

WORLD **DIABETES** FOUNDATION

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Two decades ago type 2 diabetes was rarely diagnosed in children. Today unhealthy processed food and an increase in calorie intake are highly promoted and easily available. Childhood obesity is becoming a problem, not only in developed countries. The consequences are severe; children will live most of their lives with diabetes, and face the risk of complications when they are 30 or 40 years old. The disadvantaged and vulnerable people of the world will be hit the hardest when diabetes occurs; struggling with poverty, lacking access to proper health care and unaware of the risk factors.





FOCUS ON LATIN AMERICA

Compared to other parts of the developing world, South and Central America are traditionally not considered to be a major hot spot for diabetes and other chronic diseases. However, with economic transition, globalisation and the accompanying changes in living standards, the prevalence of diabetes is steadily rising in the region and the social and economic impact of diabetes is becoming evident.

The prevalence of diabetes

in Latin America ranges from 3.1 to 8.2% but by 2025 it will increase to 5.1 to 12.2%. The number of people living with diabetes has reached 16.2 million in this region and in the next 18 years, it is expected to double to 32.7 million.

“Obesity and diabetes prevalence rates amongst the Hispanic-Americans in the United States are already quite high and several Latin American countries are only about a decade or less behind. The impact of rapid economic transition, urbanisation and globalisation is dramatically changing diet and physical activity levels. Latin Americans do not have to migrate to the US to witness the impact of these changes. It is happening in their own backyards,” says Dr. Anil Kapur, managing director of the World Diabetes Foundation (WDF).

The 21st century’s epidemic

Diabetes now affects 246 million people worldwide and this number is expected to increase to a staggering 380 million by 2025. Globally, diabetes claims as many lives each year as HIV/AIDS and as with the latter, the increase is predominantly occurring in the developing world. Already, seven of the top 10 countries with the highest number of people with diabetes are in the global South. Within the next two decades, the number of people living with diabetes in Brazil, Mexico, China and India is projected to increase at nearly twice the rate observed in the United States.

The urban factor

Being overweight and obese is to diabetes what tobacco use is to lung cancer. Roughly 60% of all cases of diabetes can be directly attributed to weight gain. About 1.6 billion people in the world are overweight or obese, compared to 850 million who are underweight. By 2015, it is estimated that 2.3 billion adults will be overweight and more than 700 million will be obese.

“Being overweight and obese used to be considered a problem only in high-income countries. Now this problem is dramatically on the rise in low- and middle-income countries, particularly in urban settings. Worldwide, urbanisation is associated with unhealthy behaviour, including less physical activity, easy access to calorie-dense, refined, fatty foods, smoking and drinking—risk factors clearly associated with the development of obesity and type 2 diabetes. This transition has a negative impact on global health in the form of chronic diseases. This poses a real challenge, considering that 90% of the population growth in the developing countries now takes place in urban areas,” says Professor Ib Bygbjerg, an



internationally recognised public health expert from the University of Copenhagen in Denmark and a member of the board of directors of the WDF.

When big is better

Urbanisation is, however, not the only reason for the drastic increase in chronic diseases in Central and South America.

“Globalisation and economics play a major role. Processed, refined, calorie-dense foods are cheaper, easily available and heavily promoted. Fresh fruit and vegetables are often out of reach of the poor. In the countryside people may grow vegetables and fruit but they are sold to generate income and the farmers who grow them cannot afford to eat them. The pace of nutrition transition is now proceeding very rapidly, at a rate never before seen in developing countries. These unhealthy choices have a direct effect on chronic diseases. Obesity, diabetes, heart disease and high blood pressure are closely linked. When the prevalence of type 2 diabetes rises it is a sure sign that cardiovascular diseases will increase as well,” says Dr. Anil Kapur.

Another disturbing trend representing a serious challenge is the common perception in many developing countries that being overweight or obese means that the person is prosperous and healthy. It signals that you are no longer a hardworking peasant but someone who has climbed up the social ladder. The sedentary lifestyle in that sense becomes an ideal while physical work is considered unattractive.

Towards healthier choices

The global emergence of obesity and diabetes as epidemics is as much an economic issue as it is a health issue. Dietary preferences, willpower and even genetics cannot fully explain the increase in the prevalence of obesity; rather it is the modern economy in which we live that encourages unhealthy choices. These choices unfortunately are also often attractive, palatable and cheap.

In their Global Strategy on Diet, Physical Activity and Health, the World Health Organization calls upon all concerned to play their part in improving public health, including promoting healthy diets, improving nutritional qualities of processed food products, ensuring better information and labelling, as well as responsible marketing to encourage healthier choices.

But these changes cannot be achieved by one sector alone. Diabetes and obesity must be viewed and recognised as major public health problems that require a multi-sectoral approach and a broad alliance amongst public, private and civil society in order to reverse the trend.

In 2006 the World Diabetes Foundation heightened its focus on Latin America and now supports 12 projects in South and Central America, aiming to alleviate the epidemic by strengthening primary prevention in the region and to provide proper care for those already affected. Several of these projects are described in *The 2006 Annual Review*, which has a special focus on South and Central America.

By 2025 over 15 million deaths each year will be caused by diet-related chronic diseases.

Worldwide, an estimated 10% of children are overweight or obese.



A CALL TO ACTION

The soaring burden of diabetes demands the immediate attention of all parties involved in securing global health. The severity and frequency of complications related to diabetes are already alarming but with an almost explosive increase in obesity and diabetes among children and youth, the impact of the disease will reach unprecedented levels.



Professor Pierre Lefèbvre

Diabetes has become the leading cause of new cases of blindness in people aged 20-74 and it is the leading cause of end-stage renal disease, accounting for about 43 percent of new cases. Diabetes is today the most frequent cause of non-traumatic lower limb amputations. We know that serious cardiovascular complications of obesity and diabetes could overwhelm developing countries that are already straining under the burden of communicable diseases. The risk of cardiovascular disease is considerably greater among obese people, and this group has an incidence of hypertension that is five times the incidence among people of normal weight. We also know that heart disease strikes people with diabetes twice as often as people without diabetes.

Our children at risk

Another growing concern is the increase in diabetes among children and youth. Two decades ago type 2 diabetes was rarely diagnosed in children. With the rising incidence of obesity, type

2 diabetes has begun to surface in children at alarming rates, in some countries representing up to 80% of all cases of diabetes reported in the paediatric population. The consequences of this are severe—these children will live most of their lives with diabetes and as a consequence face the risk of diabetic complications not when they are 60 or 70 years old, but when they are 30 and 40 years old.

Obesity among children and youth is a worldwide phenomenon; in Brazil the number of overweight children and teens rose from 4.1% to 13.9% between 1971 and 1997. In China the number of obese children increases by 8% every year, and in Mexico obesity prevalences reported in 2004 varied from 6.1% to 9% in boys and 5.9% to 8.2% in girls.

An important factor is the increase in caloric intake by children. In the Philippines children consumed an average of 1,199.3 kcal daily in 1994. By 2002 this increased to 1,909.7 kcal—an increase of more than 700 kcal a day. Over one-fourth of all



children worldwide now get more than one-fifth of their calories from confectionery and soft drinks. Another aspect contributing to the development of obesity among youth is the drastic reduction in physical activity. Since 1960, the number of children walking or cycling to school in the United States has dropped from 50% to 10%. And the proportion of children in the United Kingdom spending less than an hour a week on sports has risen from 5% to 18% in the last decade.

These changes have shaped a younger generation at great risk for diabetes and other health problems. According to the World Health Organization (WHO), at least 20 million children globally under the age of five are overweight and the numbers are expected to increase. The trend is worrisome and calls for a multisectorial approach to address the inherent challenges for society and the coming generation and to set up preventive strategies.

Leveraging change through partnership

The health care systems in the developing world are not geared to meet these challenges. Healthcare services tend to be oriented toward acute medical care rather than cost-saving preventive approaches. At the World Diabetes Foundation (WDF) we therefore see it as our primary goal to facilitate both primary and secondary prevention by promoting healthy living

and building capacity for early diagnosis and proper care amongst the people needing it the most. Working together with governments, non-governmental organisations, the health industry, national associations and healthcare providers, the WDF acts as a catalyst to create partnerships among these different stakeholders linking people and resources to educate and advocate globally and provide care locally. We seek to empower local communities to achieve sustainable solutions that live on after the completion of the WDF-funded projects. By doing so, we assist people with diabetes and those at risk, upgrading the standards of care and improving the quality of life of those affected.

The challenges posed by diabetes and other chronic non-communicable diseases are huge and resources are limited, particularly in the low- and middle-income countries. The only solution is to join forces, share knowledge and partner to leverage the expertise of all stakeholders for the benefit not only of people with diabetes today but also for coming generations.



Professor Pierre Lefèbvre
Chairman of the World Diabetes Foundation



BUILDING A GLOBAL ALLIANCE

There are a lot of misconceptions and myths surrounding diabetes. These myths prevent people, including authorities and governments, from taking appropriate actions. For instance, it is widely believed that diabetes is a mild condition that does not kill. However, every 10 seconds a person dies from diabetes-related causes; in the year 2000 an estimated 2.9 million people died due to diabetes.



Dr. Anil Kapur

It is also believed that diabetes is a disease related to affluence. On the contrary, 80% of the 246 million people with diabetes live in less developed or developing countries. Already, seven out of the 10 countries with the highest number of people with diabetes are to be found in the developing world. It is also widely believed that providing care for people with diabetes is expensive. In fact, the high costs of diabetes care are linked to the complications of diabetes, which occur when there is no care or inadequate routine care. The cost of educating a person with diabetes to take care of his feet to prevent foot ulcers is minimal but the cost of treating a foot ulcer is considerable. When treatment is unsuccessful, the cost of the ensuing amputation is even greater both in direct costs as well as indirect costs from lost productivity, social dependency and the resulting economic consequences and hardship.

The toll that diabetes takes on individuals, societies and economies, especially in the developing world, cannot be overstated. Those who need more advanced, more expensive care for diabetes-

related complications are often the very people who cannot afford such care. When burdened with debilitating and often life-threatening complications requiring expensive advanced care, many of them are forced to borrow money in order to pay for treatment. Thus they enter the trap of debt—with disastrous consequences to the individuals, their families and society. Clearly, those involved in diabetes care delivery need to be aware of the factors that drive health costs. Effective treatment of diabetes is not costly. However, in both human and economic terms, not treating the condition is extremely costly. When that happens, the resulting costs will stunt economic growth in the developing world and undermine the benefits of improved standards of living and education.

Diabetes on the agenda

At the World Diabetes Foundation (WDF), every day we strive to bring diabetes higher on the global agenda through advocacy and by supporting the actions of relevant stakeholders. Through our partnerships we aim to build a

global alliance to raise awareness of the diabetes epidemic, its disastrous consequences on people's lives and to raise a warning flag to individuals, communities and countries about the health and economic consequences of inaction. It is our hope that through better awareness, resources will be found to address the underlying risk factors, as well as provide the urgently needed access to care for chronic diseases in the developing world. People with diabetes are at a great risk of associated conditions and complications such as hypertension, heart attacks, paralytic strokes, blindness, limb amputations, and kidney failure. Therefore, prevention and treatment strategies directed at diabetes are also beneficial for other chronic diseases. Diabetes is one of the most significant public health challenges of this century as well as an opportunity to improve public health by promoting healthy living.

WDF initiatives in 2006

In 2006 we supported and facilitated a number of global awareness initiatives. We arranged the WDF Summit in Hanoi, Vietnam in collaboration with the Ministry of Health in Vietnam and the Western Pacific Declaration on Diabetes—the first in a series of regional diabetes summits to raise awareness of the disease. The next regional summit focusing on Africa is planned to take place in Nairobi, Kenya in June 2007.

Another successful meeting was the diabetes symposium at the Bio Vision 2006 at Bibliotheca Alexandrina, Egypt co-hosted by WDF in collaboration with the European Action on Global Life Sciences (EAGLES). This meeting particularly focussed on creating advocacy amongst European policymakers regarding the rising burden of chronic diseases such as diabetes in the developing world and the need to support prevention strategies and better access to care for chronic diseases.

By continuing our support for the development of the third edition of the International Diabetes Federation's *Diabetes Atlas*, it is our hope that this valuable reference book will become a powerful tool for advocacy and communicating the global impact of diabetes.

"Diabetes Action Now" is a joint project between the World Health Organization (WHO) and the International Diabetes Federation (IDF) supported by the WDF. The programme focuses on low- and middle-income communities, particularly in developing countries. Its overall purpose is to achieve a major increase in awareness of diabetes, its complications, and its prevention, particularly among health policymakers. "Diabetes Action

Now" will produce up-to-date, practical guidance for policy makers, on the content, structure and implementation of national diabetes programmes; and will provide and maintain a web-based resource to help policy makers implement national diabetes programmes.

The project on diabetes practice guidelines with IDF Africa is expected to improve the overall standard of care for people with diabetes in Sub-Saharan Africa. Furthermore the initiatives of the Pan American Health Organization are other examples where the WDF has supported key stakeholders in order to build alliances and improve diabetes care.

Finally, the WDF has actively supported the International Diabetes Federation (IDF) 'Unite for Diabetes' campaign—a project involving multiple stakeholders with the object of securing a UN Resolution on Diabetes. The Resolution on Diabetes was passed by the UN General Assembly in late December 2006 within six months of the campaign being initiated. The resolution will greatly help the advocacy efforts of the Foundation.

The key to success

Whereas our advocacy and awareness-building initiatives have a global outreach, our local projects are aimed at the developing countries. In the five years that the WDF has existed we have funded 95 projects focusing on diabetes awareness, education and capacity building at local, regional and global levels. The total project portfolio has reached USD 92.9 million of which USD 30.2 million were donated by the World Diabetes Foundation. A projection of the impact of our work shows that the projects funded by the World Diabetes Foundation will in the course of the next three to four years positively impact 40.5 million people in the developing countries.

The experience from one project influences the success of another. We are now making attempts to replicate successful projects from one area to another. Our key "mantra" is to be a catalyst—to help others do more—making a much greater impact than the Foundation's size would suggest. We fund good ideas which are sustainable and we make sure they are shared.



A handwritten signature in black ink, appearing to read 'Anil Kapur'. The signature is stylized and cursive.

Dr. Anil Kapur
Managing Director
of the World Diabetes Foundation



WHEN KNOWLEDGE IS SCARCE - THE STORY OF ELIODORO GONZALES

Cochabamba, Bolivia's third largest city, located in a valley in the Andes mountain range, is known throughout South America as the City of Eternal Spring. Nevertheless, for Eliodoro Gonzales, living a one-hour drive away, life feels more like eternal winter. His life will be sadly replicated, if people with diabetes are not educated and given advice on healthier lifestyles.

Eliodoro Gonzales, 74, is sitting in a wheel-barrow ready to be transported for various errands elsewhere in the village. It is hard to imagine but this is his lucky day. He has lost both his legs to diabetes, and once a month he can afford to pay a man from the village to transport him somewhere. Sometimes it is to go to church, sometimes to see a football game. He wishes he could watch football games like he used to, but diabetes has taken most of his eyesight, too.

It seems like a lifetime ago when Eliodoro quit school at age 11 to work as a farmhand. When he was 47, Eliodoro received the diagnosis of diabetes during a hospitalisation. At that time he had spent most of his adult life working as a truck driver, a sedentary occupation reflected in his body weight of 120 kilos. Knowledge about diabetes and a healthy diet could have prevented Eliodoro from being in the situation he is in today.

Sedentary lifestyles

For Elizabeth Duarte, doctor, founder and leader of the Centro Vivir con Diabetes centre in Cochabamba, people with lifestyles and backgrounds similar to Eliodoro's are common at her clinic.

"The lack of work for the peasant population has resulted in migration from the fields to the city. This has generated true belts of poverty in the suburban areas, where people develop terrible habits regarding nourishment and lead more sedentary lives. The diet is based on carbohydrates and there is a big need for an alternative nutritional culture and focus on physical activity," says Dr. Elizabeth Duarte. She acknowledges, however, that a diet lacking vegetables and high in fat is only one of several explanations of the complex obesity problem in Bolivia.

"For cultural reasons, people wish to remain overweight because it shows that they have abandoned the traditional lifestyle and taken on a modern lifestyle. Big in that sense becomes synonymous with wealth. All these factors—cultural, poverty and lack of nutritional education—explain why people are unaware of the risks and why people are developing diabetes more frequently."

A need for education

Eliodoro and his wife and family survive on the crops they can harvest from a small field behind their house. Depending on the season they grow onions, wheat or maize, which is reflected in their daily diet. Meat is added once a week if the family can afford it at the local market.

Eliodoro had lived with diabetes for 19 years when his first leg was amputated above the knee and he lost the ability to work as a truck driver. Since then he has been on insulin treatment, but it did not prevent him from losing his second leg three years ago.

"I never took insulin on a regular basis," he says. "When I feel my blood glucose level is regular, I believe it is not necessary to inject myself." Like many other poorly educated people in Bolivia, Eliodoro could benefit from the educational programme at the "Vivir con diabetes" centre in Cochabamba. Eliodoro has visited the centre, but because of the overwhelming distance he can't afford the transport costs connected with regular visits.

A double burden

"The most important problems related to non-communicable diseases like diabetes are the lack of access to medical attention and suitable information. At the moment the health system does not have the capacity to provide complete and integrated treatment to people with chronic diseases and the lack of resources, education, information and health policies makes people with diabetes very vulnerable for developing chronic complications," says Dr. Duarte.

Eliodoro and his wife have seven children and seven grandchildren. Diabetes has affected and burdened all of their lives. Each amputation cost him and his family between 1200-1500 USD. Owing the bank more than he could ever earn, the family is in debt. In a drastic attempt to pay off the debt, four of his seven children have travelled to Spain to work as illegal immigrants, leaving two small children behind to live in the village house with their sorely tried grandparents, who feel overwhelmed by the responsibility. Eliodoro's wife is a woman of few words. Her view on their life situation is simply: "I'm tired."

Dr. Elizabeth Duarte

established the centro Vivir con Diabetes centre in Cochabamba in 2001. In 2004 the WDF granted support for the centre to be able to offer educational programmes to health care professionals, patients and their families. The focus has been on healthy living, proper diabetes care and psychological support. The initial support from WDF has enabled the centre to establish it self permanently.

Today the centre provides

primary and secondary diabetes care to almost 3,000 people. The centre employs a total of 22 staff. Bolivia has a diabetes prevalence of 5.1% and according to Elizabeth Duarte, Cochabamba in particular, has a prevalence of at least 9.4%.

Training basic educators

Recognising Centro Vivir con Diabetes as a strong and dedicated partner, the WDF is supporting a new project in the period from March 2005 to February 2007. The project seeks to improve diabetes health services by training basic diabetes educators throughout Bolivia. The goal is to train 360 educators during a two-year period, potentially reaching more than 350,000 people with diabetes and improving diabetes care outside the urban areas.



BREAKING THE BARRIERS

In an effort to reach the people at risk of developing diabetes, an educational project has been launched in Brazil with the purpose of disseminating knowledge amongst healthcare professionals and spreading awareness into every community. The largest country in South America and the fifth largest in the world, Brazil is home to 190 million people. Seven million of them have diabetes.

With the Amazon rainforest in the north and the open terrain of hills to the south, the geography of Brazil is diverse and so is the population. While wealth is seen in the large cities, 22% of the country's population is poor, living on less than two dollars a day.

"A common denominator for Brazilian society is the increase in unhealthy eating habits. This change over the last 20 years has made us more susceptible for developing diabetes. In the 1960s we were a big farming country; the typical dish in Brazil was rice, beans and eggs or meat and only a few of us had a car. Today 81% of Brazilians live in the cities and we have more people suffering from obesity than malnutrition," says Dr. Paulo Henrique Morales, ophthalmologist and project coordinator of the WDF-supported project in Brazil.

With a fairly strong economy, Brazil is prioritising healthcare; it is the only Latin American country that offers free healthcare for all. The growing burden of diabetes has been recognised, but a large group of the population is, however, not reached with the current system.

Reaching out to the uninsured

"There is a gap between the good intentions of the government and the actual situation for people with diabetes. Waiting for the right treatment is the main problem for the people with diabetes in Brazil, who depend solely on the assistance given by the Public Health Service as the majority do not have private health care insurance," says Professor Fadlo Fraige Filho from Associação Nacional de Assistência ao Diabético, the National Diabetes Association. "It takes six months on average to receive a medical consultation, which only lasts between 5 to 10 minutes because the health professionals taking care of the first-time visiting patients are unaware of diabetes and how to treat it."

To deal with these challenges, a project supported by the World Diabetes Foundation called Improving Diabetes Treatment, has been launched.

Training health care professionals

The project is an initiative of the National

Federation of Diabetes Associations and Entities (FENAD) which has joined forces with three other agencies including the two most important entities in the area of primary health care: the Ministry of Health and the National Council of Municipal Health Secretariats (CONASEMS). Both institutions are in a position to influence public policies at the community and national level.

"The main initiative to prevent diabetes complications is early diagnosis and appropriate treatment and referral. Diabetes prevention is possible only through effective measures in the control of obesity, together with healthy eating habits and combating sedentary lifestyles. Passing on this knowledge to the health care professionals is essential and is therefore a key element in the Brazilian project," says Professor Fadlo Fraige Filho, who is project responsible for the Improving Diabetes Treatment initiative.

Community-based health agents

The health professionals undergoing training will multiply the knowledge by educating appointed community health agents, who will be very important door-openers for reaching the people in areas like the favelas—the slum communities of Brazil.

Jussara Aperedá da Emiliano is in her mid-20s. A few years ago she felt that she desperately needed to get away from the closed community of her favela and the life associated with it. She wants to be a nurse. With the help of a local NGO she has found a way of qualifying for the education as a nurse, despite the lack of means. Today Jussara is a community health agent. Because of her background, she is accepted inside the favela, unlike other official persons. Bringing valuable information on health issues and diabetes to the people of the favelas, and keeping a record of each person with diabetes, she is the link between the individual and the local community health centre.

"People living in the favelas are not aware of the risk associated with untreated diabetes. I have seen a lot of bad diabetic foot and eye problems," she says. "The men are usually worse off, going to the doctor too late, and neglecting to



Health agents like Jussara are crucial in the effort to reach people with diabetes. She is welcome in a community where ignorance and poverty keeps people from leading a healthy life style and seeking medical attention.

In the long run, the project can have an immense effect on diabetes care in Brazil. The Ministry of Health intends to use this project upon successful completion as a pilot to be replicated on a national basis.

The project targets 51 medium-size cities. In each city, a 15-member multi-professional team will be trained in diabetes treatment and resource allocation. In 2006, six pilot cities were chosen, all in southeastern Brazil. By 2010, the project will have been rolled out to all of the 51 cities.



CAPACITY BUILDING IN SURINAME

With the prevalence increasing from 2% to an estimated 8-10% in just two years, diabetes has become one of the biggest health-related challenges in Suriname. To deal with the urgent shortage of health care capacity, a training programme for nurses has been launched to increase patient support and strengthen the capacity for diabetes prevention.

Situated on the northeast coast of the South American continent with Guyana to the west, French Guiana to the east, and Brazil to the south, Suriname with its 163,820 square kilometres, is the smallest nation on the continent. The population of 450,000 is a kaleidoscope of the country's historical influx of immigrants with the majority being of Asian descent. Asians' genetic predisposition to diabetes is at the root of the near-epidemic increase of diabetes in Suriname.

"Managing and preventing diabetic complications is a big problem when there is a shortage of health care personnel. Most people with diabetes do not know how to monitor their diabetes and therefore wait to seek medical help until they already have major complications—often at a stage when it is too late to treat," says Maureen Vreugd, co-ordinator of the nurse training programme that has been initiated by the COGESUR and Langerhans Foundation in close cooperation with the Suriname Ministry of Health and with support from the World Diabetes Foundation.

Diabetes leading cause of death

Diabetes-related conditions are among the top-five causes of death in the country and both chronic and non-communicable diseases receive equal priority from the Ministry of Health. The complications caused by diabetes garners special attention since a high percentage of people with diabetes undergo amputations as a result of late diagnosis and poor control. A report from 2000-2003 showed that there were 209 leg and thigh amputations in that period and that 61% of these were caused by diabetes. With a steadily rising prevalence of diabetes, there is good reason to believe that the number of amputations due to diabetes complications will also increase.

"Indians and migrant Asians from the Indian subcontinent have a greater genetic predisposition to diabetes resulting not only in an increased prevalence of diabetes in these populations but also in an earlier onset compared to other ethnic groups. The change towards a sedentary life-style and the unhealthy eating habits of urban life have made diabetes and its related conditions one of the biggest and most urgent health challenges

in Suriname," says Dr. Chander Mahabier of the COGESUR Foundation.

The training program is embedded in the Suriname institution responsible for central training of nurses called COVAB and is a specialised course for nurses and carers recruited from hospitals and the 45 hospital outpatient departments (polyclinics) in Suriname. A total of 60 nurses have been trained so far and an additional 60 carers will attend the course before the completion of the project. In the future, the training will continue as an integrated part of the COVAB training package.

"The nurses spend two weeks in school and then two weeks in clinics and at hospitals doing practical work presented as on-the-job-training. The course focuses on enhancing their skills within prevention and management of diabetes as well as on early detection of the condition and its complications. The attendees are also trained in educating people living with diabetes on how to detect symptoms and to provide a level of self care and when to seek help," says Jacintha Tjon Atsoi, director of COVAB.

Easing the burden

The trained nurses and carers are all guaranteed work after graduating from the course. Besides the immediate impact on the health care capacity, the programme is also expected to have a long-term positive effect on the national health budget as the cost-saving results of greater public information about diabetes and increased disease control start becoming evident.

"The training programme is a big success and now that we are close to having covered this most urgent need by easing the burden on the already overburdened doctors, other projects start materialising. Specialised care is almost non-existent in Suriname, so ideally we would be able to offer a second layer of education to the diabetes nurses enabling them to specialise within specific areas of diabetes care such as the diabetic foot, eye-care and preventive care," concludes Maureen Vreugd, coordinator of the Diabetes Nurse Education Programme.



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In the future, the training will continue as an integrated part of the COVAB training package.



BUILDING ON A SUCCESS

With the highest life expectancy in Latin America, Cuba stands apart from its neighbouring countries. In fact, Cubans can expect to reach an age similar to that of many developed countries, thanks to a well-functioning public health system. However, with an increasingly ageing population with 15% over the age of 60, Cuba has the demographic prerequisite for a growing disease burden from chronic diseases such as diabetes. A nation-wide network of diabetes centres is now being completed to meet this demand.

Diabetes is today the eighth most common cause of death in Cuba affecting more than 350,000 people or 4% of the population. That the figure is not higher is attributable to a National Diabetes Programme aimed at people with diabetes, health care providers and the general population which has been in existence for more than 30 years. The programme, which is run by the Ministry of Public Health, focuses on improving the quality of life for people with diabetes, enhancing the treatment skills of health care personnel and increasing public awareness of the condition.

The National Diabetes Programme was launched with the opening of a diabetes care centre at the National Institute of Endocrinology in Havana back in the 1970s—the first centre of its kind at that time in all of Latin America and today the national diabetes reference centre. Now with the help of the World Diabetes Foundation, a total of 10 centres will be established to face the growing burden of diabetes.

“The increasing prevalence of diabetes has intensified the need for access to diabetes care. Therefore it was decided to provide the rest of the country with similar diabetes centres and thereby complete the national network of Educational and Medical Care Centres for Diabetics (CAED). By establishing a nation-wide network of medical care centres for people with diabetes we will be able to implement a national standard of care and in doing so improve the quality of life for thousands of people,” says Dr. Regla Rodríguez Pujals of the Ministry of Public Health.

Modern diabetes care

To make this happen, collaboration has been initiated between the National Institute of Endocrinology, the German charity organisation Humanitäre Cuba Hilfe, Spain's Fundación para la Diabetes and the World Diabetes Foundation.

The centres will be placed near the local hospitals and are responsible for the education and training of healthcare providers associated with diabetes care and of patients visiting the centres. The training will improve knowledge and skills of healthcare providers with regards to treatment of diabetes and provide insight into the condition of people living with diabetes and their families. In five years

time, an estimated 168,400 people with diabetes are expected to benefit from the initiative. As part of the programme, the national reference centre in Havana will be modernised and extended with a foot clinic, physiotherapy and one laboratory. Moreover, 600 family doctors will also receive training in diabetes care enabling them to serve an additional 12,600 people with diabetes in their local communities each year.

The National Diabetes Programme has a clear ambition to increase public awareness about diabetes. This role in particular will be undertaken by the Educational and Medical Care Centres for Diabetics (CAED). The programme is expected to result in a reduction in hospital admissions for people with diabetes, and a 10% decrease in the complications caused by diabetes. If successful, this will eventually lead to improved quality of life for people with diabetes and a reduction in premature mortality caused by diabetes.

An integrated approach

Being an integral part of the existing National Diabetes Programme, the project has wide support from the Cuban authorities and is guaranteed long-term sustainability after the three-year funding ends. All operating costs are covered by the Ministry of Cuban Public Health.

“Five of the 10 new clinics are seeing patients now and with the completion of the national network of diabetes centres we will have established the necessary structural basis for the preventive work we wish to undertake as part of the National Diabetes Programme. We even see the CAEDs being used as an educational centre for medical students. Looking ahead, I see no reasons why the approach taken within diabetes could not be extended to include other non-communicable chronic diseases—in fact, many of these diseases are so interlinked that it calls for an integrated approach,” concludes Dr. Regla Rodríguez Pujals.

The diabetes centres complement the existing diabetes healthcare system in Cuba in which patients have access to family doctors and polyclinics as well as to the diabetes services at the hospitals in the major cities.





DREAMS DEFERRED - THE WOMAN WITH THE CANDY CART

The school children may not know her name, the woman with the wooden leg who arrives at their school every morning with her candy cart and sits there until the afternoon. For the children, it is a dream job, selling and eating candy all day. But 42-year-old Bertha Iriarte Munoz has no intention of tasting the goods she sells. Bertha has diabetes, a disease that in one sweep took her left foot and her dreams for the future.



In the afternoon Bertha Iriarte Munoz leaves the cart and stays inside her sister's small candy shop. Fearing that her artificial leg will break as it has done before, she rarely goes out. The leg cost her 700 USD, and earning between 10 and 15 USD each month selling candy to children in a

town in the Andes Mountains, she cannot afford yet another repair.

High risk at high costs

The Andean region of South America is experiencing an increasing rate of diabetes,

some cities having prevalence as high as 10%. There is an estimated 125 million adults between the ages of 45-64 in Latin America at risk of developing type 2 diabetes. Furthermore the Latin American region is expected to see an alarming number of more than 1 million new cases of type 2 diabetes per year.

In people with late diagnosed or poorly controlled diabetes, the risk of developing the diabetic foot is high due to the complications that occur. Reduced sensitivity in the foot (neuropathy) prevents the person from discovering an injury and poor blood circulation makes it difficult for the body to repair the damage. Ulceration and infection may develop and can lead to amputation of the foot or leg. Treatment of a diabetic foot can amount to very high costs for each person afflicted and for society as a whole.

The shocking news

Until 2002, Bertha worked as a maid, but the unexpected discovery of her diabetes changed her life. Visiting the hospital because of her difficulties standing on her left leg, she did not know what to expect. "I didn't feel any pain," she says, "but they told me my leg was rotten from inside." The condition in her feet was the result of a long period of undiscovered and untreated diabetes. She was shocked when she learnt that she had type 2 diabetes, and that one of her feet needed to be amputated.

"My world crumbled, and I felt all alone in this world," Bertha says, describing how she suddenly found herself handicapped and unable to hold a job. However, her sister stepped in, providing the life-saving support that eased Bertha's struggle to accept her new condition having only one foot and an expensive chronic disease to maintain.

Asked what the future may bring, she responds despondently, "This is my future," gesturing around the small candy shop.

Regional focus on feet

The factors leading to amputation in a person with diabetes such as ulceration, infection and gangrene can be largely avoided through patient education and self-care guidance. In March 2005 the Andean Vascular Axis project (Eje Vascular Andino, EVA) was initiated. The project is supported by the World Diabetes Foundation (WDF) and aims to decrease the prevalence of lower extremity amputations in people with diabetes as well as in people who already have neurological and vascular complications. The project is active in the five Latin American

countries of Bolivia, Colombia, Ecuador, Peru and Venezuela.

National committees in each of the five countries are responsible for implementation of the project in at least 10 primary care units in each country. All in all a total of 50 primary care units will be established in the region. At least 150 to 200 people will be trained within one year and the project hopes to reach 3,000 people in each country, amounting to a total of 15,000 people with diabetes in the Andean region.

A low-priority disease

"The main problem regarding diabetes in Peru is the lack of information provided to the patients. Due to the government's limited healthcare budget, diabetes is not considered a priority because it is a non-communicable disease and hence not given the importance it deserves. However, things are changing positively, so we are optimistic," says Martha Mora de García Belaunde, member of the EVA Peru team and responsible for the implementation and management of the project in Peru along with the endocrinologists Dr. Olga Nuñez and Dr. Segundo Seclén.

In September 2006, WDF Programme Coordinator Tilde Frøyr visited Martha Mora de García Belaunde and the EVA project in Peru. A visit to the Ministry of Health offered an opportunity for WDF, its partners and stakeholders to present the urgency of diabetes as a major health threat to senior officials from the Ministry of Health, and to emphasize the importance of prioritizing diabetes care.

"The meeting was very constructive," says Tilde Frøyr. "Dr. Arce, advisor to the Minister of Health, promised the support and collaboration of the Ministry of Health to the EVA project as well as to diabetes in general and it was agreed that a letter of commitment would be signed between representatives from the EVA project and the Ministry of Health for continued collaboration."

Martha Mora de García Belaunde has type 1 diabetes herself, and she knows how important it is to receive proper guidance. "The diabetes team must take the lead. It can give the patient moral support, diabetes education and medical guidance," she says. "Healthcare professionals need to be updated on diabetes care and be able to teach patients how to gain better control over their diabetes—for example, avoiding amputations by using simple but effective measures to take care of their feet."

According to the International Diabetes Federation (IDF), the treatment of the diabetic foot can reach 40% of the healthcare resources available for diabetes in developing countries. Given the Andean region's high prevalence of diabetes, the diabetic foot is a health issue that requires urgent attention.

The project consists of four components, which will be implemented in at least 10 primary care units (both public and private facilities) in each country as described below.

Training of health care providers in clinical evaluation and management of diabetic foot care. Each training session consists of 12 hours of theoretical and practical instruction.

Improved care delivery with at least one annual leg examination that follows a clinical protocol developed during the project.

Educating people with diabetes in self-examination of the feet, basic hygiene and selection of adequate footwear. The education will be delivered during collective training activities as well as individual counselling. Furthermore, education material will be distributed.

Strengthening of the referral system.



Impoverished communities are most vulnerable to diabetes and least equipped to seek care and prevent the onset of diabetes complications.



Childhood obesity is a worldwide phenomenon. Type 2 diabetes has begun to surface in children at alarming rates, in some countries representing up to 80% of all cases of diabetes in children.



Members of minority ethnic groups can have a two- to six-fold greater risk of developing diabetes. Differences can be explained by socio-economic status, living environment and access to services and an increased genetic susceptibility to diabetes.

ACTIVITIES 2006

GLOBAL

1 DIABETES ACTION NOW WDF02-028
A joint WHO/IDF programme for raising awareness of diabetes globally through increased advocacy and action

2 DIABETES ATLAS 3RD EDITION WDF04-084
An IDF initiative for raising awareness of the diabetes burden at national, regional and global levels

3 UN RESOLUTION ON DIABETES WDF05-155
Increasing awareness about the diabetes burden among United Nations (UN) and its member states and to declare a UN Resolution on Diabetes in 2007

4 WDF/IDF FELLOWSHIPS WDF02-042
Training of young health care professionals to disseminate knowledge and expertise in the area of diabetes

5 WDF/IDF FELLOWSHIPS II WDF02-042 -1
Training of young health care professionals to disseminate knowledge and expertise in the area of diabetes.

6 EAGLES WDF05-154
Diabetes Symposium held in Alexandria, Egypt

AFRICA

7 SUB-SAHARAN AFRICA WDF02-006
Diabetes education manual

8 SUB-SAHARAN AFRICA WDF02-007
Diabetes practice guidelines

9 NORTH AFRICA/MIDDLE EAST WDF06-184
Diabetes super course

10 WEST AFRICA WDF05-118
Training in diabetes care

11 BURUNDI WDF06-187
Improving access to diabetes care

12 CAMEROON WDF05-117
Cameroon burden of diabetes II

13 CAMEROON WDF06-177
Prevention and treatment of diabetic retinopathy

14 DEMOCRATIC REPUBLIC OF CONGO WDF05-128
Improving diabetes care

15 GHANA WDF05-104
Community diabetes care

16 KENYA WDF04-085
Diabetes education programme

17 MALI WDF04-074
Nutrition and diabetes

18 MALI WDF05-114
Training of health personnel

19 MOZAMBIQUE WDF04-066
Improving diabetes care

20 RWANDA WDF06-158
Training of health care providers and educators

21 SEYCHELLES WDF04-090
Improving access to diabetes care

22 SEYCHELLES WDF06-216
Clinical management of diabetes

23 SOUTH AFRICA WDF06-172
6Rcj ZUV_4 TR&Z_`WZSV&dZ_9:Gla`dZgVaV`aJV

24 SOUTH AFRICA WDF06-174
School-based intervention programme

25 SUDAN WDF03-061
Diabetes care

26 SUDAN WDF06-164
Mobile diabetes care delivery

27 SUDAN WDF06-167
Integrated management of diabetes in children

28 SUDAN WDF06-181
Diabetes care promotion

29 SUDAN WDF06-207
Gestational diabetes

30 TANZANIA WDF02-031
Improving access to diabetes care

31 TANZANIA/INDIA WDF03-056
Diabetes foot care - Step by Step

32 TANZANIA WDF03-058
Diabetes and hypertension

33 TANZANIA WDF05-102
Strengthening referral system

34 UGANDA WDF05-124
National diabetes prevalence study

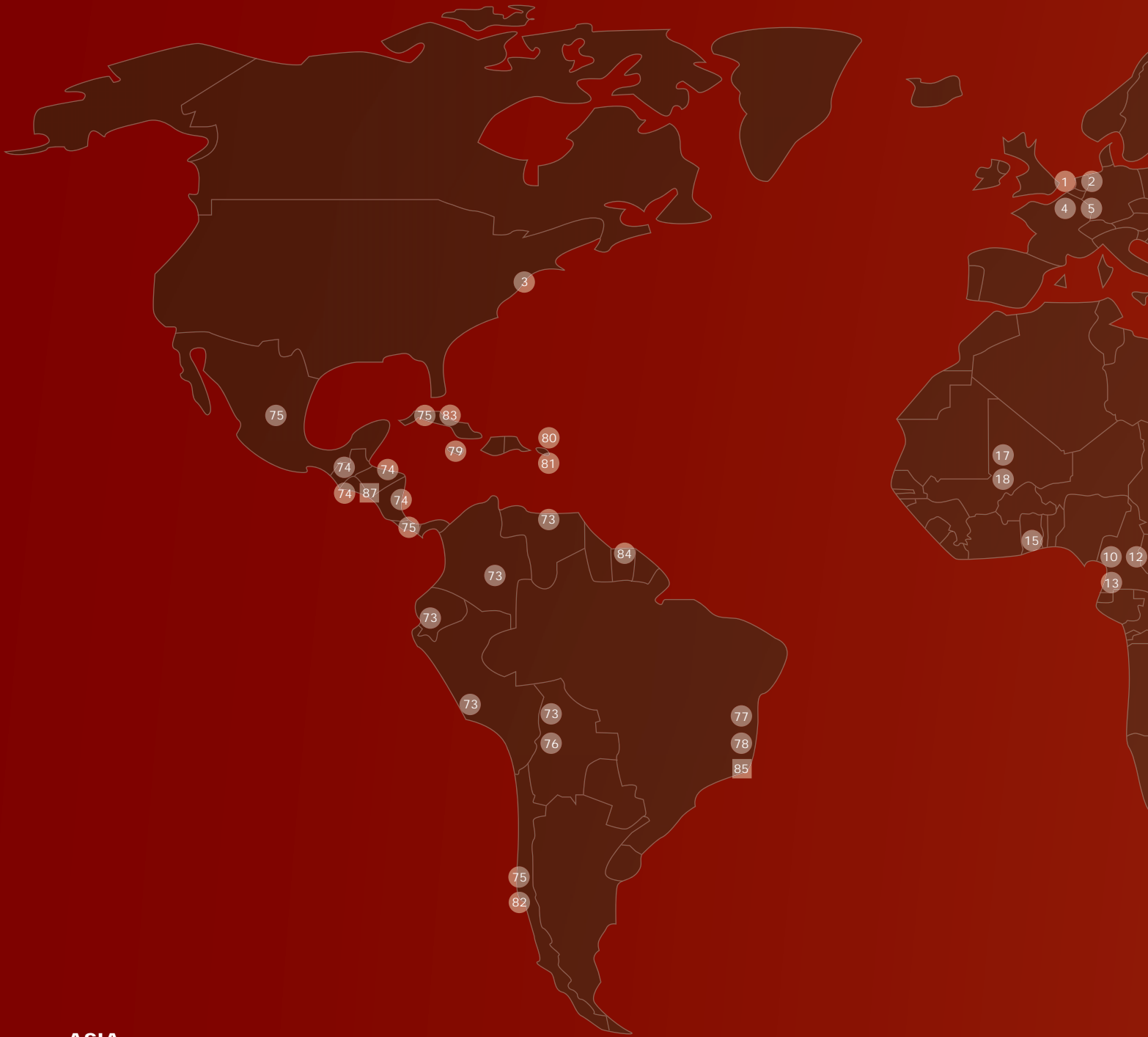
35 UGANDA WDF 06-180
Improving diabetes care in four districts

36 UGANDA WDF06-199
Improving diabetes care in ten districts

MIDDLE EAST

37 WEST BANK AND GAZA WDF06-170
Diabetes care and prevention

38 YEMEN WDF05-150
Centre for diabetes care and control



ASIA

39 AFGHANISTAN National diabetes programme	WDF04-080	45 CAMBODIA Model for diabetes services	WDF06-219
40 BANGLADESH Improving nutrition education	WDF05-131	46 CHINA National diabetes programme	WDF02-036
41 BANGLADESH Primary prevention of diabetes	WDF06-193	47 CHINA Diabetes prevention programme	WDF05-108
42 BHUTAN Diabetes health care services	WDF03-060	48 FIJI Save the diabetic foot	WDF06-178
43 CAMBODIA Improving diabetes care in Phnom Penh	WDF05-119	49 INDIA National diabetes programme	WDF03-052
44 CAMBODIA/VIETNAM Training of diabetes educators	WDF05-125	50 INDIA Urban diabetes prevention and control	WDF03-055



51 INDIA Rural and semi-urban diabetes prevention and control	WDF03-057	57 INDIA Preventing diabetes and its complications in rural areas	WDF05-115
52 INDIA Gestational diabetes	WDF04-067	58 INDIA Prevention of obesity and diabetes in school children	WDF05-120
53 INDIA Diabetes awareness camps	WDF04-078	59 INDIA Health promotion and diabetes prevention	WDF05-137
54 INDIA Diabetes eye care II	WDF04-079	60 INDIA Rural diabetic foot care	WDF05-142
55 INDIA Tele-screening for diabetic retinopathy	WDF04-091	61 INDIA Diabetes eye care III	WDF05-148
56 INDIA Mobile diabetic retinopathy treatment	WDF05-110	62 INDIA Diabetic retinopathy integrated programme	WDF06-163

63 **INDIA**
Community based diabetic retinopathy services

64 **INDIA**
Complications among pregnant women

65 **INDIA**
Rural diabetic retinopathy treatment

66 **INDONESIA**
Diabetes education and prevention

67 **INDONESIA**
Improving diabetes health care delivery

68 **NEPAL**
Diabetes education and prevention

69 **SRI LANKA**
Preventing diabetes and NCD's. Terminated in 2006

70 **TIBET**
Diabetes health care education

71 **VIETNAM**
National diabetes project

72 **WESTERN PACIFIC REGION**
Building capacity—reducing diabetes complications

LATIN AMERICA

73 **SOUTH AMERICA** WDF05-135
(BOLIVIA, PERU, ECUADOR, COLUMBIA AND VENEZUELA)
Prevention of foot complications

74 **CENTRAL AMERICA** WDF06-171
(EL SALVADOR, GUATAMALA, HONDURAS AND NICARAGUA)
Integrated chronic disease management model

75 **LATIN AMERICA** WDF06-215
(CHILE, COSTA RICA, CUBA AND MEXICO)
E-learning for health professionals

76 **BOLIVIA** WDF05-105
Training of basic diabetes educators

77 **BRAZIL** WDF05-132
Diabetes treatment and resource mobilization

78 **BRAZIL** WDF06-190
Save the diabetic foot

79 **THE CARIBBEAN** WDF03-045
Nutrition protocol

80 **THE CARIBBEAN** WDF05-126
Diabetes education programme

81 **THE CARIBBEAN** WDF05-139
School based intervention programme

WDF06-166 82 **CHILE** WDF06-168
E-access to diabetes education and information

WDF06-202 83 **CUBA** WDF02-020
Regional diabetes centres

WDF06-214 84 **SURINAME** WDF04-076
Training of diabetes nurses

WDF05-136

WDF06-173

WDF03-059

WDF04-089

WDF06-179

WDF02-013

WDF06-176

FUNDRAISING ACTIVITIES

DIABETES CLINICS

85 **BRAZIL** WDF-F05-013
Fighting diabetic retinopathy in Montes Claros

86 **CAMBODIA** WDF-F05-012
Diabetes centres

87 **EL SALVADOR** WDF-F04-007
Provision of diabetes services

88 **INDIA** WDF-F04-003
Foot care clinics

89 **PHILIPPINES** WDF-F04-008
Diabetes care resource centre

90 **SOUTH AFRICA** WDF-F06-014
Retinopathy screening clinic

91 **VIETNAM** WDF F02-011
Diabetes care

CHILDREN WITH DIABETES

92 **AFGHANISTAN** WDF-F05-010
Diabetes centre for children in Mazar-i-Sharif

93 **BANGLADESH** WDF-F03-001
Child sponsorship programme

94 **BANGLADESH** WDF-F03-001
Children's camps in Bangladesh

95 **TANZANIA** WDF-F03-002
Children with diabetes in Tanzania

The primary funds allocated to the fundraising activities are donated by Novo Nordisk management and through the 'Take Action' programme, an employee volunteer programme where employees raise funds by taking unique initiatives

For full details on the projects funded by the World Diabetes Foundation, please visit; www.worlddiabetesfoundation.org



In 1985 an estimated 30 million people worldwide had diabetes. Today diabetes afflicts more than 246 million people and this figure is expected to rise to almost 350 million by 2025. An estimated 80% of new cases will occur in the developing countries.



The increasing prevalence of obesity is a problem in the urban areas of the developing world. The development of type 2 diabetes is clearly linked to obesity, associated with changing dietary and lifestyle patterns.



The rise in type 2 diabetes mirrors the growth in urbanization and economic development, and may be due to mal-adaptation to a rapidly changing environment.



WHAT'S ON THE MENU?

Diabetes affects almost one in five people in the adult population in the English-speaking parts of the Caribbean. This has led to a significant increase in both morbidity and mortality. As most persons with diabetes in the Caribbean are also obese, nutrition plays a profound role in the management of diabetes. Due to the lack of a standardised approach to diabetes management, a regional project has been implemented to improve management of diabetes at the primary health care level and to reduce obesity through promotion of healthy nutrition.

Increased focus on diabetes over the last 10-15 years has ensured that amongst healthcare professionals in the Caribbean region there is a relatively high level of knowledge regarding the diagnosis and the treatment of diabetes, hypertension and obesity. What is required, though, is a uniform approach across the region dealing with the nutritional component of diabetes care, given the growing problem of obesity.

Once considered a problem only in high-income countries, overweight and obesity are now dramatically on the rise in low- and middle-income countries, particularly in urban settings,

As a result, the Caribbean Food and Nutrition Institute (CFNI) has initiated development of a protocol for nutritional management of diabetes with funds from the World Diabetes Foundation (WDF). The Nutritional Protocol project covers five of the poorest countries in the region, including Belize, Guyana, Jamaica, St. Vincent & the Grenadines and Suriname. As many people with diabetes in the Caribbean are also hypertensive, it was decided that the protocol should include a specific section on the nutritional management of hypertension.

Getting the message across

Lack of trained health care personnel was identified as one of the main problems in the nutritional management of diabetes. In response, CFNI teamed up with the Diabetes Association of the Caribbean to gain access to a broad range of caregivers in the individual countries.

“Based on a train-the-trainer principle, we have trained one national nutrition coordinator from each of the five countries and one diabetes educator from the five national diabetes associations to become trainers at a national level. This ensures

a competent distribution of the protocol in the five countries. Through the local training workshops, 349 nutrition-related healthcare workers have been introduced to the protocol,” says Dr. Fitzroy Henry, director of the Caribbean Food and Nutrition Institute.

Official endorsement

Although the project focuses specifically on the five countries, it is the ambition of CFNI that all 18 countries in the Caribbean, with a combined population of about six million people, will adopt the protocol and comply with its strategies. Already, four additional governments, including Montserrat, St. Kitts & Nevis, Turks and Caicos Islands, and Barbados have decided to implement the protocol and allocated funds for the necessary training of health care professionals in their respective countries.

The protocol has been endorsed by the Ministers of Health of the Caribbean Community (CARICOM). This will enable the protocol to be institutionalised as a regional reference guide for the nutritional management of diabetes, hypertension and obesity. By its focus on nutrition, the project addresses one of the key factors in the global increase in diabetes cases and will play an important role in the region's prevention and control of diabetes. Furthermore CARICOM has officially announced that diabetes is one of its priorities within the health sector.

“With the protocol, we hope to strengthen the region's ability to analyse, manage and prevent the key nutritional problems associated with diabetes and in doing so enhance the quality of life of the Caribbean people through the promotion of good nutrition and healthy lifestyles,” says Dr. Godfrey Xuereb, project manager at the Caribbean Food and Nutrition Institute.

Obesity among children and youth is a worldwide phenomenon.



Over one-fourth of all children worldwide now get more than one-fifth of their calories from confectionery and soft drinks.



A REGIONAL APPROACH

With projects ranging from e-learning for patients and health care professionals to an integrated model for chronic disease management, the Pan American Health Organization (PAHO) takes a leading role in improving care for diabetes and other chronic diseases across Latin America and the Caribbean. Currently, PAHO is either overseeing or actively contributing to a total of 11 diabetes-related projects in more than 20 countries across the Americas—most of them with a multi-country and multi-partner perspective.

PAHO's involvement in the Latin American countries is consistent with the Strategy and Plan of Action for an Integrated Prevention and Control of Chronic Diseases approved by the PAHO Directing Council in September 2006. A resolution of the 2006 PAHO Directing Council ratified the commitment of governments across the Americas to combat chronic diseases.

The South and Central American Region encompasses 22 countries and territories, most of which are low- and middle-income countries with emerging economies. It is estimated that 16.2 million people or 6.0% of the adult population have diabetes and by 2025, the number of people with diabetes will have more than doubled to 32.7 million.

“Already a vast majority of the people with diabetes live in the developing countries, putting an enormous pressure on individual societies. With the future increase in the number of diabetes cases expected largely to take place in the regions dominated by developing economies, we need a targeted effort now,” says Dr. Alberto Barceló of the Pan American Health Organization, the regional office of the World Health Organization.

Changing the picture

It is estimated that nearly one out of every three hospital bed-days in Latin America are occupied

for diabetes-related causes, with average annual costs of diabetes care (roughly USD 550 per capita), exceeding the per capita national health expenditures. In an effort to combat and improve control of diabetes in South and Central America, PAHO has initiated a number of projects aimed not only to provide access to professional care of diabetes and other chronic diseases, but to also leverage the countries' health care systems to proactively address the issues around prevention.

“It is a misunderstanding that chronic diseases cannot be prevented. Eighty percent of premature heart disease, stroke, and type 2 diabetes are preventable and 40% of cancer is preventable. The increase we experience in diabetes is very much driven by the adoption of habits that lead to obesity. By 2025 over 15 million deaths each year will be caused by chronic diseases linked to unhealthy diets—unless we challenge the trends that are currently setting the agenda,” says Dr. Alberto Barceló, who has been implementing



quality of care improvement strategies in Latin America and the Caribbean for many years.

Getting commitment

The development of an integrated chronic disease management model is one of the initiatives that PAHO has launched in response to the diabetes epidemic. The project is funded by the World Diabetes Foundation (WDF) and involves the four Central American countries, including El Salvador, Guatemala, Honduras, Nicaragua and their respective Ministries of Health, national diabetes associations and scientific societies.

Over a period of one year the project aims to improve the quality of diabetes care by developing and implementing evidence-based diabetes guidelines as well as a diabetes care improvement programme. A total of 150 health care providers will participate in an educational programme and 1,200 people with diabetes (300 per country) will participate in the quality improvement intervention through their attendance at selected intervention clinics.

“The partnership with the Ministries of Health in the four countries is important in order to ensure the project is sustainable and more importantly, to influence national health policies and health care systems. The immediate objective of the programme is to improve the quality of diabetes care among the 1,200 people attending the intervention programme. In the long term we wish

to use results from this intervention and influence policy to improve the quality of care of all people with diabetes in the region. However, to succeed on that score, it is important to have the commitment from the governments who can ensure the required continuity of the programme,” says Leif Fenger Jensen, vice chairman of the World Diabetes Foundation.

Standards for care

The evidence-based guidelines will provide a model for standards of care—initially in the participating clinics but ultimately throughout the four countries. Today there is a range of standards of clinical practice and thus many variations in the quality of care being provided to people with diabetes. The guidelines will define uniform standards of care and provide guidance on how to achieve these standards.

“PAHO and the World Diabetes Foundation have started a collaboration that will result in substantial improvements in the prevention and management of diabetes in the Americas. This partnership extends to governments and diabetes associations in the region. In addition, the creation of new initiatives will generate reliable information about the burden of diabetes. The dissemination of this information will substantially increase awareness about diabetes and its complications among the general public and especially among stakeholders at the country level,” concludes Dr. Alberto Barceló.





DEFYING THE ODDS

Years of conflict have paralysed the preventive and curative health services in Sudan and chronically obstructed the provision of humanitarian assistance to the affected populations. With armed conflicts and chronic instability, a growing number of refugees, and poor infrastructure, the conditions for improving care for diabetes in Sudan could not be more challenging. Nonetheless, a dedicated group of health professionals have set out to overcome those obstacles.

In 2003, conflicts in the western Darfur province of Sudan increased and have since developed into a humanitarian crisis of huge proportions. Although a peace agreement was signed in 2005, the area is still unstable and fighting continues.

Sudan is geographically the largest country in Africa, inhabited by more than 35 million people. The most common diseases in Sudan are malnutrition, anaemia, and infections such as malaria and gastroenteritis. At times of crisis, meagre healthcare resources are often directed at communicable diseases, with chronic diseases like diabetes receiving a low priority. Diabetes is, however, the most common non-communicable disease (NCD) in the country and the biggest killer amongst the NCD's, claiming 10% of deaths that occur at hospitals.

A costly affair

Diabetes in Sudan is associated with poor glycaemic control, a high prevalence of peripheral neuropathy, and a low quality of life, particularly concerning mobility.

"The reasons for poor metabolic control are not difficult to see. Drugs are extremely costly compared to income and the family usually covers 99% of the medical costs. Diabetes education for

doctors in medical schools varies considerably. In addition, nearly all qualified staff is working part time due to low or non-existent university or public hospital salaries," says Professor Mohammed Ali Eltom who is project responsible for the "Diabetes Care" project that has been initiated to leverage diabetes care in Sudan.

Government support

In spite of these challenges, the Sudanese government has declared that it will focus on diabetes and established a National Diabetes Programme in 2001. To complement this programme, the World Diabetes Foundation (WDF) is supporting the "Diabetes Care" project in Sudan. Since 2004 the key purpose of the project has been to improve the capacity of the public health care system by establishing a network of diabetes care facilities in northern and central Sudan.

The project works at several levels. It is establishing or enhancing existing care facilities



in four states. Furthermore it has provided diabetes teams with an extensive 12-week training programme in diabetes prevention and management. Each team consists of a general practitioner and a professional educator, working in a network of diabetes “mini-clinics.”

Finally, education and prevention among the population will be strengthened with the training of diabetes educators. A total of 25 diabetes mini-clinics have been established with the purpose of providing quality diabetes care for an estimated 800,000 people with diabetes in four of Sudan’s 26 states. Today, there are six mini-clinics in Geziera, six in the capital of Khartoum, three in the Northern State and ten in the River Nile State.

Admirable results

Tilde Frøyr, programme coordinator for the WDF, visited Sudan in May 2006. Her experience visiting this project in one of the world’s more troubled areas was positive: “The programme staff showed tremendous skills, stamina and dedication in getting the National Diabetes Programme up and running according to plan,” she explains. “Considering the political and economic situation in Sudan, it is admirable how much the team has achieved in the two-year project period.”

A key success factor is the authorities’ commitment to the programme. Dr. Samia Hassan, who is in charge of the daily operations of the project, has

secured the sustainability of the programme through negotiations with the Federal Ministry of Health as well as through liaising with various other partners to commit to this cause.

Many people with diabetes only see their doctor when complications have already occurred. By strengthening the healthcare capacity in Sudan, the goal is to increase the rate of early detection and prevent complications. A similar project will be implemented in 2007, replicating the current sustainable model in four additional states of Sudan.

OTHER SCHEDULED PROJECTS IN SUDAN:

Mobile diabetes care delivery

Preventing diabetes complications and hence reduce the cost of care by training health care personnel, establishing satellite diabetes units and developing appropriate referral system and patient registry.

Integrated management of diabetes in children

Improving care for children with diabetes through hospitals, schools and families by training and improving capacity in a paediatric hospital in Geziera State and training of teachers and mothers.

Gestational diabetes mellitus (GDM) project

Improve the health status of mothers with GDM and achieving healthy outcome of their pregnancy by establishing the first GDM clinic in Sudan in collaboration with UNFPA by the end of 2007.



Tilde Frøyr, programme coordinator for the World Diabetes Foundation



SAVING EYES IN INDIA

India has the world's largest population with diabetes—an estimated 40 million people. The majority is not even aware that they have diabetes and many discover it too late. Blindness is one of the consequences of this lack of awareness. Nine projects supported by the World Diabetes Foundation (WDF) in India seek to prevent unnecessary blindness due to diabetes.

India has one ophthalmologist per 100,000 people and this ratio is even more dismal in rural areas.

Diabetic retinopathy is amongst the six most common causes of blindness in India. It is estimated that approximately 25% of people with diabetes of more than 10 years' duration will develop retinopathy. This means that most people with diabetes will require consistent care to detect and treat diabetic retinopathy before it is too late. According to studies, timely treatment can prevent up to 60 to 70% of vision loss from diabetic retinopathy. Hence, screening of people with diabetes and training

of health care staff in management of diabetes and diabetic retinopathy are crucial for reducing blindness due to diabetes.

In India, as in many other parts of the world, wealth and resources are inequitably distributed. While 70% of the population lives in villages, about 80% of ophthalmologists practice in the cities. India has one ophthalmologist per 100,000 people and this ratio is even more dismal in rural areas.

Awareness, detection and treatment

The nine projects supported by WDF are located in semi-urban and rural districts in five different states; Karnataka, Kerala, Tamil Nadu, Andhra Pradesh and Madhya Pradesh covering a total population of 95.5 million people.

The projects mainly focus on an effective combination of awareness creation, community outreach, screening and tertiary care. Through awareness and screening camps, cases of diabetic retinopathy are discovered in people diagnosed with diabetes, but general screening for diabetes in the camps also detects new cases of diabetes. Awareness camps also spread knowledge about prevention of diabetes and educates people with diabetes about eye complications and how to prevent them.

Patients requiring advanced care are referred for laser photocoagulation, surgery and follow-up as required. The projects offer treatment free of cost for those unable to pay.

Massive outreach

A majority of the nine projects are in the first part of their project period. The earliest project has been operating for just three years and the latest is just starting. Yet all the projects already show impressive results. More than one million people have been reached by awareness and outreach activities so far. By 2010 the ongoing projects will reach an estimated 5.7 million people. A total of 225,000 people have been screened for diabetes, but the goal is to screen 1 million. Over 40,000 people diagnosed with diabetes and 150,000 have been examined during specified diabetic retinopathy screenings, a number expected to double at project completion. Over 5,000 cases of diabetic retinopathy have been detected and advanced sight-saving treatment has been provided for over 3,500 patients.

Specialists, doctors and health care professionals at all levels of care are educated in different aspects of treatment and education of patients. By now 1,500 healthcare professionals have received training through seminars or extensive courses, and the goal is to train 7,500. The camps detect not only retinopathy, but also cataract and glaucoma—two other conditions which people with diabetes are more prone to develop and which also cause unnecessary blindness. By educating doctors and healthcare professionals and conducting screening camps, thousands of cases of cataract have been detected and treated.

Using low - and high tech tools

General awareness is generated through posters,

pamphlets and door-to-door canvassing. All such activities help enlarge the net of potential visitors to the screening camps. Television and radio campaigns reach out among the poor and illiterate part of the population, providing education about diabetes and encouraging them to attend the free screening camps.

At the same time, the latest satellite technology is used to perform professional consultations and medical procedures even in remote areas, where no secondary and tertiary eye care services were previously available.

The project run by the Sankara Nethralaya Vision Research Foundation in the state of Karnataka effectively uses a combination of the latest gadgets as well as its grassroots link with the patients. As in the Aravind project, a fundus camera and mobile van with satellite connectivity to the base hospital is used to provide the images to the ophthalmologist stationed at the base hospital, which gives the diagnosis and advises patients on the next course of action.

The project run by Vittala International Institute of Ophthalmology (VIIO) uses a different mobile approach, offering advanced technology and a specially constructed vehicle, where delicate equipment can be transported into the rural areas offering screening and laser treatment on site.

Another project facilitated by the RR Lions Eye Hospital uses the standard approach of screening for diabetes and eye-related complications but at the same time also looks for other complications such as neuropathy, hypertension and heart disease thereby providing a more comprehensive screening programme.

Dr. Anil Kapur, managing director of the World Diabetes Foundation, has followed the retinopathy projects in India closely: "These projects all work on the principle that poor people may neither have the knowledge nor the means to go to hospitals for check up, thus by reaching out to the community, the most vulnerable sections of society get the opportunity to be screened for diabetes and one of its most serious complications," he says,

"At the same time the projects create awareness and knowledge about diabetes in the semi-urban and rural population, as well as help build capacity. As the projects all use local social service organisations and self-help groups to arrange these camps, it also helps build advocacy. These projects are a truly remarkable example of how the WDF projects are making a difference."

Mobile units are used in seven of the nine projects. Aravind Eye Hospital was the first project to introduce a mobile screening unit that uses a satellite connection to detect new cases of retinopathy.





DIABETES IN CHINA – DARK SIDE OF ECONOMIC BOOM

With the total number of people with diabetes reaching nearly 40 million, China is soon likely to face the largest diabetes population in the world. The extraordinary size of the problem is daunting. National interventions have now been initiated to meet the challenge, including collaboration on a National Diabetes Programme amongst the Chinese Ministry of Health, the World Diabetes Foundation and Novo Nordisk.

The number of people with diabetes in China is increasing very rapidly. Sedentary lifestyles coupled with an ever-increasing consumption of high-calorie, high-fat, processed food has triggered a rapid increase in the prevalence of obesity-driven diabetes and resulted in an expected 50% increase in the number of people suffering from diabetes within the next 20 years. Already diabetes represents a significant health burden on China. Within the health care system there is a severe deficiency in the number of qualified physicians capable of detecting and treating the growing number of people with diabetes.

In response, the Chinese Ministry of Health has taken the first step towards a standardised and complete diabetes prevention and treatment system with the launch of a National Diabetes Programme. The programme covers a population of approximately 500 million people and involves the development and dissemination of a National Diabetes Prevention and Treatment Guideline and establishment of an integrated Diabetes Management Model across different care levels.

Six pilot sites have been set up for the integrated model development. The work at these sites has identified certain issues that have hampered the further development of the integrated diabetes management model between the different levels of care. However, the process to date has created a constructive and on-going dialogue among the different levels and the need for policy discussion and communication among the various levels has been recognised. At the same time, substantial progress has been made towards improved prevention and treatment strategies:

“By utilising existing health care infrastructure and resources, the National Diabetes Programme aims to improve health care providers’ capabilities to prevent, detect, and treat diabetes. The programme will in other words optimise the functions and capabilities of existing hospitals and health centres to improve productivity and their ability to manage diabetes. A total of 8,500 physicians and nurses are expected to take part in the project and improve their diabetes knowledge and skills through training courses and on-the-job

learning,” says Dr. Zhou Jian, director for external relations and project management, International Health Exchange and Cooperation Center of the Chinese Ministry of Health.

Improving diagnosis

With the training of physicians and nurses and media campaigns to raise awareness, the National Diabetes Programme is expected to increase diagnosis by 2.5 million new cases per year. It is hoped that the majority of the estimated 20 million people with diabetes in the cities, towns and counties in China will be identified and treated within the next decade and that the prevalence and severity of diabetes complications will be significantly reduced. Already, 5,697 physicians and nurses from more than 300 counties have received training in the guidelines for prevention and treatment of diabetes, in less than half the time originally set aside for the training.

“With this programme we want a greater degree of self-care among people living with diabetes so that the number of disabling complications can be reduced. The entire Chinese society needs to be mobilised in an effort to improve care for those already affected by the disease and to raise the general awareness of diabetes and the risk factors associated with the condition,” says Dr. Anil Kapur, managing director of the World Diabetes Foundation.

Taking a holistic approach

The growth of the Chinese economy has raised the population’s quality of life and standards of living as a whole. But the dark side of the transformation from a traditional to a modern lifestyle is the increase in chronic diseases.

“If the current trends continue, diabetes will become a massive burden with an enormous impact on the Chinese society. It is a ticking bomb and calls for a joint effort, taking in all aspects of the condition. The multi-perspective thinking of the WDF has ensured a holistic approach to the programme. Their experiences in implementing similar programmes has leveraged the whole project and ensured that all the initiatives are part of a sustainability plan reaching beyond the project period,” concludes Dr. Zhou Jian.

The number of diabetes-related deaths in China has tripled in the last 15 years.

The World Health

Organization (WHO) estimates that diabetes, heart disease and stroke together will cost about USD 555.7 billion in lost national income in China over the next 10 years as a result of lost productivity from premature death.

Low diabetes awareness

among the general public is reflected in the low rates of diagnosis—only 10-15% percent of cases of type 2 diabetes in China are diagnosed. A recent study of the overall prevalence of diabetes in China showed a 50% higher prevalence in urban areas compared to rural areas. Only 25% of these cases had previously been diagnosed.

The National Diabetes

Programme is a key starting point in the national effort to improve diabetes management in China. After the five-year project period it is expected that the network of diabetes centres will continue to expand and be upgraded on a self-sustaining basis.



WDF DIABETES SUMMIT IN HANOI 2006

A recent summit in Hanoi, Vietnam drew attention to the rising prevalence of diabetes in the developing countries and stimulated discussion on strategies to reduce the socio-economic burden posed by the disease. The summit focused on Asia, which has four of the world's five largest populations with diabetes. It was the first of a series of regional initiatives bringing together international experts from the World Health Organization (WHO), International Diabetes Federation (IDF), Ministry of Health Vietnam and national health authorities and academics.

"The summit is of major significance, marking a milestone in efforts to develop effective strategies to meet the challenges posed by diabetes, which is predicted to be one of the major health crises of the 21st century. The brunt of the predicted rise will be in the developing countries. Already, in Vietnam, three out of every 100 adults are estimated to have diabetes. This alarming figure represents a doubling of the number in the last ten years, a pattern seen in many Asian countries.

This will not only have implications for the individuals concerned, but also for the overall socio-economic development of the countries concerned," said Dr Hans Troedsson, WHO representative in Vietnam, in his welcome address at the opening ceremony.

Pilots for a nationwide programme

The summit was launched with a press briefing attended by international media participants. This was followed by a field visit to one of the WDF-funded community-based pilot project sites. The National Diabetes Project, which involves 35 districts, 40 local centres and a population of around 1 million people, has been selected to test the programme ahead of the nationwide roll-out.

The project places a strong emphasis on prevention strategies and sustainable solutions to diabetes care, demonstrating the benefits of integrating support from multiple stakeholders at national and international levels. Based on the success of these projects, the WDF hopes to implement similar projects in the developing countries around the world.

"We are delighted to see the success of these initial community-based projects in Vietnam and believe they demonstrate the huge success that can be achieved by taking a community-based approach to diabetes prevention and care, and pooling the resources, skills and expertise of both national and international partners," said Professor Tran Thi Trung Chien, Minister of Health, Vietnam.

Prevention is key

The importance of a preventive approach is crucial in the developing world in order to avoid the huge social and economic impact of the predicted diabetes pandemic. The need is particularly strong in societies undergoing rapid economic transition, such as India, China and Vietnam.

The Western Pacific and South East Asia region represents over 60% of the world's diabetic population and the largest rise in diabetes incidence is likely to occur in economically productive age groups between the ages of 20 to 64.

"The world media is now waking up to the size of the problem," said Professor Paul Zimmet of the International Institute of Diabetes in his keynote lecture. "What AIDS was in the last 20 years of the 20th century, diabetes and its consequences will be in the first 20 years of this century. In Asia, acute problems such as bird flu and SARS, although undoubtedly serious, are nothing compared to the morbidity and mortality caused by diabetes."

Whereas diabetes is set to be one of the biggest catastrophes the world has seen, in 2002, only 3.5% of the total WHO budget of USD 43.6 million was spent on NCDs including diabetes.

Twenty-five media participants representing China, India, Malaysia, Indonesia, Singapore, Philippines, Vietnam, UK, Germany and France also attended the summit and participated in the field visit to spur local, regional and global advocacy and awareness of diabetes. Several articles featuring diabetes appeared in the national, regional and global media following the summit, thus helping raise awareness of the problem.

The next WDF regional summit is planned to take place in Kenya in 2007. The summit will focus on preventive strategies and sustainable solutions for diabetes care. Policy makers, key influencers and funding bodies will share ideas on how to prioritise and implement diabetes prevention and care strategies.

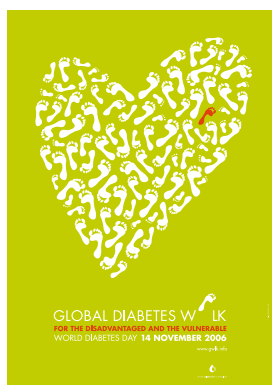


The summit, which took place February 21-23 2006, was hosted by the World Diabetes Foundation (WDF), the Ministry of Health in Vietnam and the Western Pacific Declaration on Diabetes, which includes the Secretariat of the Pacific Community (SPC), International Diabetes Federation (IDF) and World Health Organization (WHO). Many prominent guests were present at the opening ceremony which included the Minister of Health Vietnam, Danish Ambassador to Vietnam, a representative from the Asian Development Bank, WHO NCD (non-communicable disease) advisors from Western Pacific and South East Asia regional offices. Furthermore the WHO Representative in Vietnam, President and President elect of IDF and several representatives of IDF Western Pacific region and WDF project partners took part in the summit.



GLOBAL DIABETES WALK 2006

This year on World Diabetes Day, 180,000 people from 60 different countries on seven continents walked together to help raise awareness about diabetes. The message was clear: 30 minutes of walking five days a week is enough to change unhealthy trends and prevent diabetes.



About 1.6 billion people in the world are overweight or obese, compared to 850 million who are underweight. By 2015, it is estimated that 2.3 billion adults will be overweight and more than 700 million will be obese. Worldwide, an estimated 10% of children are overweight or obese.

By taking part in the Global Diabetes Walk, everyone has the opportunity to raise awareness about the need for worldwide action for the many disadvantaged and vulnerable population groups with diabetes. At the same time it directs attention to a low-cost physical activity so essential for health which can help prevent type 2 diabetes as well as many other non communicable diseases.

The World Diabetes Foundation (WDF) initiated the Global Diabetes Walk with support from Novo Nordisk to encourage people all over the world to make positive changes in lifestyles characterized by unhealthy diets and lack of exercise.

Breaking our own record

In 2005 the Global Diabetes Walk mobilized 90,000 participants. This year the global Diabetes Walk consisted of 471 individually organised walks taking place in 60 different countries worldwide. Thanks to the impressive support from people all over the world, the 2006 walk was the biggest ever in the history of the WDF.

Special thanks are due to Novo Nordisk employees who were responsible for nearly 200 walks, mobilising a huge number of participants through their affiliates and in collaboration with local

diabetes associations around the world. The largest walk was in Mumbai, India, where 30,000 people took to the streets. The smallest walks were individuals in many countries, especially Japan. A mother and daughter walked together in cold New York while on the other side of the globe a mother and her daughter walked in the tropical sunshine of Guam.

In the UK, a school dedicated a day to healthy living and diabetes awareness. The children were given a series of presentations before joining in the walk. At the same time, an international school in Denmark held a "miniature" Global Diabetes Walk with children from many nations making healthy lunches before walking together. There was a tremendous response from Asia. WDF project partners in China, India and Indonesia mobilised over 60,000 walkers. In Afghanistan, hundreds of walkers took part to show that people need access to diabetes care every day of the year wherever they may live.

The International Diabetes Federation (IDF) and its member associations registered 17 walks with more than 3,000 participants. The pharmaceutical company Merck in the US participated with 600 employees and Roche Pharmaceuticals and



employees from Sweden joined the walk with 1,000 participants to support the Global Diabetes Walk 2006. India Times, an Internet news portal of the Times of India Group, motivated 3,600 people to walk.

“In November 2006 we had more than 900,000 hits on the Global Diabetes Walk website,” says Gary Abram, WDF coordinator of the walk, “The normal traffic is around 30,000 per month. “The Global Diabetes Walk is unique because it doesn’t matter where you are or how many people walk with you—you can still make a difference on a global scale. The important thing is taking part. One thing is for sure, even if you walk alone you will be walking with thousands of others around the world,” explains Gary Abram.

Walking to secure a UN Resolution

The WDF was amongst the first partners to support and endorse the IDF’s ‘Unite for Diabetes’ campaign aiming for a United Nations Resolution on diabetes. In December 2006, only six months after the ‘Unite for Diabetes’ campaign was launched, the General Assembly of the United Nations adopted the resolution. World Diabetes Day, 14 November, will be designated as an official UN-observed day, starting in 2007.

“The real beneficiaries of the Resolution will be people living with diabetes, their families and many more at risk. Passing the UN Resolution, while monumental for the diabetes world, is just the first step. A phase will now begin to celebrate the passage of the Resolution and mark the first UN-observed World Diabetes Day on November

14, 2007. It is IDF’s goal to reach one billion people with awareness messages about diabetes care and prevention,” says Professor Martin Silink, president of IDF and leader of the ‘Unite for Diabetes’ campaign, who joined the Global Diabetes Walk on World Diabetes Day in Melbourne, Australia.

Important outreach

The Global Diabetes Walk is an important global activity that raises awareness and promote advocacy. Volunteers from all over the world devote their time and energy to raise awareness about the struggle that people with diabetes must endure in their daily lives, especially in the developing world, where very little attention is paid to non-communicable diseases.

“People from various walks of life, backgrounds and motivations—local diabetes associations, the pharmaceutical industry, WDF projects partners, and thousands of ordinary people around the world—all walked united to spread the message of diabetes across the world and showed their support for a UN Resolution on Diabetes,” says Dr. Anil Kapur, managing director of the World Diabetes Foundation. “I joined one of the 39 walks organised in Indonesia. It was fun to be part of the enthusiasm and excitement as well as follow the subsequent media coverage of the walk in the local papers and news channels. The walk is an event that attracts the attention of the media and therefore carries the message to millions—many more than the thousands that actually walk”.

Global Diabetes Walk in Indonesia



WDF project partners in China, India and Indonesia mobilised over 60,000 walkers



TAKING ACTION IN BANGLADESH

More than 80% of the population in Bangladesh lives on less than 2 USD a day, making even basic medical care unaffordable. Now a Novo Nordisk fundraising project in Bangladesh is helping children with type 1 diabetes receive the medical care and attention they need.

The project in Bangladesh is an initiative supported with funds individually donated by Novo Nordisk employees and carried out by BIRDEM (Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorder). BIRDEM is the largest enterprise of the Diabetic Association of Bangladesh and is the WHO collaborating centre for prevention and control of diabetes.

The project has until now focused on providing poor children with type 1 diabetes—registered at BIRDEM—with basic medical care, insulin, syringes and blood sugar measurement devices free of cost. These are basic materials normally out of reach for most families in Bangladesh.

“The burden of diabetes is on the rise here as everywhere else. It is estimated that almost three million people have diabetes in Bangladesh and few of them receive optimum medical care. Having a child diagnosed with diabetes can place an overwhelming burden on a family—both financially and resource wise. Most of them have never heard of diabetes before and are unfamiliar with the level of care demanded by this type of disease,” says Dr. Kishwar Azad, Professor of Paediatrics at BIRDEM.

Saving the coming generation

Bangladesh is one of the poorest countries in the world. Most families cannot afford to pay for the medicine and materials required for treatment, leaving them with no option but to neglect treatment. The programme has until now sponsored 60 children. The aim is to have more children enrolled in the programme, and to extend the scope to include regular monitoring of glycaemic control by HBA1c, in addition to providing insulin and syringes free of cost.

“The awareness of diabetes and the implications of not treating the condition is very poor among the people of Bangladesh. Therefore seeing the children responding to the treatment and discussing their problems and sharing their thoughts with each other and their families has been a major achievement and an inspiration for us working on this programme,” says Dr. Zabeen Bedowra of the Department of Paediatrics and Neonatology at BIRDEM.

To live with diabetes

Inspired by the children’s capabilities to express what it feels like to live with diabetes, Dr. Zabeen Bedowra together with the World Diabetes Foundation developed the idea of having the children express their feelings through paintings. With help from a local artist and the Novo Nordisk office in Bangladesh, Dr. Zabeen Bedowra invited the children enrolled in the project to an art session at the Institute of Fine Arts on the occasion of World Diabetes Day 2006.

“It was amazing to see their enthusiasm. With the instructions from the artist, the children started drawing as if they had done little else all their lives. Most of them come from impoverished backgrounds and several of them do not even attend schools. But the stories they were able to convey through their paintings clearly showed us the impact diabetes has on their lives. You could tell that what they expressed came directly from the heart,” says Dr. Zabeen Bedowra.

The drawings will be used as a tool for encouraging a dialogue to improve diabetes care for children. The drawings will also be used to raise awareness of the increasing prevalence of diabetes amongst children in developing countries and the vital need for preventive and care initiatives.

Making a difference

The funds used in the project are the result of the Novo Nordisk ‘Take Action’ programme, an employee volunteer programme where employees raise funds by taking unique initiatives or donate a monthly amount from their pay check to support specific projects.

“It is an opportunity for the individual employee to get involved in the social community work that we as a company find increasingly important to support. It also reflects our pledge as a market leader to change diabetes by demonstrating corporate social responsibility. The Take Action programme is very popular. People have seen that by taking action they can truly make a difference, such as in supporting the children in Bangladesh with medicine and basic materials that would otherwise be out of their reach,” says Lise Kingo, executive vice president, Novo Nordisk A/S.



The continued interest in donating money to the project has enabled BIRDEM and its partners to prolong the project for an additional three- years. With only 10% of the population having an income that enables them to afford healthcare and medication, the project is truly making a difference for the families and their children.





"I get frightened when I take insulin"
Rumma - 15 years old



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"It hurts when my friends leave me alone and go playing by themselves"
Amny - 15 years old



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WDF supports children with type 1 diabetes in Bangladesh and Tanzania.
Read more about how you can make a difference.
www.worlddiabetesfoundation.org

Four horizontal lines for writing.



"Insulin gives me hope to live"
Al Amin - 13 years old



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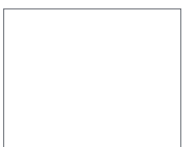
"I want an alternative treatment"
Shajila - 15 years old



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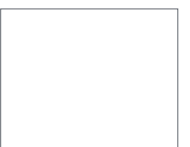
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WORLD **DIABETES** FOUNDATION

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The World Diabetes Foundation
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prevention and treatment of diabetes
in the developing world

The World Diabetes Foundation
creates partnerships and acts as a
catalyst to help others do more

The World Diabetes Foundation
strives to educate and advocate
globally in an effort to create
awareness, care and relief to those
impacted by the disease



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