

## OBSTACLES TO DIABETES CARE IN KENYA

### Diabetes is rising in Kenya

Much attention is focused on infectious diseases, such as malaria, tuberculosis and HIV/AIDS in Africa. However, evidence indicates a high prevalence of non-infectious diseases such as diabetes and hypertension in many parts of the continent without the same kind of focus. WHO estimated that in 2007, 7 million humans in Africa suffered from diabetes. WHO expects the incidence of diabetes to increase to about 18.2 million by the year 2030.(1)

Data from the Ministry of Health in Kenya indicated that, of all humans living in Africa, an estimated 1.2 million Kenyans live with diabetes, and if the trend continues, by 2025 that number is expected to rise to 1.5 million (4.5% of the population).(2)

Both type 1 and type 2 diabetes (T1DM, T2DM) are on the rise in Kenya, as they are in other African countries.(3,4) T2DM is the more prevalent, and Kenyans are developing it younger than humans in developed countries.(6) The age of onset of T2DM in Kenya is between 45 and 55, compared with 64 years in developed countries.(6) Kenyans are also at higher risk for crippling or life-threatening complications, because they report to health centers when the disease is advanced.(6)

T1DM is also increasing in Kenya. According to Jonathan Brown, a senior investigator at Kaiser Permanente Center for Health research, "It's very difficult to predict or prevent T1DM. Now though T1DM is supposed to be less than 10% of the total diabetes load, we are finding in Kenya again there is a rise in the number of new cases of T1 diabetics. But that might be because we're just screening more effectively, or because more humans are coming forward for screening".(7)

### Challenges to treating diabetes

Treatment of T1DM and T2DM in Kenya, as in other parts of sub-Saharan Africa, is fraught with problems. Besides challenges related to diagnosis, care, and treatment, there is a lack of understanding and knowledge about the disease among healthcare professionals and the general population, and a perception that diabetes is not as critical as other diseases affecting the continent.(8)

According to Dr William Maina, who heads the NCD division at the Kenya Ministry of Health, "Professionals do not see diabetes as a priority. It is a neglected area - especially in developing countries - because it is overshadowed by malaria, HIV, and TB".(8)

The challenges to care encompass many areas of

African life. These challenges include an unsettled political situation that interferes with organizing a diabetes control program; illiteracy due to lack of access to education; poor housing; poverty; daily chores required for girls; and living on the streets, mostly related to boys. The challenges are also intertwined with cultural and economic issues. There are few refrigerators, making home storage of insulin injections difficult, and Africans typically eat a single big meal each day, which increases blood sugar concentrations greatly after the food has been metabolized. Care is further affected by the fact that health professionals are often not trained to address chronic diseases; there is a lack of interest on the part of health professionals because the disease is very demanding with few financial rewards; hospitals are overburdened; and there is a reliance on African traditional medicine.(9)

Insulin injections are basic therapies for T1DM to keep blood glucose balanced.(10) Without daily injections patients can go into a coma. Some humans diagnosed with T2DM also need insulin injections for good metabolic control.

If availability of insulin is restricted, the life expectancy of a child with newly diagnosed T1DM in much of sub-Saharan Africa may be as short as 1 year or less. Restricted access to insulin also results in debilitating complications such as amputations,

*Dr Isaac Miruka From Kenyatta National Hospital dressing a wound during one of the Health Care Providers Trainings conducted by DMI Centre Kenya. Photos on this and next page courtesy DMI Centre.*



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blindness and a much reduced life expectancy.(11)

### Access to insulin

According to Mrs Eva Muchemi, programs director at Diabetes Management and Information Centre in Nairobi, a major deterrent to patients obtaining insulin in Kenya, and in much of Africa, is price. The average annual cost for care of a human with T1DM in East Africa is USD229, 60 to 70% of which is for the purchase of insulin.(12) According to a human development report prepared by the Kenya Ministry of Health, 58.3% of the Kenyan population lives on less than USD2 a day. The Ministry concluded in a price survey that all medicines studied were unaffordable for 60% of Kenyans (including glibenclamide for diabetes).(13)

In some countries, including Kenya, insulin is subsidized by the government and sold to patients at a reduced price. However, subsidized or free supplies often run out or are not distributed well on a local level, forcing patients to purchase insulin through private wholesalers, where the price can be as much as 67% more expensive than the price at public centers.(14)

Novo Nordisk, the world's leading producer of insulin, has created a program called LEAD Initiative, which provides insulin to the public health systems in countries identified as least developed (LDCs) at a price not exceeding 20% of the average price in North America, Europe, and Japan. However, the company's 2003 Sustainability Report states, "We have found that humans with diabetes in these countries are often unlikely to benefit directly from reduced prices. While our products may be supplied to the distributor at the LDC price, this price is routinely marked up by governments, through import duties and domestic taxes, or by wholesalers and hospitals for additional profit".(15)

While the Kenyan government is responsible for providing insulin to patients, "They don't deliver on their promise," says Dr Mapoko Mbelenge Ilondo, director of Access to Health Programs at Novo Nordisk, Denmark. "A major problem in that whole region of Africa is that the governments buy insulin based on budget, not on need. So after 2 months or so, there is a shortage of insulin in the hospitals."

"Another problem is that the price for insulin is higher in private centers than in public. Some of the insulin intended for public centers ends up in private centers," adds Dr Ilondo.

The Diabetes Management and Information Centre has been working with Eli Lilly to provide insulin free to patients. "We have set up The Insulin Bank,



*Ongoing training by DMI in Nairobi, Kenya.*

where Eli Lilly provides insulin free to 25 children each month," says DMI Centre's Muchemi. "The DMI Centre supports an additional 22 children." Even so, Muchemi says, it is still difficult to get insulin to the humans who need it.

"One vial of insulin costs USD5," she says. "That is out of reach for a lot of humans. We are advocating a free insulin program, but we have to go through a long process; that takes time."

Regarding distribution, Mr David Beran, project coordinator at the International Insulin Foundation, based in the United Kingdom, says "availability really varies". In the studies his organization completed in Mali and Mozambique in 2004, 17 to 20% of health centers had insulin. The same kind of availability can be projected for Kenya judging from similar problems with distribution. "We found that there is generally enough insulin at central levels, the problem is getting it to the local health centers." Causes of distribution problems range from ordering procedures (orders are gauged by use the previous year, and may have changed significantly) to lack of communication.

"On one hand the depositories did not know the central medical stores had insulin, and on the other hand the depositories did not let the central medical stores know what they needed. They just weren't speaking to each other," says Mr Beran. Mr Beran (Author's note: Mr Beran later told me that this particular miscommunication has since been resolved, and insulin is flowing more freely now.

In Kenya, the DMI's Mrs Muchemi says that distribution and access problems often stem from lack of information. "Part of the reason for insulin deficits is that there is no collected data on the number of dia-

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betics and those who need insulin," she says.

### More challenges

Mr Beran says that access to healthcare workers continues to be a problem. In the country studied, out of a population of 19 million, there were less than 1,000 physicians, and 600 of them were located in the capital city, leaving those in outlying areas removed from care. If there are diabetes clinics in existence, they are often located at hospitals in central cities, requiring extensive travel for those living rurally. He says that this factor causes humans to turn to traditional medicine. While availability of traditional healers is a motivator for choosing them, he also says that, "traditional beliefs are more culturally acceptable. Additionally, these healers will accept payments of chickens, for example," making their services more affordable than those of biomedicine health professionals.

In the last 3 years, Kenya's DMI Centre has been working directly on improving the understanding of diabetes among the country's healthcare staff. With the inception of the center's Diabetes Education Programme under the direction of Mrs Muchemi, and in collaboration with the World Diabetes Foundation and the Ministry of Health, 57 main diabetes clinics and 125 min-clinics have been set up. More than 600 physicians, along with nurses, paramedics, dieticians, and lay educators, have been trained.

"In the last 2 years, we have screened 120,000 humans," says Mrs Muchemi, "and we are collecting the data for the first time."

Mrs Muchemi says that a lot of diabetes is diagnosed through random testing. "Humans come to the clinics with problems with their eyes, or numbness, or a wound that is not healing," she says. "We test them and find very high sugars - some over 20mmols."

The fact that many cases of diabetes are diagnosed by accident reinforces the common perspective among those interviewed for this article: that awareness and understanding of diabetes in Africa are 2 of the most critical obstacles to overcoming the disease.

"Diabetes is not a priority," says Novo Nordisk's Dr Ilondo. "It is considered a disease of the West."

### References

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<http://www.kenya.go.ke/>

The image shows two overlapping website screenshots. The top one is the Kenya government website (kenya.go.ke) with a navigation bar and several content boxes. The bottom one is the International Diabetes Federation website, featuring a 'DIABETES ATLAS' banner, a 'WORLD DIABETES CONGRESS' announcement for 2009 in Montreal, and a 'WORLD DIABETES DAY' campaign.

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