

Prevention Through Awareness – Raising Global Awareness of Diabetes and its Complications

a report by

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The Burden of Diabetes

Diabetes is an increasing global threat. Each year, over three million deaths worldwide are attributable to diabetes-related causes. The International Diabetes Federation (IDF) estimates that currently some 194 million people worldwide, or 5.1% in the adult population, have diabetes, and that this figure will rise to 333 million by 2025 as a consequence of longer life expectancy, sedentary lifestyle and changing dietary patterns. This rise is likely to bring a proportional increase in the number of people with diabetes complications.

The general public remain unaware that elevated levels of blood glucose are associated with long-term damage to the body and the failure of various organs and tissues. Diabetes can result in short- and long-term complications, many of which, if not prevented and if left untreated, can be fatal. All have the potential to reduce the quality of life of people with diabetes and their families. Long-term complications of diabetes include:

- Cardiovascular disease (CVD), which may cause fatal complications such as coronary heart disease (leading to a heart attack) and stroke. People with diabetes are two to four times more likely to develop cardiovascular disease than people without diabetes, and people with diabetes and high blood pressure are twice as likely to suffer a stroke as people with high blood pressure alone.
- Diabetic retinopathy (eye disease), which can lead to vision loss. The incidence of blindness is 25 times higher in people with diabetes than in the general population. It is estimated that about 10% of all people who have had diabetes for 15 years develop severe visual impairment.
- Diabetic nephropathy (kidney disease), which may result in total kidney failure and in the need for dialysis or kidney transplant. Diabetes is the leading cause of kidney failure in the developed world and accounts for approximately 35% to 40% of new cases of end-stage renal disease (ESRD) each year.
- Diabetic neuropathy (nerve disease), which is damage to the nerve fibers primarily affecting the legs and feet. Foot ulcers are common symptoms. Infections in these wounds may ultimately result in amputation of the foot and lower leg. People with diabetes are 25 times more likely to lose a leg than people without the condition.

Diabetic Complications are Costly

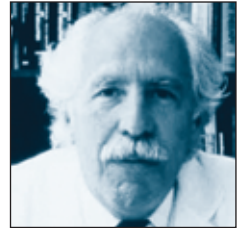
Complications are responsible for most of the costs of diabetes. Hospital in-patient costs for the treatment of complications are the largest single contributor to direct healthcare costs. Renal failure, for instance, is extremely expensive if people end up on chronic renal dialysis or with a renal transplant. In the US it has been estimated that dialysis costs around US\$35,000 per person per year and that kidney transplant costs around US\$15,000 for the first year, and US\$6,000 per year thereafter.

Many of these complications are preventable and, therefore, the associated costs are avoidable. Intensive therapy directed at the control of blood glucose, blood pressure, blood lipids, etc. has been shown to be cost-effective. Even if initial costs are increased, they are decreased in the long term as a result of delayed or prevented complications.

Raising Awareness – World Diabetes Day Campaign

Each year, the IDF organises the World Diabetes Day (WDD) campaign in collaboration with the World Health Organization (WHO). This global awareness campaign aims to inform the public of the causes, symptoms, complications, and treatment associated with the condition.

WDD serves as an important reminder that the incidence and prevalence of diabetes is increasing worldwide and that it brings significant human, social, and economic costs. It is crucial to alert the public throughout the world that diabetes is a serious condition that is currently underestimated in terms of its frequency, cost, and impact on quality of life.



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Awareness at all levels and strata of society is key to tackling the diabetes epidemic.

Each year, WDD is centered on a theme related to diabetes. Since 2001, particular attention has been paid to diabetes complications. This year, IDF is raising awareness of the serious complications of the foot in people with diabetes, a costly complication that is potentially preventable if strategies are in place to prevent or detect and manage diabetes-related foot problems in time.

WDD 2005 – Put Feet First, Prevent Amputations

Somewhere in the world, a leg is lost to diabetes every 30 seconds. It is estimated that up to 70% of all lower-limb amputations are related to diabetes. The goal of the 2005 campaign is to convey and promote the message that it is possible to reduce amputation rates by up to 85% through prevention, the aggressive management of existing diabetes, and the provision of appropriate education for people with diabetes and healthcare professionals.

People with diabetes are at risk of nerve damage (neuropathy) and problems with the blood supply to their feet (ischemia). Nerve damage results in a reduced ability to feel pain, and injuries often go unnoticed. Ischemia can slow down any wound healing. Both neuropathy and ischemia can lead to foot ulcers, and infections in these wounds may ultimately result in amputation. Some 85% of diabetes-related lower extremity amputations are preceded by a foot ulcer.

Up to 5% of People with Diabetes Have Foot Ulcers

Diabetic foot ulcers are common. In developed countries, up to 5% of people with diabetes have foot ulcers and one in every six people with diabetes will have an ulcer during their lifetime. Ulcers can be due to a variety of reasons. The most common, besides neuropathy and poor blood supply, are deformity of the foot (from birth, caused by unsuitable shoes or due to previous surgery), injuries (many ulcers are caused by pieces of grit within shoes, rough seams, sharp objects which have penetrated the sole of the shoe, or burns, etc.) or infection (in people with diabetes wound healing is often slow and the body's ability to fight infection may be weakened).

Foot problems are the most common cause of admission to hospital for people with diabetes. In developing countries, foot problems related to diabetes are thought to be even more common. Half

of all leg amputations happen to people with diabetes. In some areas where such factors as ethnicity, climate, and social conditions increase risk, the number of amputations is proportionally even higher in people with diabetes.

Amputation – A Personal, Social and Economic Disaster

The impact of diabetic foot disease on people's lives is devastating. For most people who have lost a leg, life will never return to normal. Amputation may involve life-long dependence on the help of others, inability to work and much misery.

The diabetic foot is also a significant economic problem. In developed countries, approximately 4% of all people with diabetes have a foot problem. They account for 12% to 15% of total healthcare resources. In developing countries, it has been estimated that foot problems may account for as much as 40% of the total available resources. In western countries, the economic costs of an ulcer in people with diabetes is thought to be between US\$7,000 and US\$10,000.

The direct cost of an amputation associated with the diabetic foot is estimated to be between US\$30,000 and US\$60,000. The estimated cost for three years of subsequent care for individuals who have healed their ulcer without the need for an amputation has been estimated to be between US\$16,000 and US\$27,000. The corresponding costs for someone who eventually needs an amputation ranges from US\$43,000 to US\$63,000 – mainly due to the increased need for home care and social services.

Relatively Low Investment can Significantly Reduce the Number of Amputations

Aggressive management of the diabetic foot can prevent amputations in most cases. Even when amputation takes place, the remaining leg and the person's life can be saved by good follow-up care from a multidisciplinary foot team. Education of healthcare providers and people with diabetes is essential. Healthcare providers need to be trained to detect problems early and take appropriate action.

Principles of Ulcer Treatment

- Relief of pressure on the foot.
- Correction of poor blood supply.
- Treatment of infection.
- Good control of diabetes, blood pressure, blood lipids and avoiding smoking.

- Cleaning and dressing wounds and removing hard skin and dead tissue.
- Education of people with diabetes and their relatives.
- Determining the cause of ulcers and helping the patient to prevent recurrence.

Ideally, foot care should be provided by a multidisciplinary team. This should closely involve the person with diabetes and his or her family along with healthcare professionals from different specialties. The ideal team would include a physician, a nurse, a specialist educator, a podiatrist, a surgeon, an orthotist (shoemaker), and an administrator.

In a perfect world, there would also be regional and national collaborations between key players in foot care. Adequate provision of resources must be made to ensure that minimum standards are reached and that a few key conditions are in place, such as:

- a process of diabetic foot screening;
- foot-care education programs and training for people with diabetes and healthcare professionals, including a program for training podiatrists;
- a diabetic foot emergency service to ensure the rapid treatment of infection and other foot emergencies;
- a footwear service to ensure the use of appropriate shoes; and
- good record-keeping.

Sufficiently frequent preventative foot care and ulcer care are also essential.

The Need for Improved Foot Care Worldwide

Through this year's WDD campaign, the IDF wants to draw attention to the need for improved foot care for people with diabetes all over the world. It wants to achieve this through a variety of activities and actions. A leaflet called "Put feet First: Prevent Amputations" has already been published, the publication *Diabetes and Foot Care: Time to Act* is at an advanced stage of development and should be available by June 2005.

For the first time, the campaign has shifted from the focus on a specific day to year-long themed awareness raising. Regional press conferences have been planned to take place in the seven regions of the IDF throughout the year.

The first one took place in India in February 2005. It provided the occasion to launch the campaign in an area where people are particularly at risk. India is host to the largest diabetes population in the world with an estimated 35 million people affected. IDF figures estimate that this will double within the next 25 years. This increase is likely to bring a proportional increase in the number of amputations if nothing is done to defuse the situation. Brazil will host the main press conference, due to take place on WDD (14 November 2005).

It is through IDF member associations as well as WHO collaborating centres and other partners that the campaign is driven. The IDF's 184 member associations, representing 145 countries, develop an extensive range of activities tailored to their local communities. These activities range from sports events to radio and television shows and free screening to workshops and exhibitions.

The global awareness activities of the IDF will be successful if more people without diabetes become aware that they are at risk and if people already living with diabetes receive the quality of care they deserve. The IDF and WHO call on healthcare decision-makers everywhere to take the appropriate action to ensure that both goals are achieved. ■

This article is based on information from the IDF publications, WDD leaflet "Diabetes and Foot Care - Put Feet First: Prevent Amputations" (2005), and Diabetes Atlas second edition, International Diabetes Federation (2003).

WDD materials such as posters, leaflets, and other informational tools can be downloaded from the website (www.worlddiabetesday.org).