**Glycemic status**

Monitoring of glycemic status, as performed by patients and health care providers, is considered a cornerstone of diabetes care. Results of monitoring are used to assess the efficacy of therapy and to guide adjustments in medical nutrition therapy (MNT), exercise, and medications to achieve the best possible blood glucose control. Within only a few years, self-monitoring of blood glucose (SMBG) by patients has revolutionized management of diabetes. Using SMBG, patients with diabetes can work to achieve and maintain specific glycemic goals. Given the results of the Diabetes Control and Complications

**Random blood sugar test**

A blood sample will be taken at a random time. Regardless of when the last ate, a random blood sugar level of 200 milligrams per deciliter (mg/dL) — 11.1 millimoles per liter (mmol/L) — or higher suggests diabetes.

**Fasting blood sugar test.**

A blood sample will be taken after an overnight fast. A fasting blood sugar level less than 100 mg/dL (5.6 mmol/L) is normal. A fasting blood sugar level from 100 to 125 mg/dL (5.6 to 6.9 mmol/L) is considered prediabetes. If it's 126 mg/dL (7 mmol/L) or higher on two separate tests, diabetes.

**Oral glucose tolerance test.**

For this test, you fast overnight, and the fasting blood sugar level is measured. Then you drink a sugary liquid, and blood sugar levels are tested periodically for the next two hours.

A blood sugar level less than 140 mg/dL (7.8 mmol/L) is normal. A reading of more than 200 mg/dL (11.1 mmol/L) after two hours indicates diabetes. A reading between 140 and 199 mg/dL (7.8 mmol/L and 11.0 mmol/L) indicates prediabetes.

**URINE GLUCOSE TESTING**

A urine glucose test used to be performed to check for diabetes. In addition, people with diabetes could use the urine glucose test as a way of monitoring the degree of sugar control, or efficacy of treatments. Urine tests were once the main type of testing used to measure glucose levels in people who potentially had diabetes. However, they are less common now that blood tests have become more accurate and easier to use. Usually done by commercial strips which depend on the change on the strip color .

**Urine/blood ketone testing**

Ketone testing is an important part of monitoring in type 1 diabetic patients, in pregnancy with pre-existing diabetes, and in gestational diabetes. The presence of ketones may indicate impending or even established ketoacidosis, a condition that requires immediate medical attention. Patients with type 1 diabetes should test for ketones during acute illness or stress or when blood glucose levels are consistently elevated (e.g., >300 mg/dl [>16.7 mmol/l]), during pregnancy, or when any symptoms of ketoacidosis, such as nausea, vomiting, or abdominal pain, are present.

Ketones are normally present in urine, but concentrations are usually below the limit of detectability with routine testing methods. However, positive ketone readings are found in normal individuals during fasting and in up to 30% of first morning urine specimens from pregnant women. Urine ketone tests using nitroprusside-containing reagents can give false-positive results in the presence of several sulfhydryl drugs, including the antihypertensive drug captopril. False-negative readings have been reported when test strips have been exposed to air for an extended period of time or when urine specimens have been highly acidic, such as after large intakes of ascorbic acid.

**GLYCATED PROTEIN TESTING**

Blood and urine glucose testing and urine ketone testing provide useful information for day-to-day management of diabetes. However, these tests cannot provide the patient and health care team with a quantitative and reliable measure of glycemia over an extended period of time. Measurements of glycated proteins, primarily hemoglobin and serum proteins, have added a new dimension to assessment of glycemia. With a single measurement, each of these tests can quantify average glycemia over weeks and months, thereby complementing day-to-day testing.

**Glycated hemoglobin (GHb) testing**

**Glycated hemoglobin** also referred to as glycohemoglobin, glycosylated hemoglobin, HbA1c, A1C, or HbA1, is a term used to describe a series of stable minor hemoglobin components formed slowly and nonenzymatically from hemoglobin and glucose. The rate of formation of GHb is directly proportional to the ambient glucose concentration. Since erythrocytes are freely permeable to glucose, the level of GHb in a blood sample provides a glycemic history of the previous 120 days, the average erythrocyte life span. GHb most accurately reflects the previous 2-3 months of glycemic control.