

Diabetes in Ethiopia: overcoming the problems of care delivery

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ARTICLE POINTS

1 Most Ethiopians (85%) are farmers living in remote rural areas.

2 Both type 1 and type 2 diabetes mellitus are not rare.

3 Rural diabetic patients often have to travel 20–200 km to obtain treatment.

4 Oral hypoglycaemic agents and insulin are normally available only in the pharmacies of town hospitals.

5 A new project aims to take treatment out to rural health centres.

KEY WORDS

- Ethiopia
- Diabetes care
- Rural health centres

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Introduction

Ethiopia is a mountainous country with poor roads linking the main centres. Most Ethiopians are farmers and live in remote, inaccessible villages. Diabetes mellitus is not rare in Ethiopia: figures suggest that 75% of rural patients may have type 1 diabetes. Yet until very recently, insulin and oral hypoglycaemic drugs were not available from the rural health centres. A diabetes project, started in 1993, with the aim of establishing a system of delivering diabetes care from the rural health centres, is now well established at Gondar. It hopes to extend the scheme to other areas and thereby improve the quality of diabetic control, and hence the quality of life, for many more rural diabetics in Ethiopia.

Ethiopia is a mountainous and beautiful country whose capital, Addis Ababa, is about 8,000 feet above sea level. Most of the people (85%) are farmers and live in tukuls (circular huts) clustered in villages which are often remote and inaccessible. Unsurfaced roads link the main centres, but many places can be reached only by footpaths. Transport is either by bus and taxi, which is relatively expensive, or by mule and foot, which is laborious and slow.

The growing tourist industry is now helped by an increasing number of airstrips, but aeroplanes are no help to the villagers seeking local medical care. Indeed, the delivery of expertise and medicines is a complex and largely unresolved problem, which is magnified in the delivery of treatment for chronic lifelong diseases (which are increasingly being recognised) such as diabetes, asthma and hypertension.

Training of doctors

Each year about 150 doctors graduate from the three medical schools serving the population of around 60 million people. Some of them emigrate, leaving an even smaller number to serve in their own country. The largest medical school is located at the university in Addis Ababa; the other two, which are not attached to

universities, are at Jimma in the south of the country and Gondar in the north.

The staff and teachers of these two medical schools in small regional towns, both of which we have visited, have a strong commitment to their medical students who, though lacking in some of the basic sciences, are clinically well trained, dedicated men (and very few women).

Training of nurses

Nursing, too, was dominated by men, under the late communist regime. Before 1974, all nurses were female and the present government is now trying to encourage women back into nursing.

The structure of their training is very imaginative: after each year of their studies they can practise at the level achieved. Their first year is undertaken as a supervised student, leading to the grade of 'junior nurse', the second year leads to the grade of 'senior nurse' and the third year is devoted to optional specialties (public health nursing, clinical or midwifery, etc.).

A BSc degree in nursing can be obtained during a fourth year. Nurses with a qualification in public health nursing are allowed to manage a health centre.

Delivery of health care

There is a three-tier structure for the

delivery of health care, although most medicines are available only at the hospitals, which are themselves based in towns and often very distant from the patients they serve.

The hospital at Gondar serves about 3 million people, only 120,000 of whom live in the town. Ten health centres are located in the surrounding countryside, each serving around 300,000 people. These act as peripheral clinics for various disorders, including tuberculosis (obviously a large problem) and the delivery of babies.

Rural health stations consist of relatively small huts that provide facilities chiefly for inoculations. Tuberculosis, leprosy and family planning clinics are manned by health care assistants. Diabetes care, too, has to be delivered within this established framework and its limitations.

The availability of drugs is very limited. The majority, including insulin, are dispensed by hospital pharmacies in the towns. For the few people who can afford to pay for their drugs, there are some rural pharmacies which dispense a limited number of medications; however, this does not include insulin, which is therefore not available in country areas. Traditional 'doctors' will, of course, provide patients with a range of alternative remedies.

Farmers' lifestyle

The day starts at sunrise, and the farmer goes to the fields without having breakfast. During the ploughing or harvest season, home-made bread or cereal may be brought to him at work. He returns to his tukul (Figure 1) at about 6 o'clock in the evening — when his wife will bathe his feet by the fire and then provide him with a meal of injara (staple food made from the cereal tef), accompanied by wat (spiced meat or vegetables) and followed by coffee and some alcohol (a form of beer called tella). Sugar, cakes and biscuits are not normally available, while fruit, though plentiful, is usually only eaten by children. If honey is available it is often sold.

The overall nutritional value of the diet is low and many people are very thin indeed, with a body mass index of less than 20.

Diabetes

The prevalence of diabetes in rural Ethiopia

is unknown. We can, however, calculate the prevalence of known diabetes because up until now the hospital has effectively been the only source of drug treatment. Thus, in 1996 the clinic at Gondar had 496 patients (241 from the town and 255 from the country), representing an urban prevalence of known diabetes of 0.2% and a rural prevalence of just 0.009%.

Surprisingly, 40% of the town patients apparently have type 1 (insulin-dependent) diabetes, and, even more surprisingly, 75% of rural patients have this form of diabetes. While these observations may be taken at face value, it seems to us that type 1 diabetics are more likely than type 2 (non-insulin-dependent) diabetics to seek treatment when faced by long journeys.

In Addis Ababa, however, only about one-third of patients have type 1 diabetes — a pattern of disease more akin to that in Europe and North America.

Some details of the diabetic patients attending the hospital at Gondar are shown in Table 1.

Journeys to hospital

Most of the 255 rural patients travel more than 20 km to hospital to receive diabetes treatment, but some travel much further — a few in excess of 200 km (approximately the distance from Birmingham to London). Some of these people therefore have to

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1 Insulin and oral hypoglycaemic drugs are only available from hospital pharmacies in the towns.

2 The typical diet of Ethiopian farmers has a very low nutritional value, and many people have a body mass index of <20.

3 The prevalence of known diabetes is 0.2% in the towns and 0.009% in rural areas.

4 Three-quarters of the rural patients have type 1 diabetes.

Publisher's note: This image is not available in the online version.

Figure 1. Most Ethiopians are farmers and live in circular huts (tukuls) such as these.

Table 1. Diabetic patients attending the hospital at Gondar College of Medical Sciences

	Number	Age in years (mean±SD)	Body mass index (mean±SD)
Type 1 diabetes	281	30.4±11.6	17.6±2.8
Type 2 diabetes	215	54.7±10.7	23.3±4.7

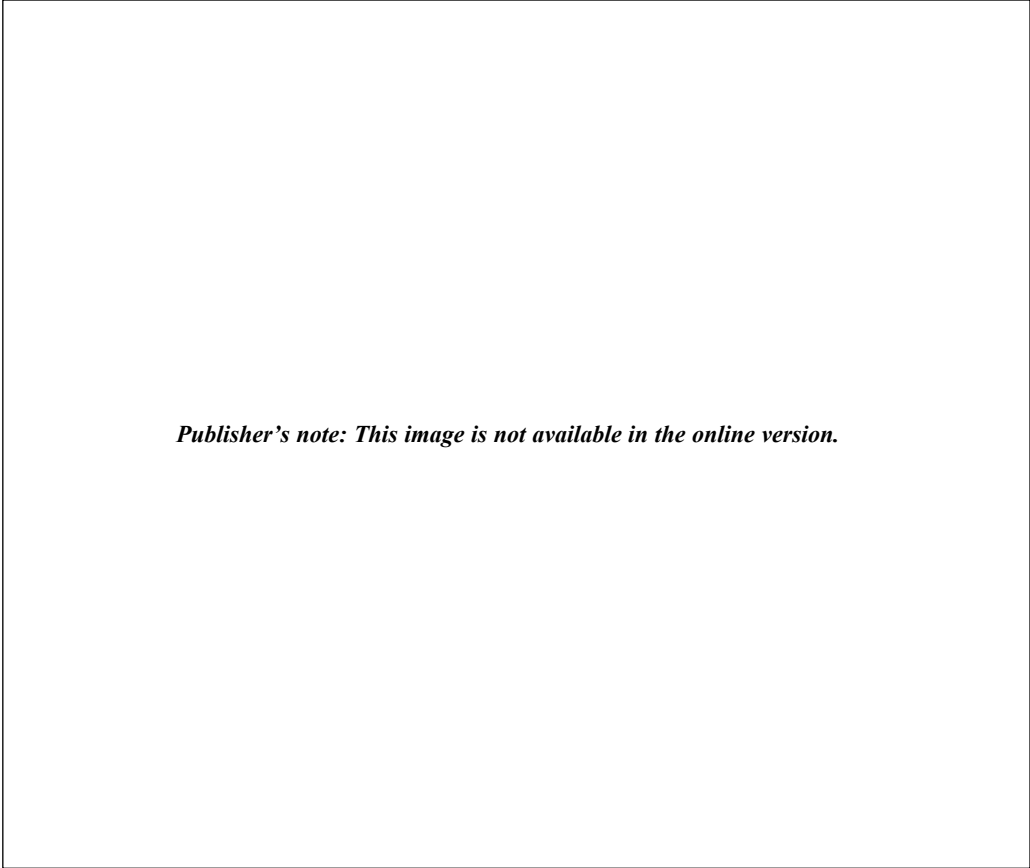
PAGE POINTS

1 The main problem is how to make diabetic treatment more readily available in rural areas.

2 A project has been set up to establish links with the towns of Jimma and Gondar.

3 The aim of the project is to enable rural health centres to deliver diabetes care.

4 This scheme should substantially reduce travelling distance and encourage more people to come for treatment.



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Figure 2. Rural health clinics will provide essential education and treatment for people with diabetes who might otherwise go untreated. (The boy in the picture is 13 years old.)

travel for up to 3–5 days in each direction to receive their treatment. If supplies of insulin are short (as often happens) the journey may need to be repeated every 1 or 2 months. Understandably, patients may restrict their insulin use to a minimum to eke out their supply, and are often grossly wasted from persistent underinsulinisation and hyperglycaemia.

One 18-year-old patient with type 1 diabetes attended the clinic after a 3-day walk, sleeping overnight in the hospital grounds. He kept his equipment and insulin in immaculate condition in a plastic bag. At home he kept his insulin supply in a box, covered the lid with moist sand, and buried the box to keep it cool. He was thin and stunted with the gross hepatomegaly of the Mauriac syndrome. Hopefully, easier delivery of diabetes care will enable him to improve the quality of control and quality of life in the long term.

The diabetes project

The chief problem in Ethiopia, therefore, is how to make the treatment of diabetes (and other lifelong diseases) more readily

available. One approach has been to take the necessary facilities to the rural areas, nearer to patients' homes. This requires a change in the present situation whereby hospitals are virtually the sole suppliers of insulin and oral hypoglycaemics.

In 1993, The Tropical Health and Education Trust, directed by Professor Eldryd Parry, provided a grant to establish links with the towns of Jimma and Gondar. We have visited twice (1994 and 1997) and two of our diabetes specialist nurses went to Gondar in 1996. Two nurses and three doctors from Ethiopia have come to King's College Hospital, each for a few weeks, to maintain the link and exchange expertise. Sadly, some did not return to Ethiopia: there are many lessons to be learned.

The aim of the project is to establish a system of delivery of diabetes treatment at the rural health centres. This involves physicians and nurses taking records, equipment and medicines (in this case tablets and insulin) on a regular basis to the health centres and arranging for patients to attend these peripheral clinics. This scheme should

substantially reduce the travelling distance and time for many people with diabetes and encourage them to attend more regularly or, indeed, to come forward for treatment in the first place.

Some peripheral clinics have already been established and are well attended and much valued (Figure 2). More of these clinics will certainly follow.

For this system to succeed in the long term, nurses will have to be trained in diabetes management so that they can manage diabetes independently from physicians. This process has already been started: one of us (VB) has trained nurses both in Gondar (six nurses over a 3-day course) and at King's College Hospital. The purchase of a Landrover by the trust as a result of a lottery award for chronic disease management will further enhance this work.

The future

The diabetes project is now well established and its scope should increase with new facilities and new energy. It will be applied not only in Gondar but also later in Jimma,

and perhaps elsewhere.

Evaluation of the effect of reducing the travelling distance is needed, together with increased attendances and perhaps less dependence on the delivery of traditional remedies. The scheme establishes a network that will enable appraisals of diabetic complications, of mortality, of the outcome of diabetic pregnancy, and of many other issues.

The Ethiopian people have strong religious faiths, and are philosophical and always cheerful. They often come for medical treatment only in extremis.

There are rewards too. Our last clinic patient was a smiling lady weighing 70 kg; she originally attended weighing 35 kg. She said to her tireless and indefatigable physician: 'I was dried like a tree, you gave me life; my villagers say I was reborn'. ■

Further reading

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