A primary healthcare approach to the management of chronic disease in Ethiopia: an example for other countries

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ABSTRACT – Chronic non-communicable diseases such as epilepsy, diabetes, cardiac disease and hypertension represent a growing but neglected burden in developing countries. Rural sufferers, distant from health facilities, bear this most acutely. In response, a community care programme has been developed at Jimma University Hospital and its allied health centres in rural southwest Ethiopia. This involves general duty nurses at rural health centres being trained to provide care for chronic disease patients, with regular supervision from the hospital physicians. The programme allows treatment to be provided away from the main hospital so that those who cannot afford to travel can access care near their homes. Improved access increases the request for care, and helps to address the large unmet need for chronic disease treatment. This is a good model in which rural healthcare delivery through a team can bring widespread benefit. In this article chronic disease care is discussed with a particular focus on diabetes and epilepsy. The model can be replicated in more or less developed countries and may also be relevant for HIV care.

KEY WORDS: access, chronic disease, health centres, HIV/AIDS, insulin, non-communicable disease, nurses, poverty, training

The problem

Non-communicable diseases (NCDs) such as diabetes, epilepsy, and rheumatic heart disease are an under-reported, growing and neglected burden on health in less developed countries (LDCs).[1] In 2005, approximately 35 million people worldwide died from heart disease, stroke, cancer and other chronic diseases, and only 20% of these deaths occurred in high-income countries.[2,3,4] In Ethiopia the average age at death of people with type 1 diabetes is just 32 years,[5] while rheumatic heart disease kills at an even earlier age.[6] In the central region of the country it has been estimated that only 13% of epilepsy patients are receiving treatment.[7] When chronic disease care is obtained it is commonly several years after the onset of symptoms.[8]

Healthcare in LDCs is still dominated by the management of acute disease, now compounded by the tuberculosis and HIV epidemics. The rising problem of chronic disease means these countries face a double burden; already deaths in sub-Saharan Africa from NCDs are higher in absolute number than in many established market economies. This position will test scarce human and economic resources to the limit, and if NCDs are ignored their burden will inevitably increase further. It is more essential than ever that healthcare resources are used cost-effectively and efficiently across all areas.[9,10]

The loss of nurses and doctors from sub-Saharan Africa puts an enormous strain on health services which impacts most acutely on rural people. When there is a chronic shortage of staff, posts in peripheral health centres are least attractive and most difficult to keep filled as workers commonly move to fill posts at major centres. If a chronic disease service exists it is usually restricted to clinics in large urban hospitals[11] but few people with chronic disease can afford the time, and cost of travel and board to attend them. If, in addition, drugs have to be paid for, the follow-up treatment essential for chronic diseases is often out of the question and patients are lost from care at this vital early stage.[5]

Even when treatment is accessible it may be inadequate. A study in Egypt found less than 4% of patients with diabetes monitored their blood glucose.[12] In rural KwaZulu-Natal, South Africa, glycaemic control was acceptable in only 16%, and many complications were undiagnosed despite good attendance rates.[13] Therefore, together with the availability of healthcare in the patient's community, strong nursing support and education are essential. As a different approach is required for the management of chronic rather than acute infectious diseases, healthcare staff need to be re-educated.[14] If patients understand their condition, if the wider community is enlightened and if access is made easier, follow-up will improve and better care will follow. In the era of HIV, it is absolutely essential that the care of chronic disease is effective.

There is evidence of a desire for treatment. In rural Gambia 61% of people with active epilepsy said they would like to receive preventive treatment if it were available where they lived. This was even in an area where beliefs in an external spiritual cause of epilepsy were strong.[15]

Box 1. Health centres in Ethiopia.

- Health centres are the primary level healthcare facility in Ethiopia, providing basic outpatient consultations and treatment via a limited range of available drugs
- Health centres are manned by nurses and health officers (Box 3)
- The current national health centre to population ratio is 1:63,155 but the Federal Ministry of Health has set a standard of 1:25,000
- As part of the 2004 accelerated expansion of primary healthcare facilities, the government plans to build and upgrade nearly 3,000 new facilities by 2009. Thousands of basic health posts will also be constructed
- In the Jimma area each health centre serves approximately 200,000 people and from here patients may be referred to Jimma Hospital

Box 2. Links.

- A link is a long-term, flexible and sustainable partnership between a UK hospital or health institution and its counterpart overseas
- The goals are set by the overseas partner. The UK hospital responds to these goals and does not prescribe what the linked hospital should do
- Links promote staff development across a wide range of skills
- A link coordinator in each hospital chairs a committee which is responsible for management, advocacy and fundraising
- The link is carefully monitored and evaluated and its outcomes are documented

Box 3. Health officers.

- Health officers form a cadre of health professionals between the grade of nurse and doctor
- In Ethiopia, health officers are at the front line of rural healthcare and are responsible for running the country's 519 health centres
- A major programme to build health centres and train an additional 5,000 health officers has begun in order to increase the cover of basic health services beyond the 60% of the population which is currently served

Community-based approaches are essential if poor rural people are to access care due to the prohibitively high financial and time costs of travelling long distances to urban hospitals.[2] In rural South Africa nurses ran successful mobile and village clinics for two years but this model is not replicable in many LDCs due to the logistics and expense.[16] In 1996, Dr Shitaye Alemu, a physician at Gondar Medical College in the Amhara region, northwest Ethiopia, began training nurses to deliver care to patients with NCDs at five rural health centres up to 100 km from Gondar (Box 1). Supported by the Tropical Health and Education Trust (THET) the programme was fully established in 1997.[5] This model, and the principle that care must be available locally to patients, has determined what has followed in Jimma.

The programme in Jimma

The original chronic disease clinic at Jimma University Hospital began in 2000 with involvement from THET who arranged a link with King's College Hospital, London (Box 2). Following training in Jimma and a staff visit to King's to experience a successful diabetic clinic and community care programme in action, the established model was implemented locally. A senior nurse took charge of the Jimma clinic and helped train the nurses and health officers from nearby health centres (Box 3). Throughout the programme, specialist care and education of nurses has been given by Jimma University Hospital physicians and by the senior nurse. A continuous stream of teaching mitigates the loss of capacity in the health centre due to migration of staff. The Jimma physicians and the senior nurses shared the teaching at the latest workshop.[17]

Patients with chronic disease who live near a health centre are now offered a service and care closer to their home. A zone such as Jimma has a population of approximately two million and is made up of districts each with 100,000–200,000 people serviced by a health centre. The programme operates in one urban health centre in Jimma Town and the rural health centres of Agaro, Asendabo and Shebe, three distant districts (Fig 1).

A nurse-run chronic disease clinic is held once a week in the four health centres. A more senior health officer is available for consultation on difficult cases and the specialist staff from Jimma visit one of the four centres every week to provide training and support. Currently, patients from other districts

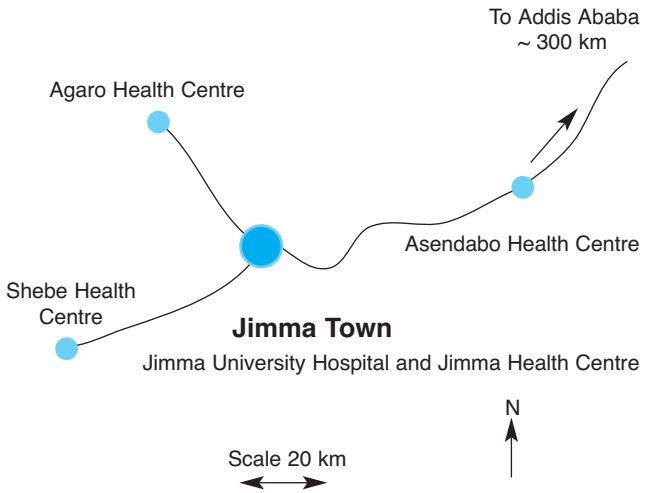

Fig 1. Map to show location of health centres in Jimma Zone.

within the zone are travelling to Jimma Hospital to receive treatment, but hopefully their health centres will soon be included in the programme.

Support for the programme

Initially, a five-year grant established the programme. This included funding for a limited supply of anti-epileptic drugs and insulin. The principle was that Jimma and THET should work in partnership to ensure that the grant led to a sustainable programme. From the beginning there has been collaboration with regional and district health administrations with the aim of ultimately embedding the programme in the local health service so that elements currently funded by the donor are eventually resourced by the local government.

The patients under care

Nearly all the patients, who were self-selected by symptoms, attended Jimma Hospital. Those first seen at a health centre when there were no drugs, or the diagnosis was in doubt, were also referred to the hospital for specialist care. Their primary diagnosis and follow-up are shown in Table 1. The referral of patients for treatment at a health centre nearer to home has taken place where possible (Table 1). Due to the relatively low cost of drugs almost half of epilepsy patients are being seen at the health centres (44%). In contrast, the cost of insulin is a continuing major difficulty and the precarious supply accounts for the small number of diabetic patients who have been transferred (11.4%). It is hoped that the supply of drugs can be assured by inclusion in health centre budgets, and the aim is to increase the number of patients transferred to health centres by at least 20% per year. The availability of care at the health centres and effect of patient and community education has meant that the number of chronic disease sufferers seeking care for the first time is expected to rise. Significantly more males than females are seeking treatment (Table 1) which probably reflects the fact that women often lack their own income and autonomy over the decision to seek care.

Table 1. Jimma community care programme statistics. Primary diagnosis; number of patients originally registered in Jimma between January 2000–December 2004; number who attended follow-up appointments (December 2004); number transferred to health centres (December 2004).

Primary diagnosis	Number registered		Number followed-up (%)	Number transferred (%)
	Male	Female		
Epilepsy	2,421	1,537	2,959 (74.8)	1,302 (44.0)
Diabetes	716	382	821 (74.8)	94 (11.4)

The staffing of the programme

The turnover of staff is shown in Fig 2. Between 1999 and 2004, seven doctors and three senior programme nurses left the Jimma Hospital programme. The reasons for leaving the service included joining international non-governmental organisations and moving on for further training, often abroad. This brain drain reflects the trend in peripheral areas throughout Ethiopia; but the programme has been fortunate to retain the same physician from Jimma, as overall director, for the last four years. Eleven nurses and five health officers were also lost from the health centres. This turnover means the specific training required for involvement in the programme must be carried out regularly, to ensure that new staff are educated in administering chronic disease care.

This programme has not yet been used as a template for HIV treatment with anti-retroviral drugs, but it would be a logical and cost-effective means for patient care. The integration of HIV care into a successful programme for NCDs should also help minimise the associated stigma.

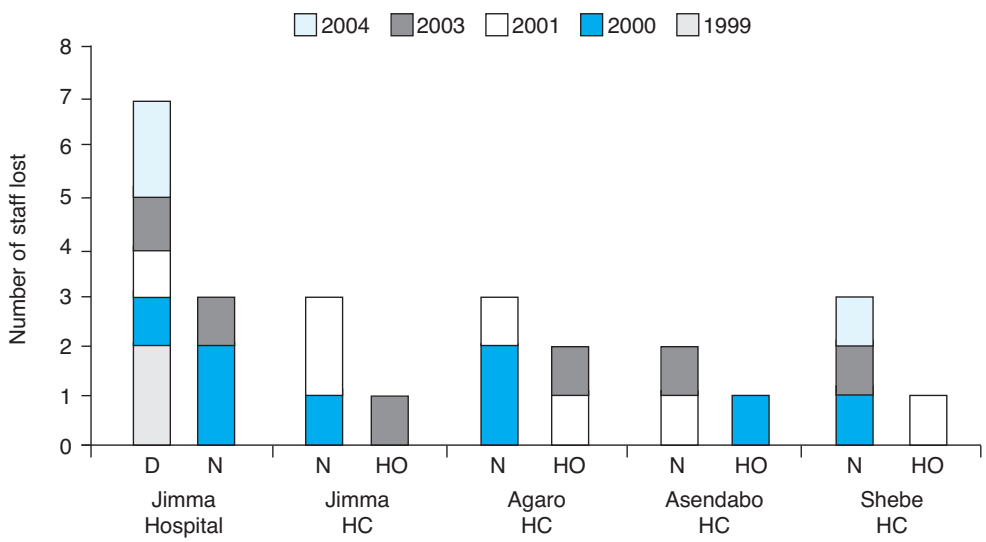

Fig 2. Staff loss in the Jimma chronic disease programme. D = doctors; HC = health centre; HO = health officers.

Application to healthcare in other countries

In health services all over the world interventions must be chosen carefully to make the most effective use of the limited resources available for chronic disease care. This programme shows that community-based care and education, primarily driven by health officers or nurses, are an effective and cost-efficient method of managing chronic disease. This is replicable whether in other LDCs,[5,18] or in wealthier nations where the logistics of managing the growing number of people with diabetes are stretching existing resources to the limit.[16] In the UK, chronic-disease patients, who often have complex needs and more than one chronic condition, are in many cases, primarily looked after by nurses.[19]

The difficulties of sustaining the programme epitomise the problems of healthcare in an LDC, in particular the very high staff turnover and unstable supply of drugs. Nevertheless, it is an excellent template for the care of chronic disease and for the long-term delivery of care for HIV patients.

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