

DIABETES KNOWLEDGE

Description

Diabetes is a chronic condition that occurs when the Islets of Langerhans in the pancreas do not produce enough insulin or when the body cannot effectively use the insulin it produces.

There are two principal forms of diabetes:

Type 1 diabetes - in which pancreas fails to produce insulin. Usually has its onset in childhood and adolescence.

Type 2 diabetes - results from the body's inability to respond properly to the action of insulin produced by the pancreas.

Type 2 diabetes is more common and accounts for around 90% of all diabetes cases worldwide¹. Classically, with an onset later in life, Type 2 diabetes is increasingly being diagnosed in children and young people.

Gestational diabetes mellitus (GDM), develops during some pregnancies and may result in several adverse outcomes including congenital malformations, increased birth weight and an elevated risk of perinatal mortality. Metabolic control may reduce these risks to that of a non-diabetic expectant mother¹.

Hyperglycaemia can lead to damage to many of the body's systems, especially the nerves and blood vessels.

Symptoms

Type 1 - commonly: polyuria, polydipsia, weight loss, blurred vision and fatigue.

Type 2 - symptoms may be less marked and is often diagnosed from complications.

An estimated 50% of individuals with diabetes are unaware of their condition.

Epidemiology

- Worldwide approximately 170 million people have diabetes mellitus and it is estimated that this number may double by 2025. Much of this increase will occur in developing countries.
- **Diabetes** currently affects more than 62 million Indians, which is more than 7.1% of the adult population. The average age on onset is 42.5 years. Nearly 1 million Indians die due to **diabetes** every year.
- There are an estimated 2.3 million people with diabetes in England. This is approximately 4% of the population.
- The NHS spends an estimated 5% of its budget on treating diabetes and its effects.
- In the UK type 2 diabetes is up to 6 times more common in people of South Asian descent and up to 3 times more common in those of African and African-Caribbean descent.
- Diabetes is a major risk factor for stroke, coronary heart disease, blindness and kidney failure.
- Diabetic retinopathy is the leading cause of blindness and visual disability.
- An estimated 80% of people with diabetes will die from cardiovascular disease.
- Persons with diabetes are 2-3 times more likely to suffer a stroke.

Risk Factors

- Family history - especially for type 2 diabetes
- Age - increased with age more prevalent in those aged >45 years
- Obesity
- Sedentary lifestyle
- Diet

- Impaired glucose tolerance
- Ethnicity
- Hypertension
- Raised serum lipids
- Smoking
- Certain genetic markers have been shown to increase the risk of developing Type 1 diabetes.

No matter how type 1 diabetes has shown up in your life, you can find success by balancing your medications, and sticking to your daily exercise routine and nutrition plan. But wherever you're at with this challenge, you can always reach out for help of any kind—from your caregivers, your family, or other people who live with type 1 diabetes.

Diabetes Symptoms:

The following symptoms of diabetes are typical. However, some people with type 2 diabetes have symptoms so mild that they go unnoticed.

Common symptoms of diabetes:

- Urinating often
- Feeling very thirsty
- Feeling very hungry—even though you are eating
- Extreme fatigue
- Blurry vision
- Cuts/bruises that are slow to heal
- Weight loss—even though you are eating more (type 1)
- Tingling, pain, or numbness in the hands/feet (type 2)

Early detection and treatment of diabetes can decrease the risk of developing the **complications of diabetes**.

Although there are many similarities between type 1 and type 2 diabetes, the cause of each is very different. And the treatment is usually quite different, too. Some people, especially adults who are newly diagnosed with type 1 diabetes, may have symptoms similar to type 2 diabetes and this overlap between types can be confusing. Take our **Risk Test** to find out if you are at increased risk for having type 2 diabetes.

Symptoms of type 1 diabetes onset in an infant or child

The young child who is urinating frequently, drinking large quantities, losing weight, and becoming more and more tired and ill is the classic picture of a child with new-onset type 1 diabetes. If a child who is potty-trained and dry at night starts having accidents and wetting the bed again, diabetes might be the culprit.

Although it is easy to make the diagnosis diabetes in a child by checking blood sugar at the doctor's office or emergency room, the tricky part is recognizing the symptoms and knowing to take the child to get checked. Raising the awareness that young children, including infants, can get type 1 diabetes can help parents know when to check for type 1 diabetes.

Sometimes children can be in diabetic ketoacidosis (DKA) when they are diagnosed with diabetes. When there is a lack of insulin in the body, the body can build up high levels of an acid called ketones. DKA is a medical emergency that usually requires hospitalization and immediate care with insulin and IV fluids. After diagnosis and early in treatment, some children may go through a phase where they seem to be making enough insulin again. This is commonly called the "honeymoon phase". It may seem like diabetes has been cured, but over time they will require appropriate doses of insulin to keep their blood sugar levels in the normal range.

Symptoms of type 1 diabetes onset in adults

When an adult is diagnosed with diabetes, they are often mistakenly told that they have type 2 diabetes. This is because there is still a lack of an understanding in the medical community that type 1 diabetes can start at any age. It can also be tricky because some adults with new-onset type 1 diabetes are often not sick at first. Their doctor finds an elevated blood sugar level at a routine visit and starts them on diet, exercise and an oral medication. On the other hand, there are people who look like they have type 2 diabetes—they may be Latino or African American and/or overweight, but they have type 1 diabetes after all. This can be difficult for even the brightest doctor to diagnose.

Maybe it's a different type

If you or someone you know is diagnosed with type 2 diabetes but isn't responding well to the typical treatments for type 2 diabetes, it may be worth a visit to an endocrinologist to determine what type of diabetes is happening. Generally, this requires antibody tests and possibly the measurement of a C-peptide level.

Maybe you've just been diagnosed with type 2 diabetes. Or maybe you've been living with it for awhile. Here's the thing: your journey is unique and it starts fresh every day.

No matter where you are with type 2 diabetes, there are some things you should know. It's the most common form of diabetes. Type 2 means that your body doesn't use insulin properly. And while some people can control their blood sugar levels with healthy eating and exercise, others may need medication or insulin to manage it. Regardless, you have everything you need to fight it.

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Gestational Diabetes Mellitus

Gestational Diabetes Mellitus (GDM) is defined as Impaired Glucose Tolerance (IGT) with onset or first recognition during pregnancy. Worldwide, one in 10 pregnancies is associated with diabetes, 90% of which are GDM. Undiagnosed or inadequately treated GDM can lead to significant maternal & fetal complications. Moreover, women with GDM and their offsprings are at increased risk of developing type 2 diabetes later in life.

In India, one of the most populous country globally, rates of GDM are estimated to be 10-14.3% which is much higher than the west. As of 2010, there were an estimated 22 million women with diabetes between the ages of 20 and 39 & an additional 54 million women in this age group with impaired glucose tolerance (IGT) or pre-diabetes with the potential to develop GDM if they become pregnant. In a field study in Tamil Nadu performed under the Diabetes in Pregnancy – Awareness and Prevention project, of the 4151, 3960 and 3945 pregnant women screened in urban, semi urban and rural areas, respectively, the prevalence of GDM was 17.8% in the urban, 13.8% in the semi urban and 9.9% in the rural areas. The incidence of GDM is expected to increase to 20% i.e. one in every 5 pregnant women is likely to have GDM.

Despite a high prevalence of GDM in Indian women, currently screening of pregnant women for GDM is not being done universally as part of the essential antenatal package. The test is sporadically being done at DH and MC in some states as per direction of individual clinician except in the state of Tamil Nadu where every pregnant woman is being screened up to the level of PHC as a part of the government of Tamil Nadu initiative.

Despite the fact that GDM is a sizeable public health problem with serious adverse effects on mother & child, we do not have a standard GoI guideline for diagnosis and management of GDM.

Consequences of GDM:

Maternal risk:

Maternal Risk

w Polyhydramnios w Pre-eclampsia
w Prolonged labour w Obstructed labour w Caesarean section w Uterine atony
w Postpartum haemorrhage w Infection

Fetal Risk :

> Spontaneous abortion
w Intra-uterine death
w Stillbirth
w Congenital malformation w Shoulder dystocia

w Birth injuries

w Neonatalhypoglycaemia

w Infant respiratory distress syndrome

Protocol for investigation

Testing for GDM is recommended twice during ANC.

The first testing should be done during first antenatal contact as early as possible in pregnancy.

The second testing should be done during 24-28 weeks of pregnancy if the first test is negative.

There should be at least 4 weeks gap between the two tests.

The test is to be conducted for all PW even if she comes late in pregnancy for ANC at the time of first contact.

If she presents beyond 28 weeks of pregnancy, only one test is to be done at the first point of contact.

If the test is positive at any point, protocol of management should be followed as given in this guideline.

At MC/DH/other CEmOC Centres, availability of glucometer must be ensured at all ANC clinics with facility for collection of sample and interpretation of result there itself (by training of personnel).

At all other facilities upto PHC level, there should be an in-house arrangement for conducting the test & giving report immediately so that necessary advice can be given on the same day by the treating doctor.

Methodology: Test for diagnosis

Single step testing using 75 g oral glucose & measuring plasma glucose 2 hour after ingestion.

75g glucose is to be given orally after dissolving in approximately 300ml water whether the PW comes in fasting or non-fasting state, irrespective of the last meal. The intake of the solution has to be completed within 5 min.

A plasma standardised glucometer should be used to evaluate blood glucose 2 hours after the oral glucose load.

If vomiting occurs within 30 min of oral glucose intake, the test has to be repeated the next day, if vomiting occurs after 30 minutes, the test continues.

The threshold plasma glucose level of ≥ 140 mg/dL (more than or equal to 140) is taken as cut off for diagnosis of GDM.