Diabetes Fact Sheet
World Health Organization

Updated January 2015

Key facts

- In 2014 the global prevalence of diabetes was estimated to be 9% among adults aged 18+ years (1).
- In 2012, an estimated 1.5 million deaths were directly caused by diabetes (2).
- More than 80% of diabetes deaths occur in low- and middle-income countries (2).
- WHO projects that diabetes will be the 7th leading cause of death in 2030 (3).
- Healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use can prevent or delay the onset of type 2 diabetes (4).

What is diabetes?

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar (5). Hyperglycemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels.

In 2014, 9% of adults 18 years and older had diabetes. In 2012 diabetes was the direct cause of 1.5 million deaths. More than 80% of diabetes deaths occur in low- and middle-income countries.

Type 1 diabetes

Type 1 diabetes (previously known as insulin-dependent, juvenile or childhood-onset) is characterized by deficient insulin production and requires daily administration of insulin. The cause of type 1 diabetes is not known and it is not preventable with current knowledge.

Symptoms include excessive excretion of urine (polyuria), thirst (polydipsia), constant hunger, weight loss, vision changes and fatigue. These symptoms may occur suddenly.

Type 2 diabetes

Type 2 diabetes (formerly called non-insulin-dependent or adult-onset) results from the body's ineffective use of insulin. Type 2 diabetes comprises 90% of people with diabetes around the world (5), and is largely the result of excess body weight and physical inactivity.

Symptoms may be similar to those of Type 1 diabetes, but are often less marked. As a result, the disease may be diagnosed several years after onset, once complications have already arisen.

Until recently, this type of diabetes was seen only in adults but it is now also occurring in children.
Gestational diabetes

Gestational diabetes is hyperglycemia with blood glucose values above normal but below those diagnostic of diabetes, occurring during pregnancy. Women with gestational diabetes are at an increased risk of complications during pregnancy and at delivery. They are also at increased risk of type 2 diabetes in the future.

Gestational diabetes is diagnosed through prenatal screening, rather than reported symptoms.

**Impaired glucose tolerance (IGT) and impaired fasting glycaemia (IFG)**

Impaired glucose tolerance (IGT) and impaired fasting glycaemia (IFG) are intermediate conditions in the transition between normality and diabetes. People with IGT or IFG are at high risk of progressing to type 2 diabetes, although this is not inevitable.

**What are common consequences of diabetes?**

Over time, diabetes can damage the heart, blood vessels, eyes, kidneys, and nerves.

- Diabetes increases the risk of heart disease and stroke. In a multinational study, 50% of people with diabetes die of cardiovascular disease (primarily heart disease and stroke) (6).
- Combined with reduced blood flow, neuropathy (nerve damage) in the feet increases the chance of foot ulcers, infection and eventual need for limb amputation.
- Diabetic retinopathy is an important cause of blindness, and occurs as a result of long-term accumulated damage to the small blood vessels in the retina. One percent of global blindness can be attributed to diabetes (7).
- Diabetes is among the leading causes of kidney failure (4).
- The overall risk of dying among people with diabetes is at least double the risk of their peers without diabetes (8).

**How can the burden of diabetes be reduced?**

**Prevention**

Simple lifestyle measures have been shown to be effective in preventing or delaying the onset of type 2 diabetes. To help prevent type 2 diabetes and its complications, people should:

- achieve and maintain healthy body weight;
- be physically active – at least 30 minutes of regular, moderate-intensity activity on most days. More activity is required for weight control;
- eat a healthy diet of between 3 and 5 servings of fruit and vegetables a day and reduce sugar and saturated fats intake;
- avoid tobacco use – smoking increases the risk of cardiovascular diseases.

**Diagnosis and treatment**

Early diagnosis can be accomplished through relatively inexpensive blood testing.

Treatment of diabetes involves lowering blood glucose and the levels of other known risk factors that damage blood vessels. Tobacco use cessation is also important to avoid complications.

Interventions that are both cost saving and feasible in developing countries include:

- moderate blood glucose control. People with type 1 diabetes require insulin; people with type 2 diabetes can be treated with oral medication, but may also require insulin;
• blood pressure control;
• foot care.

Other cost saving interventions include:

• screening and treatment for retinopathy (which causes blindness);
• blood lipid control (to regulate cholesterol levels);
• screening for early signs of diabetes-related kidney disease.

These measures should be supported by a healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use.

WHO response

WHO aims to stimulate and support the adoption of effective measures for the surveillance, prevention and control of diabetes and its complications, particularly in low and middle-income countries. To this end, WHO:

• provides scientific guidelines for diabetes prevention;
• develops norms and standards for diabetes diagnosis and care;
• builds awareness on the global epidemic of diabetes; celebration of World Diabetes Day (14 November);
• conducts surveillance of diabetes and its risk factors.

The WHO Global strategy on diet, physical activity and health complements WHO's diabetes work by focusing on population-wide approaches to promote healthy diet and regular physical activity, thereby reducing the growing global problem of overweight and obesity.

* Defined as fasting blood glucose >= 7 mmol/l or on medication for raised blood glucose or with a history of diagnosis of diabetes.

References


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DKA (Ketoacidosis) & Ketones
American Diabetes Association

Diabetic ketoacidosis (DKA) is a serious condition that can lead to diabetic coma (passing out for a long time) or even death.

When your cells don't get the glucose they need for energy, your body begins to burn fat for energy, which produces ketones. Ketones are acids that build up in the blood and appear in the urine when your body doesn't have enough insulin. They are a warning sign that your diabetes is out of control or that you are getting sick.

High levels of ketones can poison the body. When levels get too high, you can develop DKA. DKA may happen to anyone with diabetes, though it is rare in people with type 2.

Treatment for DKA usually takes place in the hospital. But you can help prevent it by learning the warning signs and checking your urine and blood regularly.

What are the Warning Signs of DKA?

DKA usually develops slowly. But when vomiting occurs, this life-threatening condition can develop in a few hours. Early symptoms include the following:

- Thirst or a very dry mouth
- Frequent urination
- High blood glucose (blood sugar) levels
- High levels of ketones in the urine

Then, other symptoms appear:

- Constantly feeling tired
- Dry or flushed skin
- Nausea, vomiting, or abdominal pain
  (Vomiting can be caused by many illnesses, not just ketoacidosis. If vomiting continues for more than 2 hours, contact your health care provider.)
- Difficulty breathing
- Fruity odor on breath
- A hard time paying attention, or confusion

You can detect ketones with a simple urine test using a test strip, similar to a blood testing strip. Ask your health care provider when and how you should test for ketones. Many experts advise to check your urine for ketones when your blood glucose is more than 240 mg/dl.

What Causes DKA?

Here are three basic reasons for moderate or large amounts of ketones:

- **Not enough insulin**
  Maybe you did not inject enough insulin. Or your body could need more insulin than usual because of illness.

- **Not enough food**
  When you're sick, you often don't feel like eating, sometimes resulting in high ketone levels. High levels may also occur when you miss a meal.

- **Insulin reaction (low blood glucose)**
  If testing shows high ketone levels in the morning, you may have had an insulin reaction while asleep.

- Last Reviewed: August 21, 2013
- Last Edited: March 12, 2014