

Diabetes Fact Sheet prepared by the World Health Organization (WHO)

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Key Facts:

- The number of people with diabetes has risen from 108 million in 1980 to 422 million in 2014¹
- The global prevalence of diabetes* among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014¹
- Diabetes prevalence has been rising more rapidly in middle- and low-income countries.
- Diabetes is a major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation.
- In 2015, an estimated 1.6 million deaths were directly caused by diabetes. Another 2.2 million deaths were attributable to high blood glucose in 2012.
- Almost half of all deaths attributable to high blood glucose occur before the age of 70 years. WHO projects that diabetes will be the seventh leading cause of death in 2030¹.
- Healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use are ways to prevent or delay the onset of type 2 diabetes.
- Diabetes can be treated and its consequences avoided or delayed with diet, physical activity, medication and regular screening and treatment for complications.

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. Hyperglycaemia, 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, 8.5% of adults aged 18 years and older had diabetes. In 2015, diabetes was the direct cause of 1.6 million deaths and in 2012 high blood glucose was the cause of another 2.2 million deaths.

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 the majority of people with diabetes around the world 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 increasingly frequently in children.

Gestational Diabetes

Gestational diabetes is hyperglycaemia 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 and their children are also at increased risk of type 2 diabetes in the future.

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

Impaired glucose tolerance and impaired fasting glycaemia

Impaired glucose tolerance and impaired fasting glycaemia are intermediate conditions in the transition between normality and diabetes. People with IGT or IFG are at a 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.

- Adults with diabetes have a two- to three-fold increased risk of heart attacks and strokes ².
- 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. 2.6% of global blindness can be attributed to diabetes ³.
- Diabetes is among the leading cause of kidney failure ⁴.

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 more 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, avoiding sugar and saturated fats intake; and
- Avoid tobacco use - smoking increases the risk of diabetes and cardiovascular disease.

Diagnosis and treatment

Early diagnosis can be accomplished through relatively inexpensive testing of blood sugar.

Treatment of diabetes involves diet and physical activity along with 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:

- Blood glucose control, particularly in type 1 diabetes. 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; and
- 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 and treatment.

WHO response

The WHO “*Global report on diabetes*” provides an overview of the diabetes burden, the interventions available to prevent and manage diabetes, and recommendations for governments, individuals, the civil society and the private sector.

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 people and obesity.

*Defined as fasting blood glucose equal to or higher than 7 mmol/L, or on medication for raised blood glucose, or with a history of diagnosis of diabetes.

References

1. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Med*, 2006, **3**(11): e442.

2. Sarwar N, Gao P, Seshasai SR, Gobin R, Kaptoge S, Di Angelantonio, *et al.* Diabetes mellitus, fasting blood glucose concentration, and risk of vascular disease: a collaborative meta-analysis of 102 prospective studies. *Emerging Risk Factors Collaboration. Lancet*. 2010; **26**; 375: 2215-2222.
3. Bourne RR, Stevens GA, White RA, Smith JL, Flaxman SR, Price H, *et al.* Causes of vision loss worldwide, 1990-2010: a systematic analysis. *Lancet Global Health* 2013; **1**: e339-e349.
4. United States Renal Data System. National Institutes of Health. 2014 USRDS annual data report: Epidemiology of kidney disease in the United States. *National Institute of Diabetes and Digestive and Kidney Diseases*, Bethesda, MD, 2014: 188-210.

Additional Resources for your Interest

1. American Diabetes Association. Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care* 2010; **33**(Suppl 1): S62-S89.
2. Stanko P, Izakovicova Holla L. Bidirectional association between diabetes mellitus and inflammatory periodontal disease. A Review. *Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub* 2014; **158**(1): 35-38.
3. Bascones-Martinez A, Gonzalez-Febles J, Sanz-Esporrin J. Diabetes and periodontal disease. Review of the literature. *Am J Dent* 2014; **27**(2): 63-67.