A Report From
The World Diabetes Foundation (WDF) Diabetes Summit Africa

Kenya
June 29th – 30th, 2007

A supplement to
Practical Diabetes International
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IDF Youth ambassador for diabetes, Kenya

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Kenya National Health Insurance Fund

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Chief Technical Advisor, Health and HIV/AIDS, Foreign Ministry, Denmark
The World Diabetes Foundation (WDF) is dedicated to improving the lives of people with diabetes in the developing world – in other words, among populations in some of the poorest and most disadvantaged areas of this planet. It was once thought that diabetes and other non-communicable diseases (NCDs) were essentially conditions of Western affluence, but this is now known not to be the case at all. Readers of this report will discover that, as the poorer nations advance economically and move from rural traditional life styles to urban communities, they are experiencing a rising prevalence of diabetes on a scale which can only be described as a pandemic.

Although starting from a lower baseline than, for instance, India or South-East Asia (the venue and subject of last year’s WDF Summit and report), sub-Saharan Africa is now seeing a growth in the condition commensurate with other areas of the developing world and is thus suffering the same human and socio-economic burdens among its individuals, communities and governments. It was therefore entirely appropriate that this year’s Summit should have taken place in Kenya, a country experiencing the same ravages as others in the area which are, with the help of their own governments, remarkable dedicated local healthcare providers and various non-governmental organisations (NGOs), attempting to address the pandemic. The WDF, of which I have the honour to be Chairman, is proud to be numbered among these bodies.

But it is not only in Africa that healthcare workers, governments and international organisations, such as the WDF, are working together to stem the tide by preventing and treating diabetes and its complications. If you read, in this publication, the report of the presentation by Dr Anil Kapur (the Managing Director of WDF) you will see just how many initiatives the Foundation and its partners are initiating and pursuing throughout the developing world. I hope that this publication of the proceedings will give you an insight not only into the extent of the problem, but will also hearten you when you read about the extraordinary dedication and ingenuity of the people who are working in some of the poorest regions of the world.

Pierre Lefèbvre.
Chairman, World Diabetes Foundation
At the opening ceremony of the WDF Summit, Dr William Maina (Head of Non-communicable Disease Division, Ministry of Health, Kenya) welcomed distinguished visitors and delegates. Dr Eva Njenga (Kenya Diabetes Management and Information Centre) added her welcome and expressed the hope that the Summit would prove to act as a catalyst, as NCDs do not receive much in terms of African health budgets.

Professor Pierre Lefèbvre, (Chairman of WDF) said that it gave him great pleasure to welcome everyone in the name of the WDF. Professor Lefèbvre showed a short film (produced by the WDF) entitled ‘Praying for a Future’ which highlights the impact of diabetes on the developing world. Although some of the images are hard hitting, others are full of hope, ‘The future is not all dark’, he said. The film showed some of the realities of diabetes in your own countries.

The Minister for Health, of the Republic of Kenya, Her Excellency Charity Kaluki Ngilu (Figure 1), expressed her pleasure at attending the Summit. She acknowledged that Kenya’s health services and interventions have focused on infectious diseases and that adequate emphasis has not been placed on NCDs. ‘This imposes a huge burden on the overstretched health services in this country.’ A lasting solution for diabetes would be prevention and control within a national programme. To loud applause, she announced that the Ministry of Health is currently developing a comprehensive control programme for diabetes and other NCDs. She added that she and her Ministry will ensure that the programme receives the necessary resources.

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**Figure 1.** Her Excellency Charity Kaluki Ngilu, the Minister for Health, of the Republic of Kenya
The theme of the Summit was articulately summarised by Professor Paul Zimmet (International Diabetes Institute, Melbourne, Australia) who, in his keynote address, discussed the global health and economic challenge posed by diabetes and associated disorders.

In 2002, Professor Zimmet had said that ‘What HIV/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’. It is now one of the greatest epidemics in world history and is a truly global issue, but has to compete with HIV/AIDS, malaria, natural disasters (earthquakes, tsunamis etc), emerging diseases (severe acute respiratory syndrome [SARS], avian influenza), urban drift, water shortage, global climate change, poverty and the social dislocation of communities. It is against this background that we have to raise the awareness of diabetes as a major threat.

Developing nations face a ‘double burden’ due to the concurrent infectious disease epidemics, such as HIV/AIDS and tuberculosis (TB). ‘It is a disgrace that our major NGOs spend so little on the major non-communicable diseases (NCDs)’, said Professor Zimmet. In 2002 only 3.5% of the total WHO budget of US$ 43.8 million was spent on NCDs. ‘Why’ he asked, ‘has the message still not got through?’ He hoped that this WDF Summit might be a breakthrough ‘to get the WHO and other NGOs to take diabetes and other NCDs much more seriously’.

A quarter of a century ago, diabetes was not taken very seriously, but an awareness of the potential problem was starting to be uncovered. In the mid 60s, high rates were first seen in Polynesians, shortly after, the highest rates in the world were reported in Pima Indians in Arizona. Other areas of high rates were discovered in Nauru (Pacific) and among the indigenous peoples of Australia and New Zealand. The very high rates in the Arizona Pima – who lived a Western lifestyle – compared unfavourably with the racially similar Pima Indians in Mexico – who lived a traditional lifestyle and had a much lower incidence (Figure 2).

Turning to Africa, he highlighted the situation in Mauritius, which he described as ‘the harbinger of the global diabetes epidemic’, where the prevalence of diabetes between 1987 and 1998 increased by 40%.

The Diabetes Atlas for 2006 – an IDF and WDF initiative – shows the global projections for the diabetes epidemic

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**Figure 2.** Prevalence of type 2 diabetes in Pima Indians in Mexico and Arizona (aged 20 years and over)

<table>
<thead>
<tr>
<th></th>
<th>Percent</th>
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<tbody>
<tr>
<td>Mexican Pima</td>
<td>28.3</td>
</tr>
<tr>
<td>Arizona Pima</td>
<td>40.5</td>
</tr>
<tr>
<td>Arizona Pima</td>
<td>43%</td>
</tr>
</tbody>
</table>

**Figure 3.** Global projections for the diabetes epidemic: 2007–2025 (millions)

<table>
<thead>
<tr>
<th>Region</th>
<th>2007</th>
<th>2025</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>246 million</td>
<td>380 million</td>
<td>55%</td>
</tr>
<tr>
<td>Mexico</td>
<td>53.2</td>
<td>64.1</td>
<td>21%</td>
</tr>
<tr>
<td>Arizona</td>
<td>45.1</td>
<td>64.5</td>
<td>48%</td>
</tr>
<tr>
<td>World</td>
<td>16.2</td>
<td>32.7</td>
<td>102%</td>
</tr>
<tr>
<td>Mexico</td>
<td>10.4</td>
<td>18.7</td>
<td>80%</td>
</tr>
<tr>
<td>Arizona</td>
<td>46.5</td>
<td>80.3</td>
<td>73%</td>
</tr>
</tbody>
</table>
(Figure 3). There are now 246 million people with diabetes and this is projected to increase to 380 million by 2025: an increase of 55%. The global projections for impaired glucose tolerance (IGT) show a major growth from 308 million in 2007 to 418 million in 2025 – an increase of 36% overall and in Africa, 67%. The greatest increases will be in the less-developed world. For example, in Mauritius the prevalence of diabetes, will continue to rise from 11% to 13.4%; in South Africa, from 4.4% to 5.3%; and in Kenya, from 3.3% to 4.5%.

There is also the hidden threat of ‘pre-diabetes’ and IGT. For these three countries, the numbers of cases of IGT will increase from 140 000 to 180 000; 2 153 000 to 2 839 000 and 1 177 000 to 2 074 000 respectively: for Kenya this represented almost a doubling of the numbers of people with IGT, he pointed out. By 2025 there will be more than three quarters of a billion people worldwide with diabetes and pre-diabetes, holding the same risk of cardiovascular disease (CVD). But, as he reminded delegates, the diabetes epidemic did not just affect the developing world: in Australia, for example, in 1981 there were 250 000 cases; now there are over 1 million.

Professor Zimmet discussed the genetic-environmental interaction at the heart of the problem, describing the 20th century as the most obesogenic and diabetogenic environment in history. Using Cambodia as an example, where diabetes prevalence is approximately double in urban areas compared with rural areas, he highlighted the huge impact that socio-economic cultural and demographic change can have. He related this to the comparatively new science of epigenetics – the study of heritable changes in gene function that occur without a change in the sequence of DNA. Gestational diabetes could well be an example of this – where gestational complications in the mother may change the child’s risk of diabetes later in life. He said that this was an important area of research.

Finally, turning to prevention, he acknowledged that rigorous lifestyle change programmes may be successful in such countries as the USA and Finland but ‘How do you do it in developing nations with a background of poverty, unemployment, social dislocation and lack of access to care?’ He felt that the UN resolution on diabetes has now lowered the bar and is one way to move forward with leadership by local politicians. ‘It is time to raise awareness of diabetes and its global threat to health and productivity’ he said.
The session was chaired by Dr Eva Njenga (Kenya Diabetes Management and Information Centre) and Alice Ndong (Centre for Nutrition, Education and Research, Kenya).

Prevention of chronic diseases – WHO global strategy on diet, physical activity and health (DPAS)

Speaking on behalf of Dr Timothy Armstrong (WHO), Dr Boureima Hama Sambo (WHO Regional Office for Africa) described the Global Strategy on Diet, Physical Activity and Health (DPAS). Globally, 35 million people died from chronic diseases in 2005, representing 60% of all deaths. The main causes (in order) were CVD (mainly heart disease and stroke), cancer, chronic respiratory diseases and diabetes and low- and middle-income countries are the most seriously affected (Figure 4). There is a high prevalence of diabetes in the African Region and Dr Sambo showed statistics from Mauritius and Ghana as examples. According to the WHO, between 2005 and 2015, deaths from chronic diseases are estimated to increase by 27% in Africa. In 2015 28 million people will die from a chronic disease and, most markedly, deaths from diabetes will increase by 42%. By comparison, deaths from infectious diseases, maternal and prenatal conditions, and nutritional deficiencies combined will only increase by 6% between 2005 and 2015.

There are a number of causes of chronic diseases (Figure 5) and amongst these are such modifiable risk factors as unhealthy diets and physical inactivity. Thus, prevention is possible and many chronic diseases can be prevented if such risk factors are eliminated (Figure 6).

The objectives of DPAS are:

• To reduce risk factors for chronic diseases that stem from unhealthy diets and physical inactivity through public health actions
• To increase awareness and understanding of the importance diet and physical activity on health
• To develop, strengthen, implement global, regional, national policies, plans etc to improve diets and increase physical activity, that are sustainable, comprehensive and actively engage all sectors
• To monitor science and promote research on diet and physical activity.

Key principles are that strategies and policies should be multisectoral and multistakeholder, address all major chronic disease risk factors, and have a long-term perspective. Implementation needs to address all age, sex and socio-economic groups, said Dr Sambo. Advocacy must be sustainable and continuing and entry point at country level should be political. Tools for countries should be based on needs and macro and micro levels should be addressed in combination. The WHO has implemented DPAS workshops in Africa, the Americas, South-East Asia and Western Pacific regions, including a physical activity workshop in the African Region in 2007 and a ministerial conference on counter-acting obesity in Istanbul.
The WHO approach to implementation of DPAS involves several streams of work, such as accelerating country implementation in 36 high-burden low- and middle-income countries by 2010; increasing WHO response to obesity; more effective interaction with the commercial sector; strengthening global action on physical activity and improving financial and human resources.

UN Resolution on diabetes
Professor Martin Silink (President of IDF, Australia) reminded delegates that last December, the UN unanimously adopted resolution 61/225: World Diabetes Day. However, the UN passes many resolutions, and not all result in much action. This resolution is a gift to the diabetes world ‘and it is up to us to make something of it,’ he said. NGO’s such as WDF, WHO and the World Bank will be essential in driving this forward, as will ministries of health of national governments working together. The diabetes epidemic needs this holistic response. The world needs fast action, he claimed. The UN resolution is not enforceable but does carry the weight and moral authority of world opinion.

The resolution has six key messages:
• The first is that it addresses all forms of diabetes
• Next, that all governments recognise that diabetes is a debilitating and costly disease
• Thirdly, it poses risks to families
• It represents challenges to agreed goals, including the millennium development goals
• From 14 November 2007, World Diabetes Day will be observed annually
• All member states are encouraged to develop policies for the prevention, care and treatment of diabetes in line with sustainable developments in line with their healthcare systems.

‘These are powerful statements which all of us can use to lobby our governments,’ declared Professor Silink. It joins AIDS as the only two disease-specific UN resolutions and as one of only four world health days. Professor Silink described some of the obstacles along the road to getting the resolution accepted; including the charge that diabetes was not serious enough! There was also a perception that diabetes was a disease of affluence whilst, in reality, 70% of the burden fell on poor and developing nations. Diabetes undermines economic development and this was recognised by Bangladesh and the other original sponsoring nations.

He then discussed some of the measures which should now be taken. He expressed the hope that the blue circle logo of diabetes would become as well known as the red ribbon of AIDS. Furthermore, he emphasised, the entire diabetes community has to be part of the solution to halting the epidemic. For type 1 diabetes, the provision of insulin is a priority, for type 2 diabetes, primary prevention of the condition developing and secondary prevention of complications are joint priorities. IDF Centres for diabetes education will be established. National programmes will be assessed. The IDF would try to empower the WHO to embrace the NCDs more positively: the current level of investment on NCDs is unacceptable. ‘The diabetes community is impatient: there are 7 million more people with diabetes each year: we know that many of these are preventable,’ he said.

African Diabetes Declaration – the implementation strategy
In a witty and trenchant presentation, Professor Jean-Claude Mbanya (President-Elect of IDF, Cameroon) said that despite the problems of AIDS and other infectious diseases, diabetes is a serious issue in Africa. In Cameroon, for example, only about 27% of people with diabetes are controlled, and the rates for diagnosis and treatment of such complications as retinopathy, nephropathy and erectile dysfunction are low. In type 1 diabetes, the lack of availability of insulin is the major problem. Hypertension and obesity are also growing problems – the traditional African cultural perception is that being overweight is a sign of health, wealth and happiness. Being small and/or thin is a sign of illness, poverty and malnutrition. There was a need for a call to action to prevent and control diabetes and its complications – thus the IDF African Diabetes Declaration.

The purpose of the Declaration is to raise community and political awareness about diabetes and improve
diabetes care by working through a coalition of individuals, community, corporations and governments. It covers sub-Saharan African countries in East, West and Southern Africa, and focuses on the three major forms of diabetes – type 1, type 2 and gestational diabetes. The vision, recommendations and strategies proposed in the Declaration span the continuum of care from pre-diabetes through diagnosis, routine monitoring and care, to the onset of complications and palliation. The Declaration targets politicians; healthcare funders; planners; policy makers and providers; all public sectors; NGOs; all relevant industry sectors and private businesses, and the general community to act to reduce the public and personal cost of diabetes. It calls on governments of African countries, and all partners and stakeholders in diabetes to prevent diabetes and related NCDs and to improve quality of life and reduce morbidity and premature mortality from diabetes. Their claims include the provision of adequate, appropriate and affordable medications and supplies for people with diabetes; earlier detection and optimal quality care of diabetes; and the dissemination of information and education in order to improve self-care. Their claims also include actions to prevent diabetes, for example, by creating healthier environments and ensuring equitable access to care for people at risk of diabetes. They also insist on a truly integrated approach, which utilises the whole health workforce to address infectious and NCDs simultaneously. Professor Mbanya said that the key elements included advocacy, empowerment, prioritisation, mobilisation of resources, capacity building and 'making diabetes everybody's business'.
THE FIRST SYMPOSIUM: MILLENNIUM DEVELOPMENT GOALS – CAN WE ACHIEVE THEM WITHOUT AN NCD INITIATIVE?

This symposium was chaired by Dr Alieu Gaye (Chairman of IDF African Region) and Dr AJ Sule, (Ministry of Health, Kenyatta Hospital).

The burden of chronic diseases in Africa

Dr Sidi Louazani (WHO Regional Office for Africa) began by providing an overview of chronic diseases and their impact and the recent WHO publication Preventing Chronic Disease: a vital investment (2005). He said that 35 million people die from chronic diseases each year; indeed, such diseases represent 60% of all deaths. The number of people with diabetes in 2007 was 10.4 million; this is estimated to rise by 2025 to 18.7 million. Other chronic diseases include cancer, which is an emerging public health problem in the WHO African Region. In 2002 new cancer cases in sub-Saharan Africa were 582,000, killing 412,100. If no interventions are put in place, it is projected that in the year 2020 the number of new cancer cases will be 804,000 and the number of deaths due to cancer will be 626,400, said Dr Louazani.

The chronic disease epidemic is rapidly evolving and global recognition and response has not kept pace. There are a number of misunderstandings about chronic disease. For example, that it affects mostly high-income countries: in reality, 80% of deaths from chronic diseases occur in low- and middle-income countries. The view that low and middle-income countries should control infectious diseases before chronic diseases is also wrong: the reality is that there is a double burden. There are a number of risk factors common to major chronic disease conditions such as cardiovascular diseases, diabetes, cancer and respiratory conditions. These can include smoking, alcohol, nutrition, physical inactivity, obesity, raised blood pressure, raised blood glucose and abnormal blood lipids and there is a causal chain between behavioural and physical risk factors and disease outcomes.

Comprehensive and integrated action is the means to prevent and control these conditions. The WHO NCD global surveillance strategy involves the identification and description of the key NCD risk factors, using recommended WHO definitions; a standardised approach for conducting surveillance of risk factors to allow international comparisons within and between countries; continuous risk factor surveillance and providing data for policy development. He outlined stages in the WHO’s STEPwise approach to Surveillance (STEPS) (Table 1). The guiding principles are comprehensive and integrated public health action, intersectoral action, a life course perspective and stepwise implementation based on local considerations and needs.

The number of risk factors common to major chronic disease conditions such as cardiovascular diseases, diabetes, cancer and respiratory conditions. These can include smoking, alcohol, nutrition, physical inactivity, obesity, raised blood pressure, raised blood glucose and abnormal blood lipids and there is a causal chain between behavioural and physical risk factors and disease outcomes.

**Table 1. STEPwise approach to Surveillance**

<table>
<thead>
<tr>
<th>Planning step 1 - estimate population need and advocate for action</th>
<th>Planning step 2 - formulate and adopt policy</th>
<th>Planning step 3 - identify policy implementation steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy implementation steps</td>
<td>Population-wide interventions</td>
<td>Interventions for individuals</td>
</tr>
<tr>
<td>National level</td>
<td>Sub-national level</td>
<td></td>
</tr>
<tr>
<td>Implementation step 1 Core</td>
<td>Interventions that are feasible to implement with existing resources in the short term</td>
<td></td>
</tr>
<tr>
<td>Implementation step 2 Expanded</td>
<td>Interventions that are possible to implement with a realistically projected increase in, or re-allocation of, resources in the medium term</td>
<td></td>
</tr>
<tr>
<td>Implementation step 3 Desirable</td>
<td>Evidence-based interventions which are beyond the reach of existing resources</td>
<td></td>
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</tbody>
</table>

Young people with diabetes in Africa: a challenge

Dr Marguerite De Clerck (Mama Yemo General Hospital, Republic of Congo) reminded delegates that, out of a worldwide population of 1.8 billion children, there was a type 1 diabetes prevalence of 0.02% (440,000 children), an annual increase incidence of 3% and an estimated number of newly diagnosed cases per year of 70,000. She discussed the situation in Africa and, specifically, the Congo. In Kinshasa there is a network of health districts and in each of these there are hospitals and health centres. The district medical officer has overall responsibility but important tasks are given to nurses with special training. Affordable care is available, not too far from home for people living in Kinshasa but private practices vary in quality.

In Africa there is an apparently low prevalence of diabetes due to the fact that a proper diagnosis is often not made; many die at home or in an emergency department without a diagnosis. Clinically most are diagnosed with type 1 diabetes. ‘In our young population obesity is not yet a problem,’ remarked Dr De Clerck. The prevalence of type 1 diabetes is 0.02% and half of the number of cases occur in children under the age of 16.

Obstacles to care include an unsettled political situation; where there is a war, organising a programme in a proper way is practically impossible. She described other inadequacies in the infrastructure in many African cities, such as expensive (or no) schooling, poor housing, poverty, daily chores (certainly for girls), living on the streets (mostly for boys) and illiteracy. In addition because there are few fridges in good working condition, storing insulin injections at home is difficult (and together with strips, is expensive). Furthermore, the African habit of one big meal in the evening is not appropriate for people with diabetes. In general, there can be a lack of interest from caregivers, as doctors and nurses are not trained to care for chronic diseases with long-term care being very demanding with few financial rewards. Hospitals are overburdened, with no beds available for...
Dr Jonathan Betz Brown (Kaiser Permanente Center for Health Research, USA) said that diabetes would certainly subvert development. He suggested that no one knew exactly how much the cost was of subverting development; but he and treat diabetes. He suggested that no one knew exactly expenditures. Nations should WANT to spend more to prevent lives for people? – more GDP?’ It was probably a synergy. development. He asked what development meant: ‘Better
Diabetes, tuberculosis, and HIV
Professor Ib Bygbjerg (University of Copenhagen, Denmark) told delegates that diabetes, TB, and HIV represent a deadly threat throughout Africa, but that there is a unique opportunity for collaboration in the fight against them. NCDs and communicable diseases often hit the same populations, presenting a double burden. CVD and diabetes interact in the metabolic syndrome. Furthermore, TB and HIV interact, and TB and diabetes interact. HIV treatments (such as antiretroviral drugs) may induce both CVD and diabetes. The main thrust of Professor Bygbjerg’s argument was that, as these diseases are all becoming chronic and that as resources for control are sparse, the control of them should be integrated. This was a theme that was echoed by many speakers during the course of the Summit.

Will diabetes subvert development? The costs of not caring for diabetes
Dr Jonathan Betz Brown (Kaiser Permanente Center for Health Research, USA) said that diabetes would certainly subvert development. He asked what development meant: ‘Better lives for people? – more GDP?’ It was probably a synergy. Diabetes costs everyone, not just those with diabetes. However, the largest costs are not expenditures for diabetes care, they are mortality, disability, and economic stagnation. Wise spending on diabetes will actually reduce medical expenditures. Nations should WANT to spend more to prevent and treat diabetes. He suggested that no one knew exactly how much the cost was of subverting development; but he did offer a few clues. Globally, in terms of disability-adjusted years of life lost (DALYs), diabetes ‘is in the 80 million range’.

Dr Brown suggested that the figures shown in the accompanying table (Table 3) should not be seen as comparisons, but as illustrating the magnitude of the problem. Furthermore, the figure for HIV/AIDS is probably an overestimate and the CVD figures undoubtedly include some diabetes. But calculating the costs of diabetes is not just related to the patient in developing countries. Illness is probably the single biggest cause of destitution: caring for sick parents is done by children (particularly females) who miss their chances of education and employment with consequent impacts on their nations’ economic growth. The dollars lost from diabetes and CVD combined are colossal: China, US$558 billion; India, US$237 billion; Russian Federation, US$303 billion. In comparison, Tanzania lost US$2.5 billion, but as the rate of mortality from diabetes in Africa is probably four times higher than in the rest of the world, the continent will catch up.

Gestational diabetes
Professor Edward Coetzee (University of Cape Town, South Africa) said that there is now critical evidence that identifying and treating gestational diabetes can substantially reduce the risk of adverse outcomes and improve maternal quality of life. However, generally this requires a whole team ‘and we don’t have whole teams in Africa, but we can move towards something similar’. As diabetes is an occult disease, many people do not know that they have the condition; Professor Coetzee does not believe that universal screening is attainable in African economies. He suggests selective screening as a ‘second best’ solution. He said that it is important to identify and treat gestational diabetes and that the oral glucose tolerance test meets the criteria for diabetes.

Discussion
A physician from Mombasa said that medical insurance is becoming a big challenge as people with diabetes tend to be excluded. Dr Brown replied that there are (very) early discussions on this problem but that a big step forward would be to persuade donors to provide some of the money given to infectious disease to diabetes. Most treatments are relatively inexpensive. But, Professor Mbanya asked, how can donors and donor nations be persuaded to give money when they do not see diabetes as a problem in Africa? Dr Louazani said that the WHO was preparing a document on access and the impact of chronic diseases in Africa? Dr Louazani said that the WHO was preparing a document on access and the impact of chronic diseases in Africa, which will be discussed with Ministers of Health. A Kenyan practitioner, specialising in diabetes and pregnancy observed that guidelines had been produced in 1985 on screening for gestational diabetes. Few African obstetricians know about it. Professor Coetzee replied that it was a question of education and priorities.
Diabetes in Africa – challenges and opportunities
The first day of the Summit ended with one of the highlights of the meeting – a panel discussion and open forum co-ordinated by Quentin Cooper of the BBC’s Material World fame. Once memorably described by the Times as ‘the world’s most enthusiastic man’, he notably demonstrated this attribute during this session. He started by reminding delegates that they had had a long day of listening, ‘You’ve been through symposiums, and talks and keynote lectures and addresses, all combined with statistics and alarming facts from around the world. But this is where, with your help, we try to turn it around. This is where we build upon some of the positive messages that are coming through. Diabetes, as you’ve heard many times today, is a Non-communicable Disease – the mother of all NCDs, it was called in one recent session. But that’s no reason for not communicating about it. It’s a silent killer on which we need to pump up the volume, so that everybody can hear about, from the people who are potentially at risk from it, to the heads of countries and NGOs.’

The panel consisted of (alphabetically) Martin Gatehi (IDF Youth Ambassador for Diabetes, Kenya), Joseph Gibingi (Kenya National Health Insurance Fund), Sidi Louazani (WHO Regional Office for Africa), William Maina (Head of NCD division, Kenya Ministry of Health), Jean-Claude Mbanya (President-Elect, IDF), Ida Nicolaisen (Member of WDF Board and Vice Chair of the UN Permanent Forum on Indigenous Issues) and Finn Schleimann (Chief Technical Advisor, Health and HIV/AIDS Foreign Ministry, Denmark). Mr Cooper started by asking each of them what they considered to be the biggest challenges and opportunities.

Ms Nicolaisen thought that although we had all the data that we needed, the real challenge was getting the message across. She said that ‘We are seeing a movement in civil society, we are seeing the diabetic world now really getting together and moving. And we know that politicians or the UN do not really move until there’s a popular movement behind them, and I think we are at that crucial moment now.’

Mr Gatehi considered that the biggest challenge was ignorance about diabetes – both among the general public and politicians.

Dr Maina thought that the professionals did not see diabetes as a priority. It was a neglected area – especially in developing countries – because it was overshadowed by malaria, HIV and TB.

Dr Louazani said that we could not ignore HIV, malaria and TB. Everything was important, the challenge was to get the data for the morbidity of the NCDs and to give these to the policy makers. Another challenge was the limited resources in Africa.

Dr Schleimann admitted that there certainly was a serious problem with diabetes. However, he felt that the diabetes community would lose some credibility if it tried to imply that the diabetes problem was equal to HIV. In Africa there were 2.1 million people dying from HIV/AIDS and less than 300 000 from diabetes. ‘I think one should be bit careful not to alienate people who are not in this diabetes field.’

He believed that the way forward was in the integration of the opportunities for working with governments, and getting this serious problem on the agenda. ‘Get the right priorities and try to get the right financing.’

Professor Mbanya highlighted the need for advocacy to increase awareness, not only with the diabetes community and the nations, but also with the political leaders ‘who can enlist their support to make sure that the message gets across’. In terms of an integrated approach, it would be foolhardy to think that diabetes services could be created independently from other services. ‘I think we have to start thinking about how we would integrate our diabetes services with infectious and emerging diseases, so that we can use the same teams at different times.’

Mr Gibingi looked at the challenge from the perspective of the national health insurance fund where the main hurdle would be financing. ‘Diabetes is rising in our country and will continue to rise, so the challenge is how we are able to afford to make care available and how are patients going to afford the care?’ He saw an opportunity through the national health insurance fund, which was expanding in its mandates. It was the fund’s strategic plan to be allowed to move into outpatients where much diabetes could be handled. At the moment the fund only covered people who had been admitted to hospital. The plan might also include the health centres and dispensaries ‘so many more people are going to benefit. We are increasing our registration, our membership; we want it to move to offer poorer people who are not in employment and who may not in normal circumstances have money’.

(Speaking from the floor, Dr Eva W Njenga [Kenya Diabetes Management and Information Centre] interjected to say that diabetes had been excluded from medical insurance. She asked Mr Gibingi if he could get his colleagues to see diabetes differently.)
Mr Cooper noted that the seven panelists had produced a number of different perspectives between them. He now wanted to get down to some specifics: ‘Since we finished by talking about insurance and the funding side of things, let’s start with the limited resources and spending on healthcare. It’s likely that there will still be limits, so how do we make the best of those limits? How do we increase what’s available? I will start with Dr Maina, since your Minster was speaking to us this morning, and she said, that her ministry will do what it takes. So could you give us an idea of what it takes please?’

Dr Maina replied that the minister had to list all her priorities and balance them ‘and then see which one drains our economy more than the others, because, at the end of the day, we are talking about the social/economic balance of this disease. She talked about diabetes reducing the productivity of individuals, draining their resources, how do we capture this so that we stop the drain and increase the productivity? This way, we are supporting prevention, rather than just waiting for people to get sick and then treating the disease or its complications. It is very expensive to buy insulin, and therefore it is cheaper to educate people, to detect the problem before it comes, and furthermore, to prevent this disease from arising’. The minister had to consider how to appropriately manage education and the provision of outreach services to rural areas. Mr Cooper asked whether this would take more resources than were available. Dr Maina replied that at the moment very little money went to NCDs. He felt that at present the Government would not be able to manage without the support of the WDF.

Professor Mbanya stressed the need to look at the issue in terms of policy, ‘It is also in terms of re-allocation of the resources that you have, and in Africa, one of the things that we don’t do well is to look at the cost effectiveness of what we are doing. Let me give you an example. Someone has a diabetic foot and stays on a hospital bed for three months. Nobody thinks about the time that was spent in the hospital and the resources that the person has drained from our budget, because that looks invisible. But in fact it would cost less to control (his) blood sugar than to let him stay in bed for three months. So a re-allocation of resources involves seeing what is cost effective, seeing where we can reduce costs and re-allocate resources accordingly.’

Mr Cooper asked why was this not already being done if the maths added up so conveniently in favour of diabetes treatment and prevention? Professor Mbanya said that he once went to his minister of health and asked for insulin for all the children with diabetes in Cameroon. ‘They said that was basically impossible, and I said “well tell the President to cancel one of the national celebration days – we will save enough money to buy insulin for all the patients for the next 10 years”’. He said this was not possible, and I said it was possible! Why celebrate a national day and spend 1 million dollars on giving people food and champagne, rather than supplying them drugs? Or why buy equipment without maintenance contracts? I think these are things that we should start thinking about, and try to discuss with our people.’

Dr Louazani said that there were some practical interventions that were effective and cost effective. There were other interventions at the professional level, such as those linked to regulation, and to taxation. ‘It has been shown that the impact of these on disease prevention is very important, so we need to get this fact across to the decision makers. We need to tell them that 80% of cardiovascular hospital cases can be prevented and that 80% of cases of diabetes can be prevented.’

Mr Cooper asked that if the authorities had to prioritise, what was going to make them take diabetes as seriously as was needed? Ms Nicolaisen thought that ‘the advocacy thing’ was the key: she suggested that resources may not be as limited as we think. ‘We need to get out to the ordinary man who doesn’t know anything about diabetes – that’s really where we have to begin – those who suddenly have had a change of lifestyle, the urban population. If we could introduce the kind of educational programmes that we have already in place, I think we could go a long way. I’m thinking about not only schools, I’m thinking about vocational and adult training, radio programmes (there are a lot of radio programmes and also local networks all over, mainly from West Africa). I think there’s an agreement in this room that prevention is really the major issue if we are going to curb this pandemic. So I think that there are lots of things that can be done there.’

At this stage Mr Cooper opened up the debate to the delegates. Professor Naomi Levitt (University of Cape Town, South Africa) suggested that we could learn a lesson from the HIV/AIDS action campaign group in South Africa. ‘They mobilise the masses, they’ve got a lot of money, they had a very good infrastructure and they have an incredibly powerful organisation that has really changed the face of the management of HIV/AIDS in South Africa. I think that all of us – IDF, WDF, the Diabetes Associations in all of the countries, need to become powerful mobilisers of people, because governments actually listen to people. If 5000 people march on their local Houses of Parliament, demanding better diabetes healthcare, then something will happen. I think that we have been far too polite and have stood back for far too long. We need to be much more vocal and create a movement for diabetes from the grass roots level. If the parents of the kids with diabetes go and walk with placards, it is an incredibly powerful motivating tool for everybody.’

Mr Cooper asked Mr Gatehi (‘as you’re technically here in a grass roots capacity’) whether governments would listen? ‘Have they changed policies? Can you get mass movements to do such things?’ Mr Gatehi felt that there was a very good chance of such a course of action succeeding, for example, demanding that the politicians pass a bill to remove the taxes on insulin. ‘I think we need to do something, and to take the bull by the horns. We need to come out in the open, and show the impact that is being created by diabetes. Many people are losing their lives; they are dying unnecessarily because of their diabetes.’

Mr Cooper asked Professor Mbanya about learning from other organisations, such as the one in South Africa.
‘Are we always talking to each other? Are the individual organisations, whether it’s NGO’s or governments actually learning lessons from each other, or is there a lot of re-inventing the wheel going on?’ Professor Mbanya thought that indeed we really were trying to re-invent the wheel. ‘What I would not like us to do is try to compete, because the government has the same pot of money to distribute to a certain number of projects. What we have to do is align ourselves with others, so that we can form coalitions and partnerships. If someone is willing to deal with HIV/AIDS, and you train this person to be able to talk about the risk factors for diabetes, you are using the same body, the same person, so therefore there is no extra manpower needed. We have to see how we can integrate, and at the same time, learn from others. I don’t see why we should not join forces with HIV/AIDS so that we have this integration in the way that we are tackling the problem. I think we would not be successful if we go alone, we would be successful if we link up with others.’

Dr Schleimann thought that the problem was that future savings did not translate into current money. Companies and governments did not have the kind of money needed. Organisations should try to find cost effective ways of changing lifestyles. There were opportunities for different organisations to work together. Speaking from the floor, Dr Sule (Ministry of Health, Kenya) stressed the importance of advocacy which had had a major effect in the fight against HIV/AIDS.

Robert Wattle (Geneva) identified himself as the Editor of the newsletter, Real Health News, which makes the connection between healthcare policies in developing countries and research, suggested that all the health issues were being presented in the same way – as campaigning issues. He asked how an African government would balance the various opposing forces and come to a fair decision? Dr Maina said that in order to make such decisions, evidence was needed. ‘We do not have such evidence on NCDs. How do you plan how much insulin you need, when you don’t know how many people need it?’ he asked. So the first step was to collect evidence on the magnitude of the problem.

Discussing campaigning issues, Dr Schleimann suggested that the only issue which would attract media attention was that of insulin. The campaign on HIV/AIDS had been built on the issue of antiretroviral treatment (rather than the disease itself) ‘I am not sure that we would like to see another campaign based on expensive medications. I fully sympathise with the idea that everyone should have insulin, but not at the expense of other interventions which would save more lives. That is the harsh reality of Africa. It shouldn’t be so but we cannot change the fact that a lot of countries are unreasonably poor.’ Professor Mbanya replied that it is nothing to with whether insulin was expensive or not. To applause he declared that ‘Insulin is an essential drug. That means, you must have it.’

(Earlier, Dr Schleimann had – somewhat lightheartedly – suggested that the diabetes campaign appeared to have a religious fervour. A member of the audience [unidentified] asked what was wrong with that? All campaigns that were successful had such fervour. She suggested that, for example, the successful women’s movement [“initially considered to be run by crazies”] had such fervour.)

Returning to the matter of funding, Mr Lars Rebien Sorensen (CEO, Novo Nordisk, Denmark and member of WDF Board) said that more was needed. He was convinced that there would be possibilities to attract more contributions from the corporate world and national donors if ‘We can create credibility for the programmes’. Credibility came with the execution, good governance, providing good data, generating pilot programmes and demonstrating that it is possible to make a difference. He pointed out that insulins are not expensive: most of them are off patent drugs and are being made available to the poorest countries at cost. They only become expensive because of dysfunctional distribution: material is being redistributed from the public sector to the private sector for profit. The governments need to control distribution and put pricing controls in place. ‘We can make enough insulin for the whole world, many times over,’ he said.

Professor Martin Silink pointed out that, in addition to insulin, there are other therapeutic agents that we should be talking about, insulins were needed for type 1 diabetes, but the issue was broader than that. The big numbers were in type 2 diabetes. If we could reduce blood pressure and lipids into a satisfactory range, and control glycaemia, this would have huge benefits. Old fashioned diuretics and other blood pressure medications are cheap: US$200 a year. However, as Dr Schleimann pointed out, we are talking about governments who have between 10 and 20 US$ per capita for the whole healthcare system. But Professor Mbanya reiterated that the issue was not one of money only, but resetting priorities.

This subject of obtaining funds attracted much interest among delegates. A delegate from the Seychelles asked how much money could be obtained from the UN. A delegate from South Africa suggested that there should be a global fund for NCDs, partly financed by the developed world. Dr Schleimann thought that this was not desirable, ‘I’m no admirer of the present global funding. It often attracts money from other projects rather than producing additional money.’ He was more attracted by Mr Sorensen’s ideas for attracting money from the corporate world. However, Professor Mbanya felt that there was an urgent need for a UN global fund for diabetes/NCDs. A delegate from Ghana suggested a way of getting funds from the UN. A public expenditure review, on how resources had been spent over the last three years, should be produced. A summary document should then be submitted. ‘No donors will support your country without such a clear document and the funds have to be accounted for in detail.’ Dr Njenga said that the amount of the Kenyan National Budget to be spent on health had doubled from 5% to 11%. She asked Dr Maina if he could intervene to ensure that some of this went to diabetes. Dr Maina replied that there was no discrimination against any disease (except cosmetic) and that the way forward might be to integrate primary care into the health insurance scheme.
A delegate from Kenya said that when doctors are at medical school, they only learn about communicable diseases; and did not study NCDs. Unless they were so trained, ‘We are going to be talking about this problem for ever’. The solution was for the Minister of Health to complain to the University. Professor Mbanya replied that a collective approach from the ministry and the training schools was required. A lecturer in medicine at the University of Nairobi reported that the medical school had extended the curriculum to include diabetes education and that there were an increasing number of lectures on this subject. In addition to doctors, nutritionists and other lifestyle specialists were invited to give lectures. Furthermore, she added, research into diabetes, the metabolic syndrome and other NCDs was being undertaken. These data would be forwarded to the Ministry as they become available. The students had requested more workshops on diabetes and the WDF had been approached with this proposal.

Mr Cooper said that we had covered a whole spectrum of possible and practical suggestions. He asked the panel to suggest, on the basis of the discussion, what topics should have priority. Ms Nicolaisen had been encouraged to hear about all the research and felt we needed yet more. She also issued a plea to states to make a special effort to address the diabetes problem among the indigenous people, who more often than not are being neglected by health services. Mr Gaheti saw education as the first priority. Dr Maina considered that there was much that African countries could do without external resources: ‘We are very good at misusing the regional resources that we have.’ Dr Louazani stressed the importance of the integrated approach. Dr Schleimann felt that the medical departments needed to sort out their priorities and that more research was needed into people’s lifestyles. Dr Mbanya stressed the importance of mobilising national programmes and Mr Gbingi felt that social insurance should be more integrated into the total package. After thanking the panel and contributing delegates, Mr Cooper said he felt sure, on the basis of what had been proposed that, ‘We will leave the hall feeling a bit more optimistic than we had earlier today’.
SECOND SYMPOSIUM: DEVELOPING NATIONAL DIABETES AND RELATED NCD PREVENTION AND CARE PROGRAMME

This, the second symposium of the Summit, was chaired by Dr Eva Muchemi (Kenya Diabetes Management and Information Centre) and Dr Atieno Jalang’o (Ministry of Health).

Overview
Professor Ruth Colagiuri (University of Sydney, Australia) started by describing the Australian National Diabetes Strategy, The Western Pacific Plan of Action and the African Diabetes Strategy. The Australian Strategy was a detailed implementation plan and the goals were the prevention and care of type 1, type 2 and gestational diabetes; research to improve knowledge and expertise; and strengthening the health system. Imperators for change were information, best practice, and co-ordination. As the plan was 10 years’ old, the plans now would be a little different, said Professor Colagiuri. It was diabetes focused and did not integrate with other diseases. Two years later, IDF WHO and the Pacific Community launched the Western Pacific Diabetes Declaration. There was a broader population base and more evidence on prevention than in the Australian strategy. It discussed co-operation with NGOs (to a limited extent) and the integration of diabetes with CVD. Professor Colagiuri stressed the importance of making governments aware of the links with other diseases, ‘So that they are not just investing in diabetes’.

The African Diabetes Strategy (in which she was involved) was able to make use of the recent prevention evidence and the economic argument for investing in chronic diseases. She said that the role of such programmes is to provide a strong advocacy case for both prevention and care of diabetes.

The WHO document Preventing chronic diseases: a vital investment (2005) was heavily influenced by the African strategy (‘Although it’s a bit odd that WHO is still not investing very heavily in chronic diseases,’ observed Professor Colagiuri, dryly). The WHO proposed that a 2% annual reduction in chronic disease death rates worldwide would result in preventing 36 million deaths. The evidence was there: 80% of CVD, 80% of type 2 diabetes and over 40% of all cancer cases could be prevented.

‘Where do we go from here?’ she asked. ‘We enter the 21st century in a bit of a mess. Globalisation has brought some good things, but it has caused chronic disease to exacerbate cancer; mental health; respiratory and heart disease; obesity and diabetes.’ The gradual move from the country to cities has created a more sedentary lifestyle. Thus, it is no wonder that, according to the Harvard School of Public Health, the total proportion of chronic diseases will increase from under 50% (in 1980) to almost 70% in 2020. Therefore, we have to change the environment. She was becoming increasingly in favour of a roadmap for diabetes involving workplace incentives and disincentives for employee health, high level policies for food supply and urban design for health.

Clinical services
Dr Kaushik Ramaiya (Shree Hindu Mandal Hospital, Dar es Salaam, Tanzania) said that so far we had been talking about policies and implementation but the reality is also about treating the patient with diabetes – in other words, clinical care. This spectrum involves diagnosis, treatment for type 1 or type 2 disease, education and prevention of complications. This process starts with community awareness. Work from Cameroon has shown that 80% of people screened do not know they have diabetes. Other studies have shown that for every known case there are between three and six people who have diabetes in the community, ‘And we need to find them early’. The prevalence of type 2 diabetes in sub-Saharan Africa varies from up to 3% in rural areas, to up to 7% in urban areas, with some areas (such as South Africa and among Indian populations) having even worse figures. The major acute complication in type 1 diabetes is diabetic ketoacidosis with a high mortality (up to 35%) and the main contributing factor is a lack of insulin and healthcare providers’ lack of knowledge of the signs and symptoms. In type 2 diabetes, hyperglycaemic coma accounts for 10% of all hyperglycaemic emergencies (up to 45% mortality). Hypoglycaemia is also very common. Chronic complications are high and range across the region, eg: micro/macrophascular (30–85%), nephropathy (28–46%), neuropathy (28–42%) and cerebrovascular disease (1–8%).

He discussed diagnostic aids. Urine strips and (some) glucose meters are all very expensive and most centres cannot afford to use them. Most centres cannot afford HbA1c tests. In addition lipid profiles and so on depend on biochemical analysis and most centres do not have them.

Dr Ramaiya then discussed management and treatment, starting with non-pharmaceutical approaches. Most areas do not have nutritionists as an integral part of their clinics and, in the rare cases when they do, they tend to adopt a holistic approach. There are few training programmes for educators and those that do, do not offer certification (and thus commitment).

In terms of pharmaceutical treatment, oral hypoglycaemics, antihypertensives and lipid lowering drugs are available but often are of poor quality and from the black market. Insulin is a major challenge in terms of availability and cost. Some very poor people will obtain insulin free or cheaply from public hospitals, but sell it to the private sector.

He stressed the importance of integrating services. There was no reason why HIV/AIDS centres and diabetes centres could not work together and develop joint programmes. Much of the equipment in the laboratories would be common to both conditions (urine and haemoglobin testing, for example), many healthcare staff could be trained in aspects of both conditions and support services and laboratories could serve both conditions.
Primary prevention
Dr Boureima Sambo (WHO Regional Office for Africa) said that primary prevention of NCDs has to be scaled up for the optimal allocation of scarce resources. He defined primary prevention as the prevention of disease before it started. Up to 80% of diabetes cases can be prevented using such approaches. There are a number of common behavioural and physiological risk factors responsible for most of NCDs, which have to be addressed. These include lack of physical activity, sedentary lifestyles, unhealthy diets and high alcohol and tobacco consumption. These lead to obesity, hyperlipidaemia and hypertension – characteristics which all the NCDs share in common. ‘The risk factors of today are the chronic diseases of tomorrow,’ he said. Community-wide efforts are needed. Action must be comprehensive, integrated and targeted. Key interventions are health education, increasing physical activity, taxes and price control and advocacy. Schools, workplaces, religious communities and the commercial sector must be targeted. In terms of nutrition, fruit and vegetable consumption must be increased and a traditional African diet has been shown to be beneficial.

Discussion
A delegate said that most of the community of people working in diabetes agreed about the need to integrate services. But how do we convince the others to integrate diabetes into their existing programmes? Dr Ramaiya replied that two years ago, there would have been resistance but that now, with many AIDS patients being on antiretroviral therapy, many of them were developing metabolic syndrome and diabetes and this was gradually changing attitudes. The main challenge, he felt, was that people do not like to see their territories invaded by others – due, partly by the special allowances given to HIV specialists. Dr Sambo agreed that there might be resistance initially but that the local hospital administrators and programme managers needed to be approached and convinced. Speaking from the floor, Dr Sule felt that it is the way that a case for co-operation is presented that makes the difference. Furthermore, he stressed that all African countries needed support from donor agencies in achieving integration. Another delegate emphasised the importance of integrating mental health services: stress and depression are related to many other health conditions. Professor Colagiuri agreed, ‘All these problems are linked and they are all exacerbating each other’. She said that the economic argument, about productivity, would be the most successful, ‘The human rights argument has been falling on deaf ears’. Another delegate, from Cameroon, pointed out that neurological and cerebrovascular problems should also be included in a holistic approach. Professor Silink – speaking from the floor – pointed out that HIV/AIDS and TB were, in fact, chronic diseases. ‘We have to find a better nomenclature: this one causes difficulties in integration.’ Another delegate saw problems in integrating HIV/AIDS clinics with diabetes ones: there was still a perceived stigma about AIDS and this could discourage diabetes patients from attending the same clinics.
This session, which described many of the important local WDF-associated projects, was chaired by Dr Kitirda Acharya (Kenya Diabetes Management and Information Centre) and Dr Nancy Ngugi (Ministry of Health, Kenyatta Hospital).

The need for global awareness raising, advocacy and action in diabetes: the response of WHO and IDF

Dr Gojka Roglic (WHO, Geneva) reminded delegates that the WHO provided support to member states to enhance the health of their populations. It is a UN specialised agency for health, is governed by 192 member states, and has headquarters in Geneva and six regional offices and numerous country offices. The first World Health Assembly (in 1948) set priorities for the organisation: malaria, TB, venereal diseases, maternal and child health, sanitation and nutrition.

Examples of successful WHO activities include smallpox eradication and campaigns against yaws, endemic syphilis, leprosy, trachoma, malaria in Europe and the control of the cholera pandemic. Moderately successful, ongoing activities include polio eradication, an expanded programme on immunisation, and antiretroviral therapy for 3 million people in low- and middle-income countries. Unsuccessful campaigns include the initiative to reduce maternal morbidity and mortality by 50%.

Turning to the WHO and NCDs, Dr Roglic said that in 1998 there had been a tobacco free initiative to co-ordinate a global response to the tobacco epidemic. In 2003 the World Health Assembly adopted the Framework Convention on Tobacco Control – the first treaty negotiated under the auspices of WHO. In 2004, the World Health Assembly had adopted the Global Strategy on Diet, Physical activity and Health. In 2005 there was the first WHO report on chronic NCDs (a copy of this impressive document had been distributed to every Summit delegate). However, the funding for NCDs at WHO in 2002 remained only 3.5% of a total budget of US$43.6 million (Figure 7) and increased health support by donors is mostly directed towards HIV/AIDS – not NCDs (which received only 0.1% of a total budget of US$2.9 billion in 2002). Nevertheless, Dr Roglic emphasised, the WHO is the largest source of funding for chronic diseases and provides ten-fold more funds than all bilateral agencies combined (Table 4).

The IDF is a natural ally and partner to the WHO, she observed. The two organisations have complementary strengths for awareness raising, WHO works with governments, has a strong public health voice, offices in almost every country, is a global reference centre for health statistics and has prestige among governments and health ministries. The IDF works through member associations has a strong lay and professional advocacy voice, a network of member associations, a well-developed secretariat to respond to calls for information and has prestige among NGOs and the private sector. WHO-IDF collaborations include norms and standards, capacity building, surveillance (Global estimates 2007 and 2025) and awareness raising through Diabetes Action Now in co-operation with the WDF. The main aim of this is to increase awareness of the impact of diabetes in low- and middle-income countries and to propose solutions. Its key messages are that diabetes is a life-threatening common condition and its frequency is rising dramatically all over the world and its economic impact is considerable. However, the condition and its complications can be prevented. During her presentation she addressed some of the common misunderstandings about diabetes. For example, she stressed that diabetes is not a disease of affluent nations, it does not only affect the elderly, and it is now a real problem in Africa. However, cost-effective interventions are available in developing countries, and diabetes is something we cannot ignore.

Diabetes clinical guidelines for sub-Saharan Africa

Professor Naomi Levitt (University of Cape Town, South Africa) started by discussing diabetes care: issues in Africa, ‘Problems, problems, problems, we’ve heard nothing but problems,’ she said. There is an HIV/AIDS epidemic and healthcare systems are geared to acute illnesses and infectious diseases, rather than NCDs. There is a lack of resources, financial difficulties, few trained healthcare workers and equipment, poor patient adherence and a lack of education. If staff do not know about diabetes, she asked, how can we expect our patients to know about it?

Looking on the more optimistic side, she discussed a possible solution, namely the updated clinical practice guidelines. The
IDF Africa Region initiated this project and Professor Levitt expressed gratitude to the WDF for its funding. The new guidelines needed to take local factors into consideration, bearing in mind that African countries differ widely in their resources. She highlighted some of the subjects covered in the new guidelines. Organisation of diabetes care is divided into primary, secondary and tertiary and, within each group, into personnel and equipment required. At a primary level this can vary enormously (Table 5). At a secondary level, equipment and personnel are more advanced, she said (Table 6). ‘At a tertiary level, we would like there to be facilities for cardiovascular diagnosis, for haemodialysis and renal transplant, although we know that diabetic nephropathy in most of sub-Saharan Africa is basically a death warrant, unless you have access to private health care.’

The guidelines contain components on monitoring the quality of care, definitions, diagnosis and classification, how diabetes presents (‘which may present atypically in many parts of Africa’) and the prevention of diabetes. The guidelines also cover the metabolic syndrome and obesity, associated conditions and the management of chronic complications. The guidelines also look at special situations – such as fasting, which is, prevalent among some religious groups. There are also sections on living with diabetes and available drugs. The guidelines also focus on how to set up a primary level diabetes service – maintaining an inventory and keeping statistics, tracking non-attenders and identifying at-risk patients.

The next challenge, said Professor Levitt, will be the implementation of the guidelines. These imply changes in individual clinical decisions and practices and changes in organisational policies and procedures. This process will take place over the next few years with a pilot in 10 countries. She finished by thanking all the other members of the guideline task force: Professor E Ohwovoriole (Nigeria), Dr Tossou Komlan (Togo), Dr Ahmed Twahir (Kenya), Dr Ramaiya and Professor E Ohwovoriole (Nigeria), Dr Tossou Komlan (Togo), Dr Ahmed Twahir (Kenya), Dr Ramaiya and Professor Mbanya.

Diabetes education manual for sub-Saharan Africa
Dr Alieu Gaye (Chairman, IDF African Region) briefly described the WDF-funded diabetes education manual for sub-Saharan Africa. As with Professor Levitt, he drew attention to the fact that Africa has many countries with differing resources and needs. While diabetes will increase in Africa, ‘much more striking’ is the estimated increase in IGT. This emphasises the need for continuous education of a standardised quality. In 1998 the first training course was held for 27 pan-African educators. This was followed by another course and in total 54 educators were trained. The manual was developed by Dr Ramaiya in 2000. The manual will be rolled out in 10 – mainly eastern – African countries including Senegal and Ghana. Later, it is hoped to include another five West African countries. The objectives of the manual are:

- To facilitate behavioural change
- To increase awareness
- To address diabetes in special circumstances – children and the elderly
- To cover gestational diabetes and palliative care.

Discussion
Professor Mbanya asked, ‘After all these nice documents, what next?’ Professor Levitt said that it is all very well to produce a guideline: the next step will be a major challenge. But she is not sure that the present dissemination and implementation strategy will be adequate. The current funding is a drop in the ocean. For example, as a colleague from Mozambique observed, the manuals need to be translated (into Portuguese) and this is very expensive. Asked why the spend on NCDs was so relatively low, Dr Roglic replied that the resistance lies in traditional approaches and a lack of awareness of the problem. There is a perception that governments are responsible for treating communicable disease but not for the unhealthy lifestyles of the population. In addition, most governments like interventions which show quick results for voters, which is not the case with NCDs. Dr Ramaiya suggested that a country’s economic circumstances also play a part. A country that produces cooking oil or sugar does not like to hear that these are unhealthy. Speaking from the floor, Dr Prabha Choksey, a consultant ophthalmologist in Nairobi, said that when she came to Africa 20 years ago, she had been told that there was no diabetic retinopathy. Now there are many cases but only one ophthalmologist per million population.

The Summit continued to discuss WDF projects in Africa, this part of the session being chaired by Dr Evariste Boenizabila (WHO Regional Office for Africa) and Dr Aj Sule.

Diabetes education in Kenya
Dr Eva Njenga (Kenya Diabetes Management and Information Centre) described a joint four-year partnership of the WDF, Ministry of Health and the Kenya Diabetes Management and Information Centre (DMI). The DMI Centre was founded in 1995. It supports the activities of the Kenya Diabetes Association (KDA) and Diabetes Management Information Centre (DMI) in the Ministry of Health and the Kenya Diabetes Association (KDA). The Centre is supported by the World Diabetes Foundation (WDF) and the World Health Organization. The KDA was established in 1998. It is the first national diabetes association in Kenya and its main objectives are to raise awareness about diabetes, support people with diabetes, promote research and provide training and education for healthcare professionals. The KDA has a membership of around 30,000 people with diabetes and their families. The KDA also runs a diabetes helpline and a diabetes information centre.

Table 5. Organisation of primary level diabetes care

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<tr>
<td>Nurse</td>
<td>Clinical care guidelines</td>
</tr>
<tr>
<td>Village health worker</td>
<td>Urine strips for glucose/ketones/proteins</td>
</tr>
<tr>
<td>Medical officer(s)</td>
<td>Blood glucose meter with appropriate strips</td>
</tr>
<tr>
<td>Medical assistant</td>
<td>Sphygmomanometer with appropriate cuff sizes</td>
</tr>
<tr>
<td>Diabetes educator</td>
<td>Weight scale and height measure</td>
</tr>
<tr>
<td></td>
<td>Tape measure</td>
</tr>
<tr>
<td></td>
<td>Monofilament</td>
</tr>
</tbody>
</table>

Table 6. Organisation of secondary level diabetes care

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>All above +</td>
<td>All above +</td>
</tr>
<tr>
<td>Diabetes educator</td>
<td>Ophthalmoscope</td>
</tr>
<tr>
<td>Dietitian</td>
<td>Tuning fork and patella hammer</td>
</tr>
<tr>
<td>Chiropodist</td>
<td>Biochemistry analyser for glucose, lipids,</td>
</tr>
<tr>
<td>Physician</td>
<td>renal function and HbA1c</td>
</tr>
<tr>
<td>Lab technician</td>
<td></td>
</tr>
</tbody>
</table>

The WDF-funded diabetes education manual for sub-Saharan Africa (Table 5). The manual will be rolled out in 10 – mainly eastern – African countries including Senegal and Ghana. Later, it is hoped to include another five West African countries. The objectives of the manual are:

- To facilitate behavioural change
- To increase awareness
- To address diabetes in special circumstances – children and the elderly
- To cover gestational diabetes and palliative care.

increase in Africa, ‘much more striking’ is the estimated increase in IGT. This emphasises the need for continuous education of a standardised quality. In 1998 the first training course was held for 27 pan-African educators. This was followed by another course and in total 54 educators were trained. The manual was developed by Dr Ramaiya in 2000. The manual will be rolled out in 10 – mainly eastern – African countries including Senegal and Ghana. Later, it is hoped to include another five West African countries. The objectives of the manual are:

- To facilitate behavioural change
- To increase awareness
- To address diabetes in special circumstances – children and the elderly
- To cover gestational diabetes and palliative care.

Discussion
Professor Mbanya asked, ‘After all these nice documents, what next?’ Professor Levitt said that it is all very well to produce a guideline: the next step will be a major challenge. But she is not sure that the present dissemination and implementation strategy will be adequate. The current funding is a drop in the ocean. For example, as a colleague from Mozambique observed, the manuals need to be translated (into Portuguese) and this is very expensive. Asked why the spend on NCDs was so relatively low, Dr Roglic replied that the resistance lies in traditional approaches and a lack of awareness of the problem. There is a perception that governments are responsible for treating communicable disease but not for the unhealthy lifestyles of the population. In addition, most governments like interventions which show quick results for voters, which is not the case with NCDs. Dr Ramaiya suggested that a country’s economic circumstances also play a part. A country that produces cooking oil or sugar does not like to hear that these are unhealthy. Speaking from the floor, Dr Prabha Choksey, a consultant ophthalmologist in Nairobi, said that when she came to Africa 20 years ago, she had been told that there was no diabetic retinopathy. Now there are many cases but only one ophthalmologist per million population.

The Summit continued to discuss WDF projects in Africa, this part of the session being chaired by Dr Evariste Boenizabila (WHO Regional Office for Africa) and Dr Aj Sule.

Diabetes education in Kenya
Dr Eva Njenga (Kenya Diabetes Management and Information Centre) described a joint four-year partnership of the WDF, Ministry of Health and the Kenya Diabetes Management and Information Centre (DMI). The DMI Centre was founded in
The targeted parameters are to raise more awareness on diabetes in the developing countries of Asia and Africa. IDF and WHO of prediction on the expected rise of diabetes diagnosed through complications) and by concern from the public, and from reports by diabetologists (the majority diagnosed through complications) and by concern from the IDF and WHO of prediction on the expected rise of diabetes in the developing countries of Asia and Africa.

The targeted parameters are to raise more awareness on diabetes and hypertension day. Following a welcome by Dr P Okoth (from the hospital) we had the opportunity to see the project in action. The event takes place in open space attached to the hospital where there are marquees for the various activities. Several hundred patients (or potential patients) attended. Following a public address by trained educators, the patients disperse to the various marquees, depending on their needs and the stages of their diagnosis and treatment.

As appropriate in the different marquees, they describe their symptoms, have blood pressure measured and glycaemic tests, and an interview with a doctor. On this particular day, 34 new cases were diagnosed. They then line up to receive their medication (usually free at the hospital) if needed. We talked to many of them – either in English (which some spoke) or through one of the excellent and most helpful interpreters. Saweria has a six-year-old daughter, Sheila, with type 1 diabetes. Sheila is tiny for her age and is carried by her mother on her back. No great hardship for Saweria, you might think, but they travel 30 miles – usually on foot – to attend the clinic. Sheila now receives insulin free at the hospital but how she manages at other times is unknown. The situation is very difficult for the little family, both financially and emotionally, but we are struck by Saweria’s optimistic outlook. Life is slightly easier for Elizabeth who lives in Navaisha and has type 2 diabetes. She says that she is very well cared for and laughs easily and long. But you can see that she has had a hard life. Elias – also type 2 diabetes – has a small holding which is in financial difficulties as he has to pay towards his treatment but he is stoical. He takes his diabetes seriously and has made lifestyle changes on the advice of his care workers.

Dr Njenga then described some of the steps taken so far. Firstly, there has been a focus on capacity building for hospital-based educators, doctors, clinical officers, nurses, nutritionists and paramedics (Table 7). She illustrated some of the training sessions which have taken place so far: these include a professional healthcare providers training course in Nakuru, and foot care practical training at Kisii Hospital for professional healthcare providers in Nyanza Province.

There has also been a focus on capacity building for lay educators and to date over 3000 people have been trained as such within the country – through them, many people are now becoming aware of the condition and are seeking more information, observed Dr Njenga. Another focus has been to empower nutritionists to serve as key diabetes team members because nutrition is a key element in the management, prevention and control of diabetes and nutritional counselling has played a great role in this respect. She reported progress in setting up new diabetes clinics and strengthening existing general clinics (Figure 8).

The training of young people with diabetes (in annual diabetes youth camps) has also been important. So far, the DMI, the WDF and other agencies bringing hope to some of the most disadvantaged people on the planet. As Professor Lefebvre suggested during the Summit, you don’t need scientific evidence to prove the need to help these people – just visit the remarkable Navaisha District Hospital.

Table 7. Hospital-based staff that have undergone training

<table>
<thead>
<tr>
<th>Category</th>
<th>Target</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors and CO</td>
<td>500</td>
<td>308</td>
</tr>
<tr>
<td>Nurses</td>
<td>3040</td>
<td>1279</td>
</tr>
<tr>
<td>Dietitians</td>
<td>250</td>
<td>243</td>
</tr>
<tr>
<td>Paramedics</td>
<td>1000</td>
<td>619</td>
</tr>
<tr>
<td>Lay educators</td>
<td>3754</td>
<td>3338</td>
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The day before the Summit, representatives of the international press – accompanied by members of the board of WDF, Dr William Maina, Dr Eva Njenga, Mr Jamal Butt (Communications manager WDF) – visited Navaisha District Hospital, about three hours’ drive from Nairobi. The diabetes centre is run by the Kenya Diabetes Management and Information Centre (described by Dr Njenga elsewhere in this publication) and our visit coincided with a regular diabetes and hypertension day. Following a welcome by Dr P Okoth (from the hospital) we had the opportunity to see the project in action. The event takes place in open space attached to the hospital where there are marquees for the various activities. Several hundred patients (or potential patients) attended. Following a public address by trained educators, the patients disperse to the various marquees, depending on their needs and the stages of their diagnosis and treatment.

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</table>
129 young people with diabetes have been trained as lay educators and have been educating other young people and creating awareness. Furthermore, the project assists with basic requirements for diabetes clinics – glucometers, strips, weighing scales, blood pressure machines and stethoscopes, for example.

The Centre lobbies the Ministry of Health to refocus on diabetes as a major health concern and collaborates with the Ministry to create awareness during the World Diabetes Day, to train professional healthcare providers on diabetes management, prevention and control and by working with Members of Parliament in the medical camps.

Every year since 2000 there has been a Diabetes Fundraiser golf tournament which has proven to be very successful in raising awareness in the upper and middle classes. New cases of the condition have been discovered every year – 2007 having eight new cases out of 220 participants. Through this increased awareness, heads of corporate organisations have requested screening and education for their employees.

At the annual Diabetes Walk there is voluntary testing for diabetes for everyone who attends and every year there have been new cases found in increasing numbers. Diabetes and the number of cases diagnosed has been rising. Education materials have been developed, approved and tested in conjunction with the Ministry of Health, Division of Non-communicable Diseases. There are posters in the main languages of Kiswahili and English and in eight local dialects with an 80% national coverage. Public awareness is increased by a number of programmes. The schools programme has covered around 70 schools with an average population of 950 students in each school in Nairobi and its environs. Community groups (the biggest reach) in the local community are organised with churches and women’s groups, and free monthly education forums cover an average of 350–500 people.

Dr Njenga discussed one of the most important projects – the medical camps. The main focus of these is on diabetes and hypertension and they encourage random check ups. Last year there were 16 such camps in 16 constituencies in the country. The number of people tested was 21,814 and 319 new cases of diabetes were identified in addition to 849 cases of IGT and nearly 3500 cases of hypertension. The DMI Centre works closely with the Kenya Medical Supplies Agency (KEMSA) and various pharmaceutical companies.

She outlined the achievements so far. There is a noticeable increase in requests for diabetes education from community groups and corporate groups. There is a reported decrease in the number of diabetes patients admitted and staying in hospital, and more diabetes clinics are being set up or improved. Facilities are now taking the initiative to requests for training and guidance in clinics. There is better management of diabetes due to updated training and more awareness amongst the general public on blood glucose monitoring. The numbers seeking random testing have increased at the DMI Centre – from 15–20 per week in 2000, to 50–100 per week in 2006.

However, continued Dr Njenga, there were constraints on progress. These included personnel (particularly educators), inadequate equipment and space (most diabetes clinics cannot run daily as space is shared with other medical clinics) and inadequate data and there is as yet no policy document on diabetes. Finally, discussing finance, she observed that allocated funds are inadequate and this limits proper implementation. There are no funds allocated in the national budget for such a huge problem.

**Initiatives in Tanzania**

Dr Ramaiya presented an overview of WDF projects in Tanzania, a country of 34 million people. The process started with funding for the Tanzania Diabetes Association (TDA) from the Novo Nordisk World Diabetes Day Charity Walk to develop a diabetes centre. Since then a number of clinics at regional hospitals have been established with funding (mainly) from the WDF, with the Ministry of Health providing the physical space, doctors, nurses and lab technicians. The TDA developed a curriculum for training, monitoring, and evaluation to produce a sustainable diabetes service. Clinics already existed in the Dar es Salaam area, so the first main project was to set up four in outlying districts with no such services. There are now clinics in all 19 regional hospitals in the country. They then carried out a pilot to establish a model for clinics at district level (there are 138 districts).

Training for the regional centres is carried out for doctors and nurses who are then given a starter kit, consisting of a blood pressure monitor, glucose meter, stethoscope, height and weight machines and some drugs. A fund was
set up which has now been able to purchase three HbA1c monitors. Every year monitoring, evaluation and education is carried out. There are plans to issue certificates in diabetes education. A second project is now underway to improve diabetes and NCD care in one region. The local churches, radio, posters and food exhibitions – in line with the local environment – have been used to make the community aware of these facilities.

**Strategy for early identification of diabetes and impaired glucose homeostasis in HIV positive people in South Africa**

Professor Levitt presented preliminary data on a strategy for the early identification of diabetes and impaired glucose homeostasis in HIV positive people in South Africa. She reminded delegates that there are an estimated 39.5 million adults and children in the world living with HIV, of which 24.7 million live in sub-Saharan Africa (however, as she pointed out, there are 246 million people with diabetes globally). The prevalence of both diabetes and HIV varies widely across the different regions of sub-Saharan Africa. She described a project that is under way to determine the prevalence and risk factors for disorders of glucose homeostasis in HIV-positive patients on various highly active antiretroviral therapy (HAART) regimens and to develop a simple cost-effective screening tool to be used at a primary healthcare facility level at initiation of therapy and at subsequent follow-up to identify glucose abnormalities. This will be a cross-sectional study on subjects attending HIV clinics in the community. There will be a medical history taken, a clinical examination (height and weight, waist and hip circumference), blood pressure and oral glucose tolerance test. Data will be analysed in an attempt to identify the parameters most indicative of an increased risk for disorders of glucose homeostasis.

**Cameroon burden of diabetes project (CAMBOD)**

Dr Leopold Fezeu (Epidemiologist, Data Manager, Cameroon Burden of Diabetes Project) described the WDF funded five year CAMBOD Project which aims to lay the foundation for a national diabetes programme for Cameroon by creating a surveillance, control and prevention system. A national survey for diabetes and major risk factor prevalence, covering more than 10 000 adults across four sites at primary healthcare level was carried out by doctors and nurses. The survey found, for example, that the overall prevalence of hypertension was nearly 25%, but that only 23% of these were aware of their condition. Of the 62 healthcare facilities visited in the sites only five had organised diabetic clinics, where activities like health promotion screening and treatment normally took place. Only four out of the 62 clinics had existing treatment guidelines for diabetes. No facility routinely tested for blood sugar level and glucose meters were available in 30 out of 62 facilities. A total of 70% of all the healthcare providers felt they needed more training on the management of diabetes and hypertension.

Dr Fezeu described some of the excellent activities carried out by the Project. Seventeen diabetes clinics in the four pilot sites were organised and 45 doctors and 141 nurses were trained as frontline healthcare staff. Equipment and drugs were provided at subsidised cost. There was a revision, production and dissemination of management guidelines and algorithms and the opening of a National Obesity Clinic. Nearly 8000 patients with diabetes and/or hypertension were followed up (Table 8). Preventive activities so far have included the screening of 23 000 subjects at risk, the production and distribution of health promotion materials (eg, posters, stickers, fliers, pictorial booklets, a video film and the training of traditional healers. There are also sensitisation and awareness health talks in health facilities and the community on diabetes and its complications. Surveillance activities include the compilation of data on the morbidity and complications of diabetes (Table 9).

Dr Fezeu emphasised the impact of the Project. There is now a health budget for diabetes and it is on the MoH’s
health agenda with a drug policy for diabetes. Future activities include a STEPwise approach at the four sentinel sites.

**Nutritional management of diabetes in Africa – the example of Mali**

Dr Stéphane Besançon (Programmes Director of the NGO Santé Diabète Mali) described a project being conducted with the support of the WDF on nutritional management in Mali. The aim was to compare different types of diet and to study the influence of different types of food on glycaemia and then to provide dietary advice that is relevant locally.

A food consumption survey was done by using the method of 24-hour recall on 80 patients with diabetes in Bamako, the capital of Mali. It was found that breakfast consisted of porridge (based on different cereals like rice, millet, corn, etc) and bread with butter or mayonnaise. For lunch, cereal with different kinds of sauce was consumed. For dinner, cereal with different sauces and fries, salad, chicken etc was taken. In fact, the food consumption of people with diabetes did not differ significantly from that of ordinary people studied (as previously studied using the same methodology). The results of this survey – and a subsequent questionnaire on patient knowledge – were then used to formulate the following recommendations:

- Consider therapeutic education as an intrinsic activity of diabetes management. These therapeutic education programmes have to be continuous in time. Give each patient a minimum of one-hour education session per month in order to ensure a good compliance to instructions given by medical staff
- A number of dietetic recommendations were made about the suitability of different types of local food (Table 10) and these should be taken into account during education sessions. Foods with a lower glycaemic index (GI) are most appropriate
- Extend therapeutic education to include families and the patients’ immediate environment
- Increase capacity of healthcare centres that are specialised in diabetes management, and set up education units that are dedicated to diabetes.

**Diabetes care in the Democratic Republic of Congo**

Speaking on behalf of Dr Bielieli Ebanz’Osongo (Kinshasa University), Professor Erik Muls (University of Leuven, Belgium) said that in 2000 there were about an equal number of people with diabetes in the Democratic Republic of Congo (DRC and Belgium, but that by 2030 the number in DRC will increase far more rapidly (Table 11). In fact, Professor Muls thinks the projection of nearly 1 million is an underestimate. The Diabetes Programme was started in the mid 90s by the Flemish Interuniversity Council (VLIR), with the WDF becoming involved later. The project at first was low cost and focused on good clinical research, care programmes and teaching at university level.

Because of political problems, mortality due to lack of insulin was high and the first step for WDF was to ensure its availability. With co-operation between VLIR and WDF, since 2004 there has been synergy of clinical care for 10 million people in Kinshasa and Bas-Congo. The programme covers pregnancy, foot care and eye and kidney care. Easy to understand educational material has been produced, for example in pregnancy (Figure 9), as gestational diabetes is a clinical problem of importance in the DRC. Laser therapy has been introduced in Kinshasa and there are screening programmes for retinopathy. The VLIR–WDF Project assists the Ministry of Health in the development of the national diabetes programme with three-day residential interactive courses. Professor Muls summarised that the strengths of the project are that it deals with integrated clinical care, synergism, transparency and gradual development. The weaknesses are the limited access to healthcare, the vulnerability of healthcare providers and the fact that diabetes is not yet perceived to be a top priority by politicians in DRC. There is also the ‘brain drain’ and the possibility of socio-economic instability. Finally, he

<table>
<thead>
<tr>
<th>Cereal Type</th>
<th>Glycaemic Index (±SD)</th>
<th>GI Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millet couscous</td>
<td>53.59 (±7.13)</td>
<td>Weak GI</td>
</tr>
<tr>
<td>Fonio couscous</td>
<td>56.95(±8.73)</td>
<td></td>
</tr>
<tr>
<td>Sorghum couscous</td>
<td>60.84 (±6.24)</td>
<td>Intermediate GI</td>
</tr>
<tr>
<td>Corn couscous</td>
<td>64.47 (±9.15)</td>
<td></td>
</tr>
<tr>
<td>White rice</td>
<td>66.40 (±7.00)</td>
<td></td>
</tr>
<tr>
<td>Millet paste (Tô)</td>
<td>69.38 (±5.55)</td>
<td></td>
</tr>
<tr>
<td>Sorghum paste (Tô)</td>
<td>73.84 (±11.64)</td>
<td>Elevated GI</td>
</tr>
<tr>
<td>Corn paste (Tô)</td>
<td>76.78 (±8.28)</td>
<td></td>
</tr>
</tbody>
</table>

**Table 10.** Glycaemic index of different types of cereals

<table>
<thead>
<tr>
<th>Cereal Type</th>
<th>Glycaemic Index (±SD)</th>
<th>GI Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>317 000</td>
<td></td>
</tr>
<tr>
<td>D.R. Congo</td>
<td>291 000</td>
<td></td>
</tr>
<tr>
<td>World</td>
<td>171 000 000</td>
<td></td>
</tr>
</tbody>
</table>

**Table 11.** Projected increase in the numbers of people with diabetes (Adapted from WHO, 2003)

(Figure 9. An example of educational material produced for people with diabetes)
reported that ‘very interesting’ talks on the expansion of the VLIR–WDF partnership have started with the DRC Ministry of Health, IDF Africa, WHO Africa and the Direct Belgian Co-operation in order to ensure sustainable and comprehensive diabetes programmes throughout DRC.

**Diabetes care in Sudan**

Speaking on behalf of Dr Samia Hassan (Ministry of Health, Sudan), Dr Mohammed ElHassan Abdala (University of Gezira, Sudan) gave details of a WDF project aimed to improve the capacity of the Sudanese healthcare system to deliver, manage and monitor services for the prevention and treatment of diabetes. Some 90,000 people with diabetes will have access to good diabetes care. Doctors and diabetes educators have been trained in diabetes prevention and treatment. Health facilities and diabetes mini clinics have been created. Training courses for practitioners and educators have been conducted and the training of diabetes healthcare providers and diabetes educators has been carried out. There are plans to conduct a number of workshops.

**Projects in Ghana**

Ms Vivian Tettevi (Project Co-ordinator and Senior Public Health Nursing Officer in Charge of South Dayi District, Ghana) described a community care project designed to increase awareness of diabetes in the Volta region of Ghana. At the moment, said Ms Tettevi, complications are high and patients stop their treatment and do not co-operate. The project should help community members take on the responsibility of improving health. A total of 20 diabetes care centres will be established in the target communities. The care centres will be set up independently of the public health system, with ownership of the centres resting with the communities. They will be managed by community steering committees and staffed by community care providers recruited among the target communities. Their role is to raise awareness of diabetes, risk factors and prevention and provide care to people with diabetes. They will also provide diabetes and blood pressure screening and educate those with the condition.

**Discussion**

Asked about dyslipidaemia and the metabolic syndrome in HIV/AIDS patients, Professor Levitt replied that the project would be looking at all metabolic consequences of antiretroviral therapy, including the two mentioned but also blood pressure, LDL particle size, and anthropometry. Professor Lefèbvre said that he was happy to hear from Professor Muls about the involvement of Belgian universities and (speaking as a Belgian) was also pleased that his country had decided to initiate direct official help. He asked to what extent the EC was involved in any of the projects discussed. Professor Muls did not know of any such involvement. Professor Mbanya remarked that the EC did not see diabetes and NCDs as an African problem – they just don’t see it the way we see it. Dr Ramaiya said that the EC was very bureaucratic and slow in any response for aid.
This, the final plenary session of the Summit, was chaired by Dr Gorjia Roglic and Dr AJ Sule.

**Step by Step foot care in Tanzania**

In Tanzania, 70% of all lower limb amputations are related to underlying diabetes foot disease; 33% of diabetic inpatients with foot ulcers undergo amputation during their hospital stay; and there is a 54% mortality rate among patients with ulcers, Dr Zulfiqarali Abbas (Muhimbili University College of Health Sciences, Dar es Salaam, Tanzania) told delegates. Until recently, there was no sustainable infrastructure for diabetic foot management, with ignorance among primary care physicians about foot care. Compounding the problem is the lack of trained personnel and formal podiatry services.

Dr Abbas described the Step by Step Foot Project which has been initiated to help overcome these problems. During the three-day course, physicians and nurses from 14 regions were taught how to manage a patient with a diabetic foot and, provide timely foot care and education for patients with ulcers or other foot problems. There were different curricula for doctors and nurses. All the participants were provided diagnostic kits with the necessary equipment for foot care. The expectation was that following the course, participants would educate their patients and disseminate the acquired knowledge and skills to other healthcare professionals in their respective region. Fifteen pairs of medical doctors and nurses from 14 regions, selected on merit, participated in a basic course in 2004. This was followed by an advanced course for the same participants one year later where project-related activities during the interim year were evaluated.

By the end of the first year, 11 583 patients had been screened; of these, 4322 (37%) had high-risk foot problems and 465 (11%) had foot ulcers. Among the patients with foot ulcers, 42 (9%) underwent amputation, and 17 (4%) died. Sixty-nine clinical officers and 147 nurses were trained. A total of 163 educational sessions for patients were also conducted. Dr Abbas concluded that the Step by Step Foot Project had resulted in improved foot ulcer management among patients with diabetes in Tanzania and a reduction in the documented lower limb amputations (Table 12). He emphasised that early detection and treatment of diabetic foot complications through education and targeted screening programmes, such as this one, will reduce morbidity and mortality and improve patient outcomes. In 2005, a diabetic foot stamp was launched at the Step by Step Foot Project seminar (Figure 10). This was a unique event as this was only one of two diabetic foot stamps produced in the world for 2005, the year of the diabetic foot.

**Diabetic eye care in India**

Dr Kim Ramasamy (Aravind Eye Hospital and Postgraduate Institute of Ophthalmology, Madurai, India) explained the challenges in diabetes care (and particularly eye care) in India where there is a large unrecognised population. There is a scarcity of resources (in terms of both capital and doctors), a dispersed population with low affordability and there are poor logistics. This is against a background where, between 1989 and 2004, the prevalence of diabetes increased by 72.3% in urban India and recent surveys showing diabetic retinopathy prevalence rates between 17.8% and 28.2% in various areas of the country.

Dr Kim described various Aravind projects, supported by the WDF and/or Lions (Table 13). Amongst the measures to identify the largely unrecognised retinopathy problem, is the establishment of diabetic retinopathy screening camps. The activities are two-fold: (i) screening of known people with diabetes in the general eye camps (ii) detection of people with diabetes with the help of local physicians or diabetologists in the general population and screening them for diabetic retinopathy. The second method is the more successful, observed Dr Kim. The total number of WDF camps held so far is 1020 and nearly 230 000 people have been screened. A total of 58 435 cases of diabetes have been identified and, of these 6986 (13.6%) have diabetic retinopathy.

He described various strategies to increase awareness among both the community-specific groups and individuals. At a community level these include press meetings and group discussions involving posters and TV/
radio/newspapers, banners, stickers and exhibition charts. Specific group activities include seminars, lectures and training. At an individual level, there is counselling, the showing of video presentations and the dissemination of booklets. These activities have led to large increases in awareness. The problems of logistics in making specialist eye care accessible to a widely dispersed population is being tackled by mobile screening units with telescreening. A total of 135 mobile camps have taken place so far, where over 42,000 people have been screened and nearly 4,800 cases of diabetes identified of which 865 (19.6%) have diabetic retinopathy.

The problem of human resources is being tackled by training; ie, short-term training in the management of diabetic retinopathy by hands on training in laser photocoagulation and a certified course in fundus fluorescein angiography and ultrasonography.

<table>
<thead>
<tr>
<th>Project</th>
<th>Population served</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lions Diabetic Retinopathy Project</td>
<td>Madurai, Theni and Coimbatore (7.5 Million)</td>
<td>Awareness, screening treatment and training</td>
</tr>
<tr>
<td>TIFAC CORE in Aravind, Madurai</td>
<td>Ophthalmic Manpower in India</td>
<td>Academic and research (clinical and genetics)</td>
</tr>
<tr>
<td>WDF Project</td>
<td>Tirunelveli, (6 million)</td>
<td>Awareness, screening and treatment</td>
</tr>
<tr>
<td></td>
<td>Pondicherry (6 million)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Theni (1.2 million)</td>
<td>Rural remote centre, epidemiology</td>
</tr>
<tr>
<td></td>
<td>Diabetologists, other eye hospitals, rural centres and screening camps</td>
<td>Reading and grading centre mobile screening unit</td>
</tr>
</tbody>
</table>

| Table 13. Aravind eye hospital initiatives in diabetic retinopathy |
CONCLUSION

At the concluding ceremony, a number of the members of the WDF Board summed up their impressions of the Summit.

Mr Lars Sorensen said that some of his beliefs had been changed by the Summit. Affordable national health policies for primary care need to be developed linked to specialist care. National governments can derive some help from donors and international agencies. An integrated approach would help with capacity building. Best possible pricing for drugs and diagnostics is essential as is reforming the distribution systems. The definition of community has to be changed to encompass the whole world.

Professor Ib Bygbjerg applauded the spirit of openness of the Summit. There is now a new hope and way of thinking.

Dr Kaushik Ramaiya said that the Summit has made Africa proud. The commitment is there but resources are lacking but we cannot continually rely on donors. Africa is a hard working region and just needs guidance in the right direction.

Dr Anil Kapur said he felt humble when he saw the work being carried out by so many of the speakers. It is not only a matter of resources but also spirit. And the spirit was clearly seen in the presentations.

Professor Pierre Lefèbvre said he was proud of the work that the WDF has done. Some of the speakers had wanted more evidence for the politicians, ‘I will provide you more evidence,’ he declared. He recalled a visit to his clinic from a 70-year old lady with type 1 diabetes: healthy with a perfect fulfilled life. She has been injecting insulin for over 50 years and has many more years to go. He compared this with his impressions on the recent field visit (see insert) where he saw little boys in difficult conditions and a young woman who will continue to get ketoacidosis due to lack of insulin. In many African countries the life expectancy of someone with type 1 diabetes is four to five years. ‘So, ladies and gentlemen, I do not need statistics. In Europe a child with diabetes can foresee a long productive life. This is not the case in Africa. There is no more need for evidence – there is a need for action.’

Professor Pierre Lefèbvre thanked all those from Kenya and the WHO and the officials at the WDF and IDF involved in organising the Diabetes Summit Africa.
Dr Anil Kapur (Managing Director, WDF) started his presentation by saying that the WDF is accountable, ‘And it is in this spirit of accountability that I give this presentation’. He pointed out the importance of prevention in diabetes, for example, South Asian data show that preventive foot care education for a person with diabetes costs US$3. However, hospital admission for a non-healing foot ulcer costs US$450, a below the knee amputation US$550; and a foot prosthesis US$650. ‘So for this amount you can educate about 600 people to stop foot ulcers from happening.’

It was in this context that the WDF was set up in March 2002, initiated by a grant from Novo Nordisk of DKK500 million (US$83 million). The foundation creates partnerships and acts as a catalyst and links people and resources to advocate globally and provide care locally. It aims at the poorest of the poor in the developing countries and strives to achieve sustainable solutions.

The WDF is dedicated to the prevention and treatment of diabetes and its complications with the focus on awareness and advocacy; and education and training for patients and professionals. Although it seeks to provide access to essential diabetes medication, the WDF does not focus so strongly on this aspect: ‘When a foreign agency provides treatment, governments do nothing about it and when the funding is over, you are back to square one,’ observed Dr Kapur.

The key diabetes focus areas are the diabetic foot, eye screening to prevent blindness, children with diabetes (prevention, education, treatment), mothers and diabetes (nutrition, prevention, education) and the coming generation. As of March 2007, WDF has funded 128 projects in 75 developing countries (Figure 11) and 15 projects based on fundraising by local Novo Nordisk personnel. ‘We estimate that WDF projects in the coming three to four years will impact the lives of 58 million people directly in developing countries,’ said Dr Kapur. Only 10% of projects that have been initiated have been completed, the most are still ongoing. ‘I am proud to say that the WDF is the largest funding agency for diabetes care in the developing world,’ he added to applause.

The project portfolio has a value of some US$115 million of which US$35 million has been contributed by the WDF and the balance by project partners, governments or other agencies. Thus, for every dollar that WDF contributes, it is able to attract US$2 from other sources.

With 7% of the diabetes burden, Africa gets 31% of WDF funds. Globally, WDF and its partners have trained over 9000 doctors, over 8000 nurses, and over 14 000 paramedics – many of whom had previously little or no diabetes expertise. These healthcare professionals have provided care and services to a conservative estimate of 10.9 million people so far. The WDF has organised large screening/awareness camps (mainly in India) with the participation of 770 000 people screened and 43 000 cases of diabetic retinopathy detected. The WDF has established nearly 350 clinics around the world, providing care for at least 57 000 documented cases so far.

In the area of prevention, by 2008, 160 000 children, 8000 teachers and 8500 parents will receive diabetes education in India. A total of 2000 healthcare professionals in

**Figure 11.** WDF Projects status in March 2007
Qingdao China will be involved in identifying high-risk individuals and will provide them with guidance on the prevention of diabetes.

Turning to sub-Saharan Africa, Dr Kapur reported that there are 38 local projects, (five regional and three global) benefiting 27 countries in the region. Regional projects include diabetes practice guidelines, the diabetes education manual, postgraduate diabetes training and paediatric diabetes care programmes and many local projects in Cameroon, Congo, Eritrea, Ghana, Kenya, Mali, Mozambique, Rwanda, Seychelles, South Africa, Sudan, Tanzania, Togo and Uganda.

World Diabetes Foundation website: www.worlddiabetesfoundation.org
RAISING AWARENESS AND REACHING BEYOND THE SUMMIT

It has been estimated that the media coverage of this year’s Diabetes Summit Africa will reach well over 70 million people, providing much-needed information about this disease. With 35 media participants attending the event, representing 14 countries and 25 news outlets, raising public awareness was one of the Summit’s key purposes. Media coverage included newspaper articles, radio interviews, television coverage and podcasts. By attending the event and seeing a project in action at the grass roots level, journalists were not only better informed about the growing burden of diabetes, but also could not fail to be moved by and understand the impact of this disease in Kenya and other developing countries.

Jane Kamau, of the Healthcare Journal, South Africa, stated, ‘I hadn’t realised what a serious disease diabetes is and what a big problem this is for Africa…’

Bernard Mapalala, of The Guardian, Tanzania, was quoted as saying, ‘It is our duty to inform people about this epidemic…it can not be ignored any longer.’

It seems that the message is finally getting out in the wake of what has become a quickly accelerating epidemic.

Headlines from coverage of the conference included:

**Diabète : l’Afrique se remobilise**

- How to fight the killer diseases and stay alive
- A Global Threat
- A New Approach To Diabetes
- At only 24, I have lived with diabetes for 10 years
- Sad outcome of bad eating and lack of exercise

**Taking Action**

- The diabetes way of death
- Big Pharma's new Africa plan
- Le diabète : un casse-tête pour les malades africains

**World waking up to diabetes crisis**

WEDNESDAY, JUNE 27

NAIROBI - The World Diabetes Foundation will be holding a three day summit in Kenya on tackling the issue of diabetes in Africa. Ends on June 29.

**Tackling Diabetes in the Developing World: an Integrated Approach**

- Diabetes 'one of the greatest epidemics' in history;
- Nations come together to battle disease as 3.8M people are expected to die from diabetes this year

**Diabetes Making a Difference**

- The Silent Killer