

## 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. This causes an increased concentration of glucose in the blood (hyperglycaemia). There are three types of diabetes:

**Type 1**, also known as juvenile diabetes or insulin-dependent diabetes, is an autoimmune reaction and normally manifests in childhood.

**Type 2**, also known as adult-onset or non-insulin dependent diabetes, is characterized by progressive organ resistance to insulin. Commonly linked to lifestyle related risk factors, type 2 makes up about 80% of all forms of diabetes.

**Gestational diabetes** is caused by hormones of pregnancy or a shortage of insulin. Mother and child have an increased risk of developing Type 2 diabetes.

Diabetes is **one of the four major non-communicable diseases (NCDs)** mentioned in the 2011 UN Political Declaration on NCDs and Global Action Plan 2013-20.

## QUICK FACTS

- In 2015, 415 million people worldwide are estimated to have diabetes.
- The number of people with diabetes is expected to increase by more than 50% in the next 20 years.
- Diabetes is the 9th most common cause of years lived with disability.
- Diabetes is a major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation.

## Who are the main stakeholders?

**Users:** Persons living with diabetes and persons at risk, their families and communities | **Service providers** in all relevant sectors including NGOs | **Ministries:** Health, Social Affairs, Education, Agriculture | **International professional organisations:** International Diabetes Federation, International Working Group on the Diabetic Foot (IWGDF) | **International bodies and partnerships:** World Health Organization (WHO), Non-Communicable Diseases Alliance, international NGOs.

## Common impairments and activity limitations from diabetes

Over time, high blood glucose levels can cause damage to nerves and blood vessels, leading to various complications. The injurious effects of hyperglycemia are separated into macrovascular complications (coronary artery disease, peripheral arterial disease, and stroke) and microvascular complications (diabetic nephropathy, neuropathy, and retinopathy):

- **Neuropathy:** the presence of symptoms and/or signs of peripheral nerve dysfunction in people with diabetes after the exclusion of other causes. Peripheral neuropathy in diabetes may manifest in several different forms, including sensory, focal/multifocal and autonomic neuropathies. More than 80% of amputations occur after foot ulceration or injury, which can result from diabetic neuropathy.
- **Peripheral Vascular Disease,** peripheral vascular disease (PVD) refers to diseases of blood vessels outside the heart and brain. It is often a narrowing of vessels that carry blood to the legs, arms, stomach or kidneys. Peripheral artery disease (PAD) is a type of organic PVD. PVD and neuropathy can lead to diabetic foot, in which loss of

sensibility can lead to lesions that cannot heal as PVD reduces blood flow, leading to amputations.

- **Retinopathy** may be the most common microvascular complication of diabetes. It is responsible for 10,000 new cases of blindness every year in the United States alone. It is divided in background retinopathy and proliferative retinopathy. Left untreated, it can lead to partial or total blindness.
- **Diabetes kidney complications** are the leading causes of renal failure worldwide: the damage mechanism is similar to the one mentioned for retinopathy.
- **Stroke:** patients with type 2 diabetes have a much higher risk of stroke, with an increased risk of 150-400%. Risk of stroke-related dementia and recurrence, as well as stroke-related mortality, is elevated in patients with diabetes.
- **Depression** rates amongst people living with diabetes are significantly high. Whether from physiological causes or as a result of living with a chronic and disabling condition, this mental health issue can impact adherence to medications, further increasing the risk of complications.

## ★ What can rehabilitation do?

Rehabilitative approaches can reduce the risks of diabetes, support the needs and address impairments and activity limitations that may arise as a result of diabetes.

### Different examples of rehabilitation in the care continuum

#### Prevention

- Rehabilitation can reduce obesity and improve or maintain physical activity.
- Training on skin and wound care can reduce the risk of infection and ulceration. Orthotics may also help to “off load” weight on a foot wound or pressure area to enable healing or prevent skin damage.
- Regular eye checks can identify retinopathy early.
- Helping with recognizing and accepting changes in mood, physical abilities and stamina will establish and enrich clear coping strategies, personal resources and strength.

#### Diagnosis

- Overall assessment of functionality and limitations, namely of the foot status by podiatrist.

#### Treatment

- Provision of prosthesis post-amputation.
- Balance, strength and mobility training.
- Overall assessment and training in abilities of self-care, managing the changing environment, returning to roles in the family and community.

#### Data collection

Ensure appropriate data collection on diabetes related impairments in order to:

- Give more visibility to the rehabilitation needs, but also the consequences on quality of life and economic impact,
- Lobby the responsible duty bearers.

#### Care and support

- Access to rehabilitation for those with mobility limitations as a result of a diabetic foot, including in the event of an amputated limb, helps to restore or maintain mobility.
- Adaptations and training for those with visual loss is essential to facilitate independence.
- Ongoing education and support including, pain management, falls prevention and psycho-social support may also significantly aid quality of life for people living with diabetes.

## 🔍 Case study: diabetes in the Philippines



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Driving a tricycle around Tagum City is what 54-year old Felix Basingan does for a living. But one ordinary day, his journey back home with his wife led to the start of his ordeal with diabetes.

Whilst driving in April 2015, his wife suddenly smelled the strong odor of something burning. She looked around the vehicle and saw Felix's right shoe on fire due to the heat from the smoke exhaust. Perplexed, Felix drove home as fast as he could.

When they arrived home, Felix quickly removed his shoe and found his right toe with bits of rubber had stuck like glue to his skin because of the heat. Despite this, he did not feel any pain. Dorothy provided first-aid treatment by applying antibiotics and antiseptics to her husband's toe. But after a month of repeating the same form of remedy, the couple noticed no improvement of the wound but instead it got infected. After hearing from a neighbor about the CVD (Cardiovascular Diseases) Program which offers treatment for patients with diabetic foot injuries, the couple decided to visit the nearest health center on May 23, 2015.

There, Felix was diagnosed with diabetes. Immediately, diabetes educators trained by the CVD Program debrided the wound, cleansed it with saline solution, and applied wet to dry dressing. A physician also prescribed the medications for diabetes and gave him basic education on the non-communicable disease, and how he should live with it.

Three months later, his wound healed and his blood sugar dramatically decreased. *“I am thankful that we were able to visit the health center and were given appropriate care. If not, maybe my husband's foot would have been amputated,”* says Dorothy. Feeling better, Felix says that he's blessed that his blood sugar was controlled. *“The most amazing thing is that I am able to feel with my feet now. That's why, I also referred my sister to the health center for consultation,”* he says.

## 🏛️ Global policy and guidance on diabetes and rehabilitation

United Nations Sustainable Development Agenda SDG 3 (2015) – target 3.4 | UN (2013): Global NCD Action Plan 2013-2020 | IDF (2013): Managing Older People with Type 2 Diabetes. Global Guideline | IWGDF (2012): Practical guidelines on the management and prevention of the diabetic foot | WHO (2002): Innovative Care for Chronic Conditions: Building Blocks for Action.