose (IFG)** are also termed subclinical or borderline diabetes. Patients generally have no symptoms. Many go on to develop diabetes. There is also an increased risk of cardiovascular disease.

Gestational diabetes is diagnosed when glucose intolerance is discovered during a pregnancy. It is associated with increased perinatal complications. Risk factors for the development of gestational diabetes are older age, overweight, previous large or stillborn babies, or positive family history of diabetes. Women with a history of gestational diabetes have an increased risk of developing Type 2 diabetes (*as high as 50% within 10 years and 70% within 20 years*).



Underwriting Specific Conditions

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Diagnostic Criteria for Diabetes
• Fasting blood glucose: 2 readings \geq 126 mg/dl
• 75 gram oral glucose tolerance test: Diabetes: 2-hour sample $>$ 200 mg/dl Impaired glucose tolerance: 2-hour sample between 140–200 mg/dl
• A positive 100 gram glucose tolerance test for pregnant women to screen for gestational diabetes

Other laboratory studies used to monitor diabetes include glycosylated hemoglobin (HbA1c) and fructosamine. HbA1c gives an indication of glucose control over the preceding 60 days, and fructosamine (glycosylated protein) measures glucose control over a 20-day span.

Diabetes is a progressive disease that can be slowed by meticulous control of blood sugar, weight control, and exercise. Diabetes control is monitored by testing glycosylated hemoglobin in the blood and by home monitoring of blood sugar. Normal glycosylated hemoglobin is a value of <6 (though range of normal varies among testing laboratories). The goal for known diabetes is <7 . Glycosylated hemoglobin over >8 is evidence of poor control.

Rating for diabetes mellitus depends on 1) age at onset, 2) years since diagnosis, 3) control of the diabetes, and 4) presence of complications. Ratings increase with younger ages, longer time since onset, poor control, and complications.

Example of Underwriting Guidelines for diabetes are:
 (Carriers will vary with underwriting decisions; this is only an example of one carrier)

Table for Diabetes Mellitus - Type 1 (based on age and duration)				
Age at Issue	0-7 years	8-14 years	15-20 years	Over 20 years
0–17	Decline	Decline	Decline	-
18–34	Table E	Table E	Table F	Table G
35–49	Table D	Table D	Table E	Table F
50–65	Table C	Table D	Table D	Table E
66+	Table B	Table C	Table D	Table D

Table for Diabetes Mellitus - Type 2 (based on age and duration)*				
Age at Issue	0-7 years	8-14 years	15-20 years	Over 20 years
18–34	Table D	Table D	Table E	Table E
35–49	Table B	Table C	Table D	Table D
50–65	Table B	Table B	Table C	Table C
66+	STD	Table A	Table B	Table B

* With this carrier Age based credits (50-100%) are given for excellent control (HbA1c $<7\%$). Debits are added for major complications such as proteinuria, retinopathy, or neuropathy.



Underwriting Specific Conditions

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Diabetes Questionnaire

Producer _____ Phone _____

Client _____ Age/DOB _____ Sex _____

If your client has diabetes, please answer the following:

1. Please list date when first diagnosed: _____

2. How often does your client visit his/her physician? _____

3. The Client's Diabetes is controlled by:

Diet alone

oral medication _____ (medication and dose)

insulin _____ (amount of units per day)

4. Is your client on any other medications?

yes, please give details _____

no

5. Please give your client's most recent blood sugar reading _____

6. Does your client monitor their own blood sugar levels?

yes, how many times per day _____

no

7. Please give your client's most recent A1C score _____

8. What is your client's Build? Height _____ Weight _____

9. Please check if your client has had any of the following:

chest pain or CAD

overweight

elevated lipids

protein in urine

kidney disease

neuropathy

black out spells

retinopathy

hypertension

abnormal EKG

10. Has your client smoked cigarettes in the past 12 months?

yes

no

11. Does your client have any other major medical problems? (ex: cancer)

yes, _____

no