

## Diabetes – A Rising Healthcare Challenge of Epidemic Proportions

Diabetes is a condition in which the body does not produce or properly use the hormone insulin. Diabetes can now be found in almost every part of the world, and epidemiological evidence suggests that, without effective prevention and control programs, diabetes is likely to continue to increase globally. It is the fourth leading cause of death in most developed countries.

Complications arising from diabetes, such as coronary artery and peripheral vascular disease, stroke, diabetic neuropathy, amputation, renal failure and blindness, result in increasing disability, reduced life expectancy and enormous healthcare costs for virtually every society. Diabetes is set to be one of the most challenging health problems in the 21st century.

There are three major types of diabetes: type 1 diabetes, which used to be called “insulin-dependent”; type 2 diabetes, in which the body cannot produce enough insulin or use it properly (approx. 90-95% of people with diabetes have this form); and gestational diabetes, which is a temporary form of insulin resistance that may occur during pregnancy (affects about 4% of all pregnant women).

Self-monitoring of blood glucose plays a key role in understanding diabetes and how best to manage it. By monitoring their blood sugar levels people with diabetes are able to play a more active role in their own diabetes management.

### The economic impact of diabetes

Diabetes has a very significant economic impact. The devastating complications of diabetes are imposing a huge burden on healthcare services. It is estimated that diabetes accounts for between 5% and 10% of national health budgets. The World Health Organization (WHO) estimates that 4 to 5% of health spending goes on diabetes-related illnesses. Amazingly, an estimated 25% of the world's nations have not made any specific provision for diabetes care in national health plans.

A person with diabetes incurs medical costs that are 2 to 5 times higher than those of a person without diabetes.<sup>2</sup> A person with diabetes faces higher costs than those of a healthy individual because of more frequent medical visits, the need to purchase supplies/medication and the greater likelihood of being admitted to hospital.

The costs of diabetes to healthcare systems could be reduced. The human and economic costs of diabetes could be significantly reduced by investing in prevention, particularly early detection, in order to avoid the onset of diabetic complications.

### **Diabetes – epidemic growth rates observed**

Today, there are more than 246 million people with diabetes worldwide. That is more than the populations of Argentina, Australia, South Africa, Saudi Arabia and Spain combined. If nothing is done to slow the diabetes epidemic, the number will exceed 380 million by 2025. In 2007, the five countries with the largest number of diabetics were India (40.9m), China (39.8m), the United States (19.2m), Russia (9.6m) and Germany (6.4m).<sup>2</sup>

In 1985, there were an estimated 30 million diabetes sufferers worldwide increasing nearly six times in almost 20 years. By 2025, the number of people with diabetes is expected to more than double in Africa, the Eastern Mediterranean, Middle East, and Southeast Asia, and rise by 21% in Europe, 43% in North America, 102% in South and Central America and 48% in the Western Pacific.<sup>2</sup>

At least 50% of all people with diabetes are unaware of their condition. In some countries this figure may be as high as 80%. Many adults have diabetes for several years before their symptoms are recognized. By the time they are diagnosed, a great many have already started to develop the complications of diabetes: visual impairment, kidney failure, heart disease, stroke and nerve damage. Spotting diabetes early reduces the risk of the serious complications, and initiating self-management of the condition allows people with diabetes to live longer, healthier lives.<sup>3</sup>

### **A pioneering approach to diabetes care**

Today, with more than 35 years experience in diabetes monitoring and 25 years in insulin pump therapy, Roche Diabetes Care is at the forefront of overall diabetes care. By converging blood glucose monitoring, advice (information management) and insulin delivery technologies, Roche Diagnostics offers highly innovative solutions for an efficient and effective diabetes management.

Through well established relationships with partners in the healthcare system, Roche Diagnostics is able to meet all the complex and changing needs of people with diabetes as well as of healthcare systems. Its products range from blood glucose monitoring devices, including blood glucose meters and lancing devices, through to information management solutions and insulin delivery systems.

An insulin pump can provide up to 480 insulin injections a day as opposed to the usual three to five manual injections in flexible insulin therapy. This treatment closely mimics the normal insulin secretion of the pancreas. As insulin need varies from person to person and is not constant throughout the day, insulin delivery via the pump can be precisely adjusted. This tighter control of diabetes can reduce the risk of long-term complications such as kidney disease, impaired vision and nerve damage.

As technology advances and patient self-management becomes more feasible, Roche Diagnostics' dedication to diabetes care is contributing to today's awareness of the disease and providing diabetes patients with high-quality innovative solutions to help them live full and spontaneous lives.

#### **Advancements in blood glucose self-monitoring**

The search for better and more convenient monitoring devices continues. For the foreseeable future, the current method of daily monitoring of blood glucose levels will remain a part of life for people with diabetes.

But there has been a great deal of progress. Blood glucose meters today are smaller, faster and more sophisticated like the Accu-Chek Aviva Nano. Today, meters and pumps even have the ability to interactively communicate with each other as e.g. in the innovative Accu-Chek Combo insulin pump system. With information management tools like the Accu-Chek 360° software or the Accu-Chek Smart Pix device reader blood glucose and insulin data can be transmitted to a PC via an infrared interface from the monitoring systems, e.g. Accu-Chek Compact Plus and Accu-Chek Performa, and insulin pumps like the Accu-Chek D-TRONplus and Accu-Chek Spirit, and evaluated through easy-to-read graphs. This enables people with diabetes and healthcare professionals to monitor blood glucose data for trends and patterns, making it much easier to act on the results.

The linking of blood glucose and insulin data also enables people with diabetes and healthcare professionals to monitor the disease and adjust insulin delivery more accurately so as to postpone or even avoid the complications associated with the condition.

Another major milestone is the increased ease of use of lancing devices and meters. The unique Accu-Chek Mobile system offers genuine one-handed and strip-free testing with 50 test provided on one continuous tape and the new, detachable Accu-Chek FastClix Mobile lancing device with 6 lancets on a drum integrated into one monitoring system. For people who travel a lot in their jobs, are always on the move, or who have an unpredictable daily routine, Accu-Chek Mobile allows fast and accurate testing virtually whenever and wherever and no waste to think about.

Blood sampling has never been as comfortable and gentle as today. The Accu-Chek Multiclix system features the first lancing device in the world with an integrated lancet drum, making it astonishingly easy to change lancets. With each drum containing six lancets, individual lancet changes are a thing of the past. A simple turn of the priming button on the lancing device makes the next lancet available on demand. Only when all six lancets have been used it is time to change the drum.

Roche Diabetes Care continues to lead the way in the development of standards of care to reduce the health and economic impact of diabetes. In its commitment to ease the consequences of diabetes worldwide, Roche Diabetes Care continues to develop solutions that ensure people with diabetes can live full and active lives.

Some day a cure for diabetes may be found, but until that day, improved ways to monitor blood sugar levels, and better control and management of the disease can significantly improve the lives of people with diabetes.

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