The diabetic foot is one of the most serious disabling complications caused by diabetes. Figures show that more than one million amputations are conducted every year. And up to 85% of these amputations are preventable. It is estimated that up to 70% of all lower limb amputations are related to diabetes.

Most studies estimate the incidence of lower leg amputation at 5.25/1.000 inhabitants/year, among people with diabetes. The figure is 6.8/1.000.
FOCUS ON AFRICA

The African countries carry an almost unbearable double disease burden. Infectious diseases such as HIV/AIDS, tuberculosis and malaria are ravaging the continent and are without doubt the biggest and fastest killers in that part of the world. However, what is even more disturbing is the fact that HIV/AIDS and diabetes are proving to have connections hitherto not widely known.

It is estimated that 13.6 million people suffer from diabetes in Africa. This number is expected to almost double in the next 25 years, to approximately 27 million people (IDF). But even if these numbers seem alarming they fade in comparison with the figures for AIDS and malaria. It is not surprising then that local governments in Africa focus their resources on the biggest killers. This leaves only scant resources to fight the chronic diseases that are rapidly gaining ground.

It is estimated that African countries use less than ten percent of their public health budgets on the prevention and treatment of non-communicable diseases. According to Dr. Kaushik Ramaya, who is responsible for several WDF projects in Tanzania, the amount is insufficient. “Health policy decision makers in third world countries are so preoccupied with infectious diseases such as HIV/AIDS, tuberculosis and malaria that they tend to forget non-communicable diseases. They are probably not aware that these are life-long conditions which cause huge economic burdens on individuals, families and society,” he says.

This is precisely what WDF is committed to change. It is crucial that patients and doctors, as well as local health care authorities and national governments are given sufficient information for them to take action and make the right decisions in due time to prevent chronic lifestyle diseases such as diabetes from spreading further.

They must realise that diabetes is not merely high levels of blood sugar; patients can go blind from undiagnosed retinopathy, risk amputation of a foot or leg or suffer renal failure, heart disease or be paralysed by a stroke - all consequences of an untreated or poorly managed condition. People with diabetes can suffer from most of these complications for years before eventually dying.

The growing proportion of children and young adults with diabetes represents a severe problem. Although diabetes can be well controlled, having to live with the disease for 50-60 years instead of 20 can significantly increase the risk of diabetes-related complications occurring at a relatively young age. Complications such as nephropathy and retinopathy have been reported as early as five years after diagnosis among young people with type 2 diabetes.

The lethal connection

Studies show that metabolic complications, including diabetes mellitus, are seen more often among HIV-infected people. Additionally, those undergoing treatment with anti-retroviral drugs appear to have a five-fold increased risk of developing diabetes. This link is lethal and needs serious attention. Already, HIV patients on anti-retroviral treatment live longer and will bear the devastating double disease burden. In addition, those with both HIV/AIDS and diabetes have an increased risk of acquiring tuberculosis - often the multiple drug-resistant varieties.

“People with HIV/AIDS who have been on anti-retroviral therapy tend to develop diabetes, hypertension, dyslipidaemia, obesity and metabolic syndrome much more frequently than those who are not on anti-retroviral therapy. Governments in developing countries who are already facing a challenge in managing HIV/AIDS, tuberculosis and malaria will be quite unable to manage emerging non-communicable diseases if they do not initiate primary prevention programs now involving all the different stakeholders,” Dr. Ramaya explains. “Therefore, to really relieve the double disease burden, governments in Africa need to develop more comprehensive and appropriately balanced and focused prevention and management strategies encompassing both communicable and chronic non-communicable diseases. Totally neglecting one in favour of the other may have disastrous consequences,” says Prof. Ib Bygbjerg an internationally recognised public health expert from the Panum Institute in Denmark and a member of the board of directors of WDF.

The critical situation in Africa was one of the reasons for the creation of the WDF. “We created the Foundation to lift our responsibility as a global leader in diabetes care by funding projects aimed at increasing awareness of the diabetes epidemic, by acting as a catalyst assisting local authorities and NGOs in the dissemination of best practices, by building capacity and by acting as an advocate for people with diabetes and those who care for them.” says Lars Rebien Sørensen, President and CEO of Novo Nordisk.

Africa is the main focus of this Annual Report and in the following pages you will be introduced to some of the many important projects that WDF supports on the African continent. However, the commitment and engagement of the foundation is just as great and comprehensive in the rest of the developing world.
Soon after its founding in the year 2002, the WDF decided to focus its attention on four areas within the field of diabetes by preferentially and sometimes proactively seeking and supporting projects in the area of “the diabetic foot,” “eye care,” “children with diabetes” and “women, pregnancy and diabetes.”

Diabetes foot and eye care address the most neglected, and socio-economically the most devastating and challenging problems related to diabetes in the developing world. Similarly, the lack of attention to children with diabetes and to issues related to women with diabetes and gestational diabetes are included as WDF focus areas to proactively support these critical areas in countries with high prevalence and poor infrastructure. Based on an extensive evaluation of ongoing projects, the board of directors realised that the existing focus areas do not deal sufficiently with the urgent need to create programs for the primary prevention of diabetes. Therefore, a fifth focus area has been introduced: The Coming Generation.

Primary prevention

There is increasing evidence to support the idea that people at risk of diabetes can prevent or delay its onset by making appropriate lifestyle changes. It is also well known that it is very difficult to change habits and lifestyles once acquired. Therefore if we are to succeed in our efforts to stem the rising burden of diabetes, obesity, hypertension, dyslipidemia and heart disease, we must ensure that the future generation learns to live healthily. In focusing on The Coming Generation, the WDF will promote the cause of primary prevention by supporting and proactively seeking projects that target health promotion for the general population, and particularly for school children, by informing them of the risk of unhealthy lifestyles.

Consequently, the Foundation aims to include primary prevention in all of its projects addressing children, youngsters and adults who have not yet developed diabetes and inform them about risk factors and a healthy lifestyle.

The Foundation considers this fifth focus area to be of vital importance for the prevention of diabetes in developing countries. The developing world in general is undergoing significant socio-economic changes that strongly increase the risk of developing the condition. Factors such as obesity, tobacco consumption and physical inactivity are rapidly gaining ground. They are no longer the preserve of the western world and they need to be addressed now for the benefit of the new generation.
LONG TERM COMMITMENT

There are currently 194 million people with diabetes in the world. This figure is expected to increase to 333 million by 2025 corresponding to more than 19,000 new patients every day for the next 20 years. As much as the WDF and many other organisations working in the area wish to put an instant stop to this epidemic, the Foundation realises that this requires a broad long-term perspective and consistent collaborative work. For when it comes to diabetes there are no quick fixes and the situation will probably get worse before it gets better.

Such are the challenges we face each day in our work at the Foundation. It is therefore important that we understand, respect and use local knowledge to our advantage. By identifying local champions and building project-based professional relationships we ensure that we remain on track with our projects. To us, that is the only valid and efficient way to secure genuine sustainability and to achieve the desired results on a long term basis.

Diabetes is a slow chronic condition that often takes years to develop. Causes of the condition are many and varied but for the main part they can be traced back to an unhealthy lifestyle. And this is where the long-term commitment begins. There is no fast cure available, no healing pill to relieve the problem. Whole lifestyles, attitudes and risk behaviours must be changed to control the rising prevalence of diabetes and therefore many factors other than just the disease itself must be addressed.

Unhealthy nutrition, physical inactivity and obesity are the key risk factors for diabetes and these are often deeply rooted in cultural values and social norms. It takes time and patience for individuals to bring about changes in such long-established behaviours and they very often cannot do it alone. It requires the right supportive and enabling environment where entire communities support and encourage healthy living and fundamental lifestyle changes therefore call for a significant shift in the cultural values and norms of society as a whole. It is a challenging task that is further complicated in countries where existing resources are scarce, infrastructure weak and education levels low as is the case in many parts of the developing world where the Foundation operates.

As of now, the WDF supports 57 projects in more than 65 countries in the developing world and as ever before the Foundation takes into account the overall context of diabetes; be it in Africa, Asia or South America. The work of the Foundation is estimated to have a direct impact on 24 million people and we will continue to improve and target our efforts even better in the years to come.

A catalyst for aid
The need for initiatives to improve access to diabetes care was present years before the WDF was established. The IDF and other organizations struggled to bring attention to these needs but the efforts were scattered and funding was limited. Since 2002 the World Diabetes Foundation has acted as a catalyst, creating partnerships in the developing world by encouraging and helping many local champions do more for people with diabetes in their communities. We have raised awareness of the problem amongst the various stakeholders including national governments in the developing world as well as the general public in the developed world through fund raising and other events; but more importantly the Foundation has created a sense of urgency, support and hope for millions of people with diabetes.

Leif Fenger Jensen
Managing Director
World Diabetes Foundation
Ally’s life with diabetes started ten years ago in 1995. Subsequent to his diagnosis, he received easily recognisable warning signs that, if acted upon, could have prevented his legs from being amputated. Sadly, like many other people with diabetes in Tanzania, he was not educated about his own disease.

In 1995, after having the typical symptoms of tiredness, thirst and frequent urination, Ally went to the local dispensary, when he could no longer bear the symptoms. At the dispensary they measured his blood sugar and gave him tablets as well as advising him on a diet. Ally has never been able to maintain the healthy diet and exercise regime that would benefit his condition. Today, like any other day, he eats “uwele,” a thin porridge, accompanied by slices of bread. For lunch and dinner he takes more starch; “Ugali” porridge is consumed together with fish, meat or vegetables.

Education about diabetes has never been part of the treatment Ally was provided locally. In 1998 he even stopped taking the tablets, which evidently led to infection in one of his hands. He was treated at the local dispensary and advised to go back on tablets. When the hand healed Ally stopped taking the tablets. Lack of information led to a second admission in 2002, where another hand infection put Ally back on medication. Again he stopped when the hand healed. The third time he ran out of luck.

In October 2005, after a month enduring leg pains induced by an infected toe, he was finally admitted to Muhimbili Hospital, one of the largest hospitals in Dar es Salaam. The doctors hoped to save his right leg by amputating two toes, but the infection had already spread, and his leg was amputated below the knee. During his admission, a burning sensation warned the doctors of complications in the left leg. Unfortunately, years of poorly controlled diabetes had left his body unable to fight back and his left leg was also amputated.

Today every day is a challenge. Until his amputation he lived by selling roasted meat on sticks, and bananas from a small store in front of his house. He is afraid that he will no longer be able to continue. His wife Ininga is the second of his two wives. Unlike his other wife she has taken it upon herself to take care of him. A lot of neighbours have come by to give moral support, while the family has been helping them by buying food and medicine.

It is hard to accept this story because Ally’s fate is preventable. Both diagnosed patients and health care personnel need to be educated to look for the early signs of complications. Today 33% of patients admitted for diabetic foot ulcers undergo amputation, with a 54% mortality rate in patients who present themselves late.

The World Diabetes Foundation hopes to be able to influence these statistics, by supporting the “Step-by Step” project, running as a cooperation between India and Tanzania, in which foot complications are equally severe problems.
screened since the program began one year ago. All people with diabetes whose feet were examined received patient education. Thus about 35,000 to 40,000 people with diabetes are likely to have received preventive foot care education; among these about 12,500–15,000 people with high risk diabetes feet were identified and given extra attention and education. About 3,500–4,000 people with problems such as ulcers, callus and minor and major infections received appropriate care. Another major achievement is that in these big or small practices, in small towns in India where so much services have previously existed the beginnings of diabetes foot care clinics has been initiated. The enthusiasm of the participants to do even better in the future was amazing and many showed commitment to roll out the education to others in the region using the excellent training material and patient education aids that have been developed under the program” says Dr Anil Kapur Vice Chairman of WDF enthusiastically, after attending the concluding advanced course in Mumbai in September 2005.

The “Step by Step” approach is based on the fact that diabetes related amputations are to a large extent preventable when simple measures are applied. Evidence shows that amputation rates can be reduced by 49–85% if strategies for preventing and treating diabetic foot lesions are implemented. By using relatively simple steps systematically, diabetic foot complications may be significantly reduced.

**AIMS OF STEP BY STEP FOOT PROJECT**

- To create more awareness of diabetic foot problems in India and Tanzania (possibly other developing countries)
- To provide sustainable training of healthcare professionals in the management of the diabetic foot
- To reduce the risk of lower limb complications in people with diabetes
- To facilitate the transfer of information from healthcare professionals who have undergone training to other healthcare professionals as one means of exporting expertise
- To empower people with diabetes to take better care of their feet, detect problems earlier, and seek timely help when problems arise

**OTHER WDF PROJECTS IN AFRICA**

Diabetes is widely considered a disease of the affluent, but a growing awareness of the disease is spreading among African governments not least because of a number of important projects supported by the WDF including:

- In Tanzania, more than 3,500 people with diabetes have been diagnosed and treated as a result of 23 clinics established to improve the access to and quality of diabetes care
- In Sudan, the education of health personnel and the establishment of clinics is estimated to give 90,000 people access to good diabetes care
- In Rwanda, 28 paramedics have been trained in diabetes diagnosis, treatment and prevention
- In the Seychelles, the aim is to improve access to diabetes care for 100,000 people through the establishment of 4 regional diabetes clinics
- In Kenya, the expected impact of training more than 20,000 people in the health care sector will be that 250,000 people with diabetes will receive diabetes education each year, and 5 million people without diabetes will be informed and educated about risk factors and healthy lifestyles in an effort to prevent them from developing diabetes
- In Ghana, 20 diabetes care centres will be established at the community level exposing some one million people to awareness and providing care for thousands of people with diabetes

Thirty participants selected in 2004 were represented for the step by step project in 15 teams from 14 regions of Tanzania; each team consisted of one doctor and one nurse. Two teams represented two districts from one region of Dar es Salaam; three teams from three regions of Zanzibar; and one team from each of ten other regions
In the course of five intensive days during the summer of 2005, 28 nurses from all over Rwanda were trained in the diagnosis, treatment and prevention of diabetes. The objective was to increase the level of knowledge about diabetes in general, and for each of the trained nurses to be capable of communicating this knowledge to other health care professionals in their local regions, thus improving the overall prevention and treatment of diabetes across the country.

“This first training step has proven very successful. Before we started, diabetes treatment was practically non-existent at a national level because only very few professionals had the necessary knowledge. Now we have 1-2 nurses in each of the 12 regions who know how to treat and prevent the disease properly. The aim is that they share this new knowledge with their fellow nurses in order to leverage the training as much as possible,” says Mr. André Hervouet from the French Diabetes Association FDA - the French counterpart in the project.

“The project enjoyed an exceptionally high level of involvement from the Rwandan government. The health authorities sponsored the initial steps of the project and part of the training took place at the Ministry of Health. Most importantly, though, diabetes has now become a government focus area together with AIDS, tuberculosis and malaria,” Mr. Hervouet added.

In order to ensure the sustainability of the project, the Rwandan and French Diabetes Associations will keep track of the trained staff. The objective is to involve the staff in compiling records of diabetes cases, how they were treated and how they evolved. This data will be centralised at a professional clinic managed by the Rwandan Diabetes Association and serve as basis for a valid assessment of the national diabetes situation in the country.

“At this point no one knows exactly how many people in the country suffer from diabetes, how many people are in need of treatment or how many people are in danger of developing the disease. Rwanda has gone through some terrible ordeals and the health care system has only recently been fully restored. However, the need for a national plan against diabetes is urgent and we need to address the issue now. This training facilitated by WDF was the first step on the way,” Mr. Hervouet explains.

The Rwandan Diabetes Association estimates that in 2005 approximately 5 % of the Rwandan population has diabetes. This corresponds to about 400,000 patients across the country, with a strong concentration of cases in urban areas. The association has registered an alarmingly high number of deaths in relation to diabetes, due to the general lack of appropriate treatment.

“If left untreated, diabetes eventually causes death. And keeping in mind that the estimate of the number of people with diabetes in Rwanda is set rather cautiously, this is a grim picture for thousands and thousands of people if they cannot receive proper treatment. Therefore, we are thankful for all the support we can get to continue this project in the future,” Mr. Hervouet concludes.

**DIABETES TRAINING IN RWANDA**

Rwanda’s only specialised diabetes clinic is to be found in Kigali. The rest of the country is in desperate need of qualified diabetes care. Therefore, in July 2005 the Rwandan and French diabetes associations, in cooperation with WDF and the Rwandan government, carried out a targeted diabetes training programme involving 28 local nurses representing the country’s 12 regions. The programme was the first step in the process of developing a national plan to combat diabetes in Rwanda.

During the 1994 genocide in Rwanda, a large portion of the country’s health care system was destroyed. Hospitals, dispensaries, and health care centres were pillaged and the country suffered from a severe shortage of trained professionals.

**Rwanda has a population of 7.6 million. One million people were killed in the civil war and some 3 million driven into exile.**
It is crucial that patients and doctors, as well as local health care authorities and national governments, are given sufficient information and education for them to take action in order to prevent chronic lifestyle diseases such as diabetes from spreading further.

It is estimated that African countries use less than ten percent of their public health budgets on the prevention and treatment of non-communicable diseases. WDF will promote the cause of primary prevention by supporting and proactively seeking projects that target health promotion for the general population, and particularly for school children, by informing them of the risk of unhealthy lifestyles.

Until recently diabetes has not received sufficient attention in Kenya. However, as the prevalence rate has just increased to 11.6%, the Ministry of Health has committed itself to allocate funds to fight the development. Together with the WDF and the Diabetes Management & Information Centre (DMI), the Ministry of Health is developing a comprehensive national education programme.

In 2005 the rate of diabetes prevalence in Kenya reached 11.6%. This clearly showed the Ministry of Health that the condition had become a major health problem in the country and that considerable efforts were required in order to put a stop to the negative development. Consequently, the national diabetes education programme that had already been initiated earlier in the year suddenly became of even greater importance.

"With a prevalence rate like that, we knew we had to move fast. Therefore, we quickly applied the already planned two-pronged approach that aims at improving diabetes care as well as enhancing diabetes prevention. This involves the education of health care professionals and of the population in general, informing them about the nature of the condition and its many risk factors," Programmes Director Eva W. Muchemi explains.

The project aims to reach both the approximately 250,000 Kenyans who have already been diagnosed with diabetes and as many as 5 million Kenyans without diabetes. This will be done through various educational events that will take place in churches, schools, work places, and at sports events - places where people already spend their time. The events include free blood screenings for the early detection of diabetes, distribution of educational material, public information meetings, posters, radio shows, help lines, press conferences and exhibitions.

Health authorities ensure sustainability

Establishing sufficient professional diabetes clinics is one of the project’s cornerstones. Throughout the four year period that the project is estimated to last, the partners intend to establish and/or re-equip diabetes clinics in the country’s 42 public district hospitals and 200 mini-clinics will be established in dispensaries and health centres in the rural areas. The Ministry of Health has committed itself to provide all equipment, facilities, medication, general practitioners and nurses for the clinics.

DMI on the other hand is responsible for providing the diabetes educators and dieticians.

"Education for health care personnel is a critical success factor for the project’s sustainability. To ensure a spin-off effect, all the trained staff will be expected to train and educate other staff members who will then further communicate their new knowledge to their colleagues. If everything develops as planned, the number of professional trainers will triple over the next four years. In the same period we expect the number of trained lay people and people with diabetes to increase by five or six times," Mrs. Muchemi explains.

"We are very happy to participate in this far-reaching project, as we can see that the impact on the overall diabetes development in Kenya will be great. At this point we have already managed to establish 27 out of 42 clinics, 131 out of 200 mini-clinics and we have reached 5,250,000 people. These remarkable results have been achieved, because all partners involved are genuinely committed to the project," says Managing Director Leif Fenger Jensen of the WDF.

The project in Kenya is currently one of WDF’s most comprehensive in Africa. Five hundred doctors, 11,000 paramedics, 3,040 nurses, 250 dieticians and 2,500 lay educators have received training in reducing the condition’s risk factors. They are educated in diagnostics, primary and secondary prevention of diabetes and treatment of diabetes complications. Annually, this allows 250,000 Kenyans with diabetes to receive counselling on how to live with diabetes and reduce the risk of developing complications.

In 2005, the rate of diabetes in Kenya reached 11.6%. This clearly showed the Ministry of Health that the condition had become a major health problem in the country and that considerable efforts were required in order to put a stop to the negative development. Consequently, the national diabetes education programme that had already been initiated earlier in the year suddenly became of even greater importance.

"With a prevalence rate like that, we knew we had to move fast. Therefore, we quickly applied the already planned two-pronged approach that aims at improving diabetes care as well as enhancing diabetes prevention. This involves the education of health care professionals and of the population in general, informing them about the nature of the condition and its many risk factors," Programmes Director Eva W. Muchemi explains.

The project aims to reach both the approximately 250,000 Kenyans who have already been diagnosed with diabetes and as many as 5 million Kenyans without diabetes. This will be done through various educational events that will take place in churches, schools, work places, and at sports events - places where people already spend their time. The events include free blood screenings for the early detection of diabetes, distribution of educational material, public information meetings, posters, radio shows, help lines, press conferences and exhibitions.

Health authorities ensure sustainability

Establishing sufficient professional diabetes clinics is one of the project’s cornerstones. Throughout the four year period that the project is estimated to last, the partners intend to establish and/or re-equip diabetes clinics in the country’s 42 public district hospitals and 200 mini-clinics will be established in dispensaries and health centres in the rural areas. The Ministry of Health has committed itself to provide all equipment, facilities, medication, general practitioners and nurses for the clinics.

DMI on the other hand is responsible for providing the diabetes educators and dieticians.

"Education for health care personnel is a critical success factor for the project’s sustainability. To ensure a spin-off effect, all the trained staff will be expected to train and educate other staff members who will then further communicate their new knowledge to their colleagues. If everything develops as planned, the number of professional trainers will triple over the next four years. In the same period we expect the number of trained lay people and people with diabetes to increase by five or six times," Mrs. Muchemi explains.

"We are very happy to participate in this far-reaching project, as we can see that the impact on the overall diabetes development in Kenya will be great. At this point we have already managed to establish 27 out of 42 clinics, 131 out of 200 mini-clinics and we have reached 5,250,000 people. These remarkable results have been achieved, because all partners involved are genuinely committed to the project," says Managing Director Leif Fenger Jensen of the WDF.

The project in Kenya is currently one of WDF’s most comprehensive in Africa. Five hundred doctors, 11,000 paramedics, 3,040 nurses, 250 dieticians and 2,500 lay educators have received training in reducing the condition’s risk factors. They are educated in diagnostics, primary and secondary prevention of diabetes and treatment of diabetes complications. Annually, this allows 250,000 Kenyans with diabetes to receive counselling on how to live with diabetes and reduce the risk of developing complications.
On his visit Ulrik is accompanied by Professor Jean-Claude Mbanya, an endocrinologist and researcher at the University of Yaounde. Mbanya is a non-native Cameroon, who invited him to a meeting. In Garoua, before Ulrik had were with the members of the recently created Cameroon Burden of Diabetes (CAMBoD) project. He is also relieved that it wasn’t nearly his first encounter with Africa. For 2 years Ulrik lived in Burkina Faso working on development. He didn’t forget about Africa because of lack of treatment. Ulrik is impressed. Ulrik concludes after a week in Cameroon. He is very satisfied to be able to work with patients in both Yaounde and Garoua. "I think my first monitoring visit went very well. The project has achieved its intended impact; working as a catalyst, starting a development that will continue when we leave.”

In Garoua Ulrik sees clinics that were already established by the project and now run by local government. He met committed local authorities, hand over by the project and now run by local government. He met committed local authorities, and benefit the group of people with diabetes by visiting this remote location of the CAMBoD project. Ulrik deliberately broke out of the comfort zone by visiting this remote location of the CAMBoD project. "I told Professor Mbanya to show me some clinics where the project has succeeded and some less successful ones. I don’t want to be seen as a ‘policeman’, with the power of cutting funds if I see things that aren’t working out.” Ulrik explains. "I know that things sometimes succeed, and sometimes it is more difficult. The World Diabetes Foundation create partnerships in the developing world, that means that we agree to work together as a group." Ulrik concludes. Ulrik met Dr. Fai Fominyen, president of the traditional healers in Cameroon, and found their talk inspiring. "Meeting him gave me the opportunity to try and understand their beliefs and what impact their actions have on people. It is important to understand the environment in which we work. I was happy for Ulrik to be so eager to cooperate, together we can identity people with diabetes who otherwise may not reach a hospital in time.”

Ulrik deliberately broke out of the comfort zone by visiting this remote location of the CAMBoD project. Ulrik deliberately broke out of the comfort zone by visiting this remote location of the CAMBoD project. "I told Professor Mbanya to show me some clinics where the project has succeeded and some less successful ones. I don’t want to be seen as a ‘policeman’, with the power of cutting funds if I see things that aren’t working out.” Ulrik explains. "I know that things sometimes succeed, and sometimes it is more difficult. The World Diabetes Foundation create partnerships in the developing world, that means that we agree to work together as a group.” Ulrik concludes. Ulrik deliberately broke out of the comfort zone by visiting this remote location of the CAMBoD project. "I told Professor Mbanya to show me some clinics where the project has succeeded and some less successful ones. I don’t want to be seen as a ‘policeman’, with the power of cutting funds if I see things that aren’t working out.” Ulrik explains. "I know that things sometimes succeed, and sometimes it is more difficult. The World Diabetes Foundation create partnerships in the developing world, that means that we agree to work together as a group.” Ulrik concludes.
**AFRICA**

- Strengthening the quality of diabetes care from primary to secondary level in Sub-Saharan Africa
- Increased access to diabetes care by establishment of diabetes centers
- Carrying out a baseline survey with the aim to assess the prevalence of diabetes and make recommendations for the establishment of diabetes centers in Cameroon
- Training of healthcare professionals and establishing four regional diabetes centers
- Enabling people with diabetes in Bamako to manage diabetes with the assistance of health professionals
- Implementing a diabetes prevention programme targeting the adult population of Qingdao
- Completing a 'Caribbean Protocol for Nutritional Management of Diabetes'

**ASIA**

- Urban diabetes prevention and control
  - Training of healthcare providers in diabetes prevention, detection and management in the community
  - Training of healthcare providers in diabetes prevention, detection and management in the community
  - Training of healthcare providers in diabetes prevention, detection and management in the community
- Diabetes healthcare services
  - Diabetes centers
  - Diabetes clinics
  - Diabetes information centers
- Regional diabetes information centers
  - diabetes care
  - diabetes clinic
  - Diabetes centres

**LATIN AMERICA**

- Urban diabetes prevention and control
  - Training of healthcare providers in diabetes prevention, detection and management in the community
  - Training of healthcare providers in diabetes prevention, detection and management in the community
  - Training of healthcare providers in diabetes prevention, detection and management in the community
- Diabetes healthcare services
  - Diabetes centers
  - Diabetes clinics
  - Diabetes information centers
- Regional diabetes information centers
  - diabetes care
  - diabetes clinic
  - Diabetes centres
The current explosion of diabetes in the developing world is closely linked to other serious non-communicable conditions such as obesity, hypertension, and high cholesterol. Obesity is a major risk factor for type 2 diabetes. Reducing obesity through healthy nutrition and exercise helps to prevent diabetes.

Obesity in Africa is a major risk factor for type 2 diabetes. Reducing obesity through healthy nutrition and exercise helps to prevent diabetes.

InAfrica, an overweight woman is seen as a social success, with good health and a husband who takes good care of her. Loss of weight on the other hand is considered to be a sign of disease or financial difficulty.

Obesity in young people is a typical example of what is going on in our society. This has consequences; we now see a typical image of malnourished children recovering from malnutrition. "It is easy to believe that diabetes is caused by obesity in both. That why we have opened that zone to prevent obesity and diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has developed diabetes. Kevin will continue his part of the deal when he develops diabetes. Today they have all lost weight and no one has develop
More than 100,000 Malians suffer from diabetes. Doctors estimate that only 30% of these patients can afford the required medical treatment and this leads to a disproportionately high prevalence of complications such as high blood pressure and serious retinopathy. Therefore, together with the WDF and three hospitals in the city of Bamako, the SDM has decided to sensitise the Malian population about diabetes and explain the link between food habits and diabetes, starting in the two major communes of Bamako.

The overall aim of the work is to develop and implement a national diabetes nutrition programme. In the longer term, thousands of people with diabetes as well as those at risk of developing diabetes will benefit from this project as healthy eating will enable them to prevent and control diabetes, minimise complications, and reduce medical costs.

“We knew that we had to take local food habits and socio-economic issues into account in order to succeed. Therefore, our first task was to carry out a thorough nutritional evaluation study. The study, consisting of anthropological, socio-economic investigation as well as dietary recall has provided us with the required in-depth knowledge” explains Mr. Stéphane Besançon, director of programmes of the Santé Diabète Mali NGO.

“The study has given us a clear understanding of the dishes prepared and consumed in Bamako and the food habits of people with diabetes. This knowledge allows us to set up diets which take into account both the best foods and the socio-economic profile of every patient. This is essential in order to convince Malians to follow and stick to a specific healthy diet,” Mr. Besançon adds.

Cultural barriers for prevention
Typically, Malians consume three meals; breakfast, lunch and dinner. The traditional way of eating is with the hand in a common dish. This raises many difficulties for those with diabetes in the follow-up to the diet, as it prevents control of the quantity of food ingested. Further, the common dish rarely corresponds to what is advised for people with diabetes. On the other hand withdrawing from the common dish creates social problems for these people, as he/she is gradually isolated from the group. In addition to this, financial independence is required, as he/she needs to be able to pay for the condiments of the special diet.

Also, the public attitude to obesity is a great challenge to the project. An overweight woman is seen as a social success, with good health and a husband who takes good care of her. Loss of weight on the other hand is considered to be a sign of disease or financial difficulty. This makes it almost impossible for doctors to prescribe a diet as the necessary treatment. Consequently, the education of doctors and nurses is another essential task for the project’s success. Nutritional training for health care professionals will be initiated in 2006.

“The WDF-funded nutrition study is the basis of this five-phase project. We have made a good start to the project and already achieved good results. We expect the whole project to be completed in 2007,” Mr. Besançon concludes.
One key RAPIA finding in Mozambique was the lack of an overall policy framework to guide and direct the improvement of diabetes care in Mozambique. The Mozambican diabetes association AMODIA, which was formed in 1995, had single-handedly been focusing on the management of diabetes and its reach was limited to the province of Maputo.

“The RAPIA led to AMODIA and the Ministry of Health joining forces. Together we prioritised the recommendations made by IIF and it became evident that we faced a greater problem than we were geared to meet. But with the formation of a non-communicable disease group in the Mozambican Ministry of Health a number of initiatives have been taken to improve diabetes care – one being the development of a national diabetes programme,” says Dr. Carla Silva Matos, Head of the non-communicable disease (NCD) group at the Mozambican Ministry of Health.

Another initiative has been the strengthening of the diabetes association. Following the example of the diabetes association in neighbouring Tanzania, AMODIA has been revitalised and will expand its services to cover all provinces of Mozambique and thereby act as an advocate and counsellor for Mozambicans with diabetes,” says Dr. Carla Silva Matos.

“Access to knowledge
The nationwide diabetes association in Tanzania plays a central role in strengthening state-run diabetes health services. Chairman of the IDF African Region, Dr. Kaushik Ramaiya has agreed to share the lessons learned with AMODIA.

“Close involvement of the national diabetes association is essential for a successful diabetes programme. It will encourage local ownership and ensure sustainability in the process of improving diabetes care. That is why we, at the Tanzanian diabetes association have offered to transfer the knowledge and skills we have gained from establishing a nationwide diabetes association in Tanzania to our colleagues in Mozambique,” says Dr. Kaushik Ramaiya.

Following the Tanzanian example, AMODIA will take the lead in developing training materials both for health workers and patients, and work with the National Health Service in improving diagnostic and management facilities for people with diabetes. In doing so, AMODIA will be using the clinical practice guidelines developed by IDF Africa along with a diabetes education manual funded by WDF specifically for the African continent. AMODIA will also facilitate the training and education of health care personnel in Mozambique.

“We are still seeing some initial difficulties mostly around staffing, but the important thing is that the programme is running and that non-communicable diseases have become part of the national health policy for Mozambique. At government level priority is given to the impending burden of diabetes and other non-communicable diseases and people have started not only to express their concern in this area but to act against it. In this perspective the WDF funded regional education manual is a very important tool,” Dr. Silva Matos concludes.

IIF estimates that the WDF funded, Regional IDF education manual will be made available to all African countries and institutions shortly and will be useful when conducting their own local training programmes. The manual ensures that staff is up to date and improves skills in providing patients with information about the disease and in training them for self-management and care.

Mozambicans have been diagnosed with Type 1 diabetes to date. However, the actual number is probably much higher. Estimated life expectancy for Type 1 diabetes patients in rural Mozambique is under 3 years and combined with the fact that trained health care personnel is scarce in the country it is likely that many patients, and especially children, die from the disease before they are diagnosed.

In this perspective the WDF funded Regional IDF Africa education manual is a very important tool,” Dr. Silva Matos concludes.
Today the Aravind team has brought its mobile screening unit, which enables them to take pictures of the retina, and via satellite connection send the pictures to a specialist at the Madurai hospital for assessment.

A screening for visible results
One of the doctors assessing is Dr. Kim, who is Head of the Vitreoretinal Department at the Madurai Aravind Eye Hospital. “I can sit in my office and hear and see a patient from a remote area or village 300 km away. And I can see the same thing as the technician is seeing and then give my diagnosis.” A consultant at the screening site returns with the results, and the patient is advised on the spot. “If the patient requires specialist care the technician urges the patient to see the doctor at the hospital.” Dr. Kim explains. “This element is extremely helpful in screening our patients. Of all the patients we have screened, 63% were diagnosed for the first time to have some form of retinopathy.”

The mobile screening unit
Mr. Arumugam has taken a seat in the eye screening bus, in front of the ophthalmologic camera. Within a few minutes the technician has taken enough pictures of his retina, and sends them via satellite to Aravind Eye Hospital. Three other people are waiting to go though the same procedure, so Mr. Arumugam leaves the bus to wait outside for the results.

The mobile screening unit is the latest initiative used in the effort to screen the diabetes population for eye complications in rural areas in Tamil Nadu. In 2003 the project aimed to hold 36 screening camps in three years, but this goal has been far exceeded. By 2005 the project has already held 75 camps screening for cataracts and diabetic retinopathy.

Since the inauguration of the mobile unit in May 2005 the team has conducted 20 outreach camps. These screening camps are supported by WDF. “At the moment we plan to have two camps a month, where we only focus on diabetic retinopathy.”

After waiting 20 minutes Mr. Arumugam is invited to take a seat at the counsellor’s desk. She has a print-out of the doctor’s assessment, and explains to him that there is no need for special treatment although the pictures have revealed that he has MNPDR, Mild Non-Proliferative Diabetic Retinopathy. With a slip in his hand telling him to come for a check-up in four months at the eye hospital in Madurai, Mr. Arumugam leaves the screening site. He tells us: “I was advised to control my blood sugar level even better. She told me that it was better for me if I could prevent retinopathy than having to require laser treatment later; this is good advice and I will try to follow it.”

Applying education for patients
Patients who are diagnosed as having a problem are invited to the Aravind eye clinic to undergo treatment and further follow-up only if necessary. Health staff at the camps are also responsible for education. They give talks to increase knowledge and create awareness and focus attention on the prevention of diabetes and its complications.

“In some of the camps we have screened hundreds of patients and 89 percent of the patients have been diagnosed with retinopathy. Surprisingly nine percent of them were found to have diabetes for the first time.” Dr. Kim explains. “For patients with diabetic retinopathy we offer laser treatment at first. However, in worst cases we have to perform sight-saving surgery. Treatment is provided free of charge to all patients who come to us from these camps.”

Mr. Arumugam is 54 years old and diagnosed with diabetes.

Diabetes screening has been included in Aravind’s regular eye camps. In all, 228 such camps have been held, bringing the total population screened for diabetes to 63,837 of which 14,428 have been identified as having diabetes. A total of 1,598 cases of diabetic retinopathy have been found and 1,018 people have undergone laser photocoagulation treatment at the tertiary centre of the Aravind Eye Hospital.

A similar project has been funded in Aravind Eye Hospital Pondicherry covering Pondicherry and two other districts of Tamil Nadu. The success of the project has inspired several projects, three other similar eye care projects from other institutions in Karnataka and Andhra Pradesh have also recently been funded.

Since the project was initiated in 2003, the aim has been to reduce blindness resulting from diabetes.

Seventy-five “Diabetic screening and diabetic retinopathy screening” camps have been held. The mobile unit has conducted 20 outreach camps.

“Today the Aravind team has brought its mobile screening unit, which enables them to take pictures of the retina, and via satellite connection send the pictures to a specialist at the Madurai hospital for assessment.”

A screening for visible results
One of the doctors assessing is Dr. Kim, who is Head of the Vitreoretinal Department at the Madurai Aravind Eye Hospital. “I can sit in my office and hear and see a patient from a remote area or village 300 km away. And I can see the same thing as the technician is seeing and then give my diagnosis.” A consultant at the screening site returns with the results, and the patient is advised on the spot. “If the patient requires specialist care the technician urges the patient to see the doctor at the hospital.” Dr. Kim explains. “This element is extremely helpful in screening our patients. Of all the patients we have screened, 63% were diagnosed for the first time to have some form of retinopathy.”

The mobile screening unit
Mr. Arumugam has taken a seat in the eye screening bus, in front of the ophthalmologic camera. Within a few minutes the technician has taken enough pictures of his retina, and sends them via satellite to Aravind Eye Hospital. Three other people are waiting to go though the same procedure, so Mr. Arumugam leaves the bus to wait outside for the results.

The mobile screening unit is the latest initiative used in the effort to screen the diabetes population for eye complications in rural areas in Tamil Nadu. In 2003 the project aimed to hold 36 screening camps in three years, but this goal has been far exceeded. By 2005 the project has already held 75 camps screening for cataracts and diabetic retinopathy.

Since the inauguration of the mobile unit in May 2005 the team has conducted 20 outreach camps. These screening camps are supported by WDF. “At the moment we plan to have two camps a month, where we only focus on diabetic retinopathy.”

After waiting 20 minutes Mr. Arumugam is invited to take a seat at the counsellor’s desk. She has a print-out of the doctor’s assessment, and explains to him that there is no need for special treatment although the pictures have revealed that he has MNPDR, Mild Non-Proliferative Diabetic Retinopathy. With a slip in his hand telling him to come for a check-up in four months at the eye hospital in Madurai, Mr. Arumugam leaves the screening site. He tells us: “I was advised to control my blood sugar level even better. She told me that it was better for me if I could prevent retinopathy than having to require laser treatment later; this is good advice and I will try to follow it.”

Applying education for patients
Patients who are diagnosed as having a problem are invited to the Aravind eye clinic to undergo treatment and further follow-up only if necessary. Health staff at the camps are also responsible for education. They give talks to increase knowledge and create awareness and focus attention on the prevention of diabetes and its complications.

“In some of the camps we have screened hundreds of patients and 89 percent of the patients have been diagnosed with retinopathy. Surprisingly nine percent of them were found to have diabetes for the first time.” Dr. Kim explains. “For patients with diabetic retinopathy we offer laser treatment at first. However, in worst cases we have to perform sight-saving surgery. Treatment is provided free of charge to all patients who come to us from these camps.”

Mr. Arumugam is 54 years old and diagnosed with diabetes.

Diabetes screening has been included in Aravind’s regular eye camps. In all, 228 such camps have been held, bringing the total population screened for diabetes to 63,837 of which 14,428 have been identified as having diabetes. A total of 1,598 cases of diabetic retinopathy have been found and 1,018 people have undergone laser photocoagulation treatment at the tertiary centre of the Aravind Eye Hospital.

A similar project has been funded in Aravind Eye Hospital Pondicherry covering Pondicherry and two other districts of Tamil Nadu. The success of the project has inspired several projects, three other similar eye care projects from other institutions in Karnataka and Andhra Pradesh have also recently been funded.
SUSTAINABILITY THROUGH CULTURAL ADAPTATION

The WDF supports diabetes projects throughout the developing world. While the manifestation of the disease remains the same whether in Asia or in Africa, the approach to the projects is somewhat different. Local socio-cultural traditions must decide how each project is executed. Relying on local engagement, this approach results in culturally adapted, innovative solutions that secure sustainability and great results.

In some developing countries traditional healers are preferred to doctors who practice modern medicine. In many countries obesity, which is a risk for type 2 diabetes, is seen as a sign of wealth, health, power and fertility. And in most parts of the developing world, insufficient infrastructure often makes visits to hospitals a complex and costly journey for individuals seeking care.

Such cultural and socio-economic conditions present great challenges when it comes to organizing and funding diabetes prevention and care programs. “The WDF mostly supports and funds projects that are locally embedded and carried out with the support and commitment of local project partners, governments and NGOs. We think this is a very crucial criteria when we assess projects for funding. Without this commitment the WDF would not be able to succeed with its numerous diabetes care activities around the world,” says Ida Nicolaisen, an acclaimed expert on development aid and member of the board of directors of WDF.

The need for cultural adaptation
The WDF does not wish to alter the well-established health care systems in the developing world but tries to support and make them more functional. The foundation believes that cultural adaptation and local partnerships based on existing social structures is the key to sustainability and success.

“In Cameroon for example, the CAMBoD project we fund, entered into an unorthodox but fruitful partnership with traditional healers who received training in identifying diabetes symptoms. Enjoying great respect and trust in the local communities, they now work as local champions to endorse the national diabetes care programme, referring patients with diabetes to modern hospitals in the cities where professional treatment is available,” explains Jamal R. Butt, Communication Manager at the WDF.

In the Indian village of Inam Agaram (and many other such villages) where illiteracy is widespread, the WDF-funded project has taken a unique approach in reaching the target group. Self-Help Groups have been established consisting of volunteers from the local community who reach the local population through live street plays and mobile public announcements through loudspeaker or megaphone-fitted auto rickshaws.

The street plays attract both adults and youngsters and describe the symptoms of diabetes, its risk factors, where to go for treatment and advice. “These methods of communication may be unorthodox for the developed world but are a great way of getting the message across and raising awareness within a largely illiterate or poorly educated rural population,” says Jamal R. Butt who recently witnessed a street play during his trip to Southern India.

In India, yet another WDF-funded project has taken a unique approach in order to overcome major local problems of accessibility of care. The Aravind Eye Hospital has introduced a satellite-connected, high-tech mobile screening unit for diabetic retinopathy screening allowing help to come to the patients instead of the other way around. “So when patients cannot travel to the clinic this WDF project takes the mobile clinic to the patients enabling people from several village clusters to be screened for retinopathy,” says Jamal Butt. At least three other projects in India are replicating this approach.

“We need to use the concept of mobile units and telemedicine more often to break the barrier of access to care. The revolution in the field of telecommunication should make this happen. Often we think of these technologies as very elitist but when one witnesses how they can be used to provide basic health care services one starts believing in them. In India things are starting to change where telemedicine is being increasingly used, and so however incongruous it may appear, there is place for traditional healers, street plays, rickshaw mounted megaphones as well as satellite connected mobile vans to reach information and care to the millions of disadvantaged people,” elaborates WDF Vice Chairman Dr Anil Kapur.

Awareness through the media
Local partnerships are essential to the work of the WDF in raising awareness about diabetes.

In Cameroon for example the Minister of Health called a national press conference in 2005 to support the WDF-funded CAMBoD project.

“The need for cultural adaptation and local partnerships is why I called the press conference. Based on available data, there is reason to believe that the number of diabetes patients on the African continent is growing rapidly. Hence, we need to react now in order to prevent an epidemic and therefore the Ministry of Health in Cameroon warmly supports the WDF activities,” says Cameroon Minister of Health Urbain Olanguena Awano.

Public announcements through drums and loudspeakers are used to create awareness about diabetes in the Indian village of Inam Agaram.
The waiting time is spent well; instructors from the local government hospital tell the waiting crowd the facts about diabetes. It is a fact that up to 15% of pregnant women screened under the WDF supported project “Gestational Diabetes in India” have been diagnosed with Gestational Diabetes Mellitus (GDM). It’s also a fact that gestational diabetes can lead to early abortions or stillbirths, malformations, large babies with the risk of injuries during delivery, and in the longer perspective a higher risk of developing diabetes both for the mother and the child when he/she grows to adulthood.

In a queue of women dressed in saris that only barely disguise that all of them are only a few months away from giving birth, Flory is waiting. She is carrying her second child, but is waiting for her first blood test. She is a visitor to Chennai. Eight months pregnant she has travelled from her village to spend the last part of her pregnancy in her mother’s house, a custom still practiced in large parts of India. It is common to stay in the mother’s house during and after birth, but Flory may have to change her plans. Her blood test shows a very elevated blood sugar level – she definitely has diabetes!

The devastating consequences

In the shadow the young Gopal family has found a place to rest. Their two month old boy is jumping on mummy’s lap, while his father holds his tiny hands. The boy is out of the ordinary, not only to his parents, but also in a medical perspective. Several of his fingers and toes are joined together, his left foot has six toes of which three are joined, and he has a ‘malformed nasal bridge’. Malformations that might have developed because his mother suffered from untreated gestational diabetes during her pregnancy.

Her doctor tested her blood sugar when she was five months pregnant. “It was high, but the doctor said it was normal to have high blood sugar. It was only when we came for a screening and prevention of gestational diabetes as high as 15.4% in urban areas and 11.9% in rural areas.

The prevalence survey also indicates that 95% of women with gestational diabetes may be controlled with a dietary plan and only 5% require insulin treatment.

The Diabetes In Pregnancy - Awareness and Prevention (DIPAP) project India, is responsible for creating general public awareness about diabetes in general and gestational diabetes in particular. The other task of this project is to perform screening for GDM in health posts in Chennai (urban) and in Thiruvallur (rural) areas.

The next morning Flory shows up at Dr. Seshiah’s Diabetes Institute, where Dr. Madhuri guides her through this morning’s tests. Two blood tests are needed, to get an accurate diagnosis; one fasting test and one two hours after drinking a glucose solution. Her weight and blood pressure is registered. The results only confirm yesterday’s worries. Flory has diabetes and needs to take insulin right away. “I was a bit worried, when the doctor mentioned the syringes, I am used to doctors using needles, but I guess I need to learn to inject myself.”

Whether Flory suffers from GDM or type-2 diabetes can only be proved when she has given birth. GDM disappears after delivery, while type-2 diabetes is chronic. “She was lucky.” Dr. Madhuri says, “Although we discovered her diabetes before her delivery, we can still help her. She is now on insulin, and along with her obstetrician we will plan her delivery a bit early.” Tired of the weight and discomfort of being pregnant and dizzy with untreated diabetes, Flory can’t wait to take an auto rickshaw back to her mother’s house. “Yesterday I was worried because of the results of my first test, but after talking to the doctor today I am comforted. I need to take my insulin and follow a meal plan, and I will be all right.”

Lucky Flory

Preliminary results indicate prevalence of gestational diabetes as high as 15.4% in urban areas and 11.9% in rural areas.

Screening for Gestational Diabetes – Saving Children in India

One morning in late September, a local maternity clinic on the outskirts of Chennai is more crowded than usual. Inside, mothers lie with their newborn babies, breastfeeding or just resting after a recent delivery. Tiny knitted caps and thin blankets protect the babies from the Indian summer morning in Chennai. For the crowd waiting outside, there is no respite from the sultry heat of this extended Indian summer morning in Chennai.

Hundreds of pregnant women have gathered to join a diabetes screening camp performed by Dr. V. Seshiah’s Diabetes Care and Research Institute. They sit or stand, waiting for their turn to have their blood sugar level measured.

Some women are here for the first time, encouraged by posters or public announcements to take a free blood test. Others already have GDM and are here to have a monthly check up, to see if the prescribed diet of healthy food and exercise, which is sufficient treatment in 95% of cases, is effective enough to prevent their high blood sugar levels from harming the babies growing in their wombs.

As of July 2005, 3,414 pregnant women have been screened of whom 472 with gestational diabetes are now undergoing treatment.
More than 30 per cent of the Palestinian population is currently overweight. As obesity is a major risk factor for diabetes, the lack of information about the beneficial effects of physical activity and proper nutrition is becoming a serious problem. Until now only limited attention has been given to promoting preventive behaviour and nutrition counselling as part of the treatment protocol for diabetes patients, and in public health education in the West Bank. Therefore the WDF, together with the relief agency DanChurchAid and the Augusta Victoria Hospital in Jerusalem, has initiated a programme to address this very issue.

“We have established a referral centre at the Augusta Victoria Hospital. The diabetes programme at the centre addresses diabetes holistically, considering both the clinical, para-clinical and social factors that influence the diagnosis as well as the quality of care. Also the behavioural patterns that increase the risk of either acquiring diabetes or worsening an already existing diabetic condition are considered by this approach. Our programme follows a three-pronged strategy involving treatment, prevention and capacity building; addressing people with diabetes, high risk groups and the general public,” says DanChurchAid Project Manager Uffe Gjerding.

At the hospital, experienced diabetes doctors ensure quality care for diabetes patients as well as training for primary care physicians and nurses in ‘The United Nations’ Relief and Works Agency for Palestinian Refugees (UNRWA) and the government system. Parallel to this is the prevention programme conducting nutrition counselling of obese patients and their relatives.

“Palestine has experienced significant urbanisation in recent years and this has widely contributed to the prevalence of risk factors for diabetes. The transit from a rural to an urban lifestyle seems to be associated with a higher consumption of fat and energy at the household level and people tend to be less active. Also, in some communities it is considered a sign of wealth to be overweight. There is no fast solution to the problem and a diabetes programme in this area therefore has to involve prevention,” says Uffe Gjerding.

A healthy day at school

Part of the prevention programme is education at selected schools in Jerusalem. A special education team from the Augusta Victoria Hospital offers courses for pupils and the training of teachers in obesity and its relation to diabetes. A part of the team’s strategy is also to include students’ families in the projects.

“One a year we have a ‘Healthy Day’ at the schools where the students prepare a healthy meal together with their family. This way we activate the families and ensure they learn how to prepare healthy meals themselves. The activity is carried out by the ‘Health Committee’ of each school which consists of students supported by the trained teachers and our team. The Health Committee arranges activities focusing on a healthy lifestyle and gives lectures on health topics to the other students,” says Ahmad Abu Al Halaweh, Diabetes Project manager at the Augusta Victoria Hospital in Jerusalem.

“We feel that this is the best way to change traditional eating habits. The children eat at the parental home, so in order to grab the problem by the root we need to involve the families,” Ahmad Abu Al Halaweh continues.

Looking at the overall programme, Uffe Gjerding is proud to say: “The centre at the Augusta Victoria Hospital has experienced great success. We have reached all of our objectives thanks to the WDF funding and the Palestinian Authorities are beginning to show an increasing interest in our work. Our hope is that the Augusta Victoria Hospital will become a model for general diabetes care in Palestine.”
The programme for prevention and early diagnosis of the diabetic foot is the first to gather the national health authorities, the national diabetes associations and the related scientific societies of the five Andean countries: Peru, Bolivia, Ecuador, Venezuela and Colombia. Initiated by the IDF member associations from the region, the project also involves the Pan American Health Organization (PAHO), the Andean Health Organization (ORAS-CONHU) and the Centre for Disease Control and Prevention (CDC), drawing from their joint expertise in managing educational programmes for disease prevention.

“The wide support from the local health authorities enables us to benefit from the experience accumulated at both the national and regional level in rolling out programmes like this. The programme is an initiative directed primarily at people with diabetes but also at health professionals at the primary level of health care. With the regional approach we can reach a large proportion of people with diabetes and offer them proper foot care,” says Martha Mora de Garcia Belaunde, president of the Juvenile Diabetics Association of Peru and responsible for the programme.

Prevention through early intervention

The prevalence of diabetes in the Andean region ranges from 4.3% in Colombia to 7.2% in Bolivia in the adult population and the problem is growing in all five Andean countries. Across the region the occurrence of secondary complications caused by diabetes is exploding as a result of no or poor access to care – the diabetic foot being the most severe problem. By implementing the programme for prevention and early diagnosis of the diabetic foot the objective is to significantly decrease the rate of lower-extremity complications and amputations in people with diabetes.

“Prevention strategies have shown that 40-85% of all the problems associated with the diabetic foot can be avoided. In Brazil the Diabetic Foot Saving Project resulted in a 90% reduction in major amputations and a recent diabetes awareness project in Mexico demonstrated that the training of health workers in diabetic foot care increased the proportion of patients who receive a foot examination from 47% to 96%,” explains Martha Mora de Garcia Belaunde.

By the end of the project in 2006, 10 primary care centres in each country will have benefited from the programme with a total of 200 trained health personnel per country, implementation of a treatment protocol for the diabetic foot, training materials for self-management and self-examination and implementation of a referral and counter-referral system. The project will target both public and private health facilities as they are closely linked and will work together in providing diabetes treatment. The aim is to reach 3000 patients per country.

“Of all the complications associated with diabetes, the diabetic foot presents the most alarming figures. With more than 150 million inhabitants faced with an increasing prevalence of diabetes, the Andean Region in South America has engaged in an impressive multinational and multi-organisational project to decrease the rate of lower-extremity complications in people with diabetes.”
### ANNUAL ACCOUNTS 2005

#### Profit and loss account, 1 January - 31 December 2005

<table>
<thead>
<tr>
<th>Description</th>
<th>DKK 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donations from Novo Nordisk and others</td>
<td>56,677</td>
</tr>
<tr>
<td>Administration expenses</td>
<td>-3,058</td>
</tr>
<tr>
<td>Project expenses</td>
<td>-4,594</td>
</tr>
<tr>
<td>Other expenses</td>
<td>-521</td>
</tr>
<tr>
<td>Total donations</td>
<td>48,604</td>
</tr>
<tr>
<td>Financial income</td>
<td>8,742</td>
</tr>
<tr>
<td>Financial costs</td>
<td>-1,681</td>
</tr>
<tr>
<td>Total profit before financials and tax</td>
<td>55,666</td>
</tr>
</tbody>
</table>

#### Balance sheet as at 31 December 2005

<table>
<thead>
<tr>
<th>Description</th>
<th>DKK 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td></td>
</tr>
<tr>
<td>Locked-up capital</td>
<td>260</td>
</tr>
<tr>
<td>Fixed assets</td>
<td>260</td>
</tr>
<tr>
<td>Receivable donations from Novo Nordisk A/S</td>
<td>13,957</td>
</tr>
<tr>
<td>Interest receivable</td>
<td>3,447</td>
</tr>
<tr>
<td>Total receivables</td>
<td>17,406</td>
</tr>
<tr>
<td>Securities</td>
<td>87,017</td>
</tr>
<tr>
<td>Cash</td>
<td>45,656</td>
</tr>
<tr>
<td>Current assets</td>
<td>180,339</td>
</tr>
<tr>
<td>Total assets</td>
<td>180,339</td>
</tr>
<tr>
<td>Equity and liabilities</td>
<td></td>
</tr>
<tr>
<td>Locked-up capital</td>
<td>260</td>
</tr>
<tr>
<td>Retained earnings for the year</td>
<td>69,665</td>
</tr>
<tr>
<td>Total equity</td>
<td>99,325</td>
</tr>
<tr>
<td>Payable donations</td>
<td>70,642</td>
</tr>
<tr>
<td>Other provisions</td>
<td>764</td>
</tr>
<tr>
<td>Other short-term payables</td>
<td>0</td>
</tr>
<tr>
<td>Total short-term liabilities</td>
<td>80,416</td>
</tr>
<tr>
<td>Total equity and liabilities</td>
<td>180,339</td>
</tr>
</tbody>
</table>

The above is a non-audited abstract of the Annual Accounts 2005.

Administrative expenses amounted to 4.5% of the Foundation’s total income in 2005.

For full details of the annual accounts, please refer to our website: www.worlddiabetesfoundation.org

---

**ANNUAL REVIEW 2005**

Edited by the World Diabetes Foundation Secretariat

Editor-in-chief: Jamal R. Butt
Communication Manager: jmbu@worlddiabetesfoundation.org
Contributions: Effector Communications
Proofreading: Euroword AS
Art direction & Graphic design: AECROAED 2006
Photos: Jesper Westley
Printing & binding: Litotryk AS
The World Diabetes Foundation
is dedicated to supporting the
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.