Leprosy: light at the end of the tunnel

by John Maurice

Mr John Maurice, a Scottish freelance science writer living in the Geneva area, formerly worked as Communications Officer for the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR)

In busy Manaus, capital of Brazil's Amazonas State, anyone in a hurry at 3 o'clock in the afternoon should not take bus number 63. The chances are it will stop for no obvious reason at a street corner while the driver, Amauri de Olivera, disappears into a soft-drink bar. He will return five minutes later, a grin on his face. His regular passengers grin back. They know that he has just taken his monthly dose of a new treatment. They know that thanks to this treatment he will not lose his fingers, toes or eyebrows. That he will not go blind. That his hands will not twist into rigid claws. That purulent ulcers will not appear on his feet preventing him from walking. That he will not contaminate his family or his passengers. They know that in a few months he can stop taking the pills because he will be cured of a disease that up to now has been considered incurable. Bus driver de Olivera is one of over two million leprosy patients throughout the world who have been or are receiving multidrug therapy (MDT).

MDT is WHO's answer to a threat that could have spelled catastrophe for the 1.600 million people, including the estimated ten to twelve million leprosy patients, who live in the 53 countries where leprosy is endemic: the threat that dapsone, virtually the world's only anti-leprosy drug for the past 40 years, would become ineffective. By the early 1980s, studies set up by the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR) were disclosing resistant strains of Mycobacterium leprae in up to one-third of cases in several endemic countries. In some areas, large numbers of patients were failing to respond to dapsone, a drug that has to be taken for years to be effective. Action had to be taken urgently.

In 1981, WHO hastily convened a Study Group, which came up with a treatment scheme based on a combination of three drugs: rifampicin, a powerful bactericidal compound; clofazimine, a weak bactericidal drug but with potentially useful anti-inflammatory effects; and dapsone itself. Patients with mild paucibacillary leprosy (= with few bacilli) would be given dapsone and rifampicin for six to nine months. Those with more severe (multibacillary) leprosy would receive dapsone, rifampicin and clofazimine for 24 to 48 months. Rifampicin and clofazimine would be given under strict supervision. Dapsone would continue to be self-administered.

The Study Group's recommendations were based on:
- laboratory evidence that leprosy bacilli resistant to one drug would succumb most probably to a second and almost certainly to a third drug;
- preliminary results from early clinical trials suggesting that within a few weeks of starting this treatment, over 99 per cent

Soon, the disfiguring signs of leprosy, such as those affecting this young girl in Malawi, will be less common, thanks to multidrug therapy.

Photo WHO/J. Maurice
of the ten thousand million or so leprosy bacilli infecting a patient would be killed and that the patient would thus be non-infective to others;

- the assumption that effective treatment limited to six months at best, 24 months at worst, would stand a much better chance of being accepted and taken regularly than treatment of limited efficacy prescribed for years.

MDT has been adopted by 45 of the 53 leprosy-endemic countries or territories of the world (that is, with a prevalence equal to or greater than 1 per 1000 inhabitants), and altogether by 96 of the 152 countries or territories of the world reporting any cases of leprosy to WHO. Of the over five million registered leprosy patients in the world, some 2.1 million have been put on MDT. Of these, over a quarter have completed their treatment. They continue to be examined at regular intervals, however, in case of relapse or any untoward reaction as a result of the leprosy bacilli that have been killed by the treatment but not yet cleared from the body.

Statistics give only one side of the picture. Interviews with a cross-section of patients—over 200 in all—in five countries where MDT is being enthusiastically applied (Venezuela and Brazil in Latin America, Ethiopia and Malawi in Africa, and India) give an equally bright picture.

A 60-year-old rancher, for example, interviewed at his farm in Venezuela's Portuguesa region cries from relief when he is told that his 25-year search for a cure is about to end, thanks to a definitive, two-year course of MDT. His wife, who has just been found to have a white patch on her back—an early sign of the disease—does not cry when she learns she has leprosy, since she is told that MDT will rid her of infection within a few months.

In the East Godavari district of southern India's Andhra Pradesh state, a young woman proudly shows off her vigorous 18-month child. She calls him her "MDT child" because during her pregnancy she refused, against medical advice, to give up her therapy. "I couldn't stop," she explains. "It was making me a live person again."

A farmer in Ethiopia's Shewa region mounts his mule before dawn to reach an MDT treatment point held on market days under a warka tree—a four-hour journey across boulder-strewn tracks that disappear every few miles beneath rushing streams. "You'd have to take my mule from me or chop off my legs before you'd stop me coming for my treatment," he declares.

Generally, patients say they "feel better" on MDT. But their enthusiasm may also stem from the greater attention MDT brings them. They now have a regular monthly date with a health care worker and, of course, with other fellow leprosy patients—under a banyan tree in the Indian countryside, in a mobile health-care houseboat in the Amazon, between rows of perch drying in the sun on the shores of Lake Malawi.

"For many patients, MDT is like an opening in the sky, a light at the end of a long dark tunnel," says a leprosy control officer in Maracay, Venezuela. "We can begin to use the word 'cure' when we talk to patients."

The enthusiasm of health workers for MDT is often tempered by the increased initial workload it requires—more paperwork to ensure careful recording of drug administration and clinical changes, and more travelling to reach the treat-
ment points that are located as close to patients' homes as possible. But the workload diminishes quickly as the treatment programme gets under way. Examples: Over the past three to four years the number of cases has dropped from 30,000 to 4,000 in Srikakulam District, India; from 1,900 to 300 in Kambata region, Ethiopia; from 9,000 to 2,500 in Malawi.

So dramatic is the drop in some areas that leprosy control staff hired and trained to deal with hundreds or thousands of patients face imminent unemployment or conversion to other health work. Some of the reduction in case-load may be due to the "weeding out" of inactive or dead patients in pre-MDT screening surveys. On the other hand, the drop is occurring despite the still fairly constant intake of new cases in many countries. (The very existence of MDT can bring an influx of previously "hidden" patients wishing to take advantage of the new treatment.)

Two key questions remain: Is MDT medically effective? And if so, for how long?

MDT was something of a gamble, admits Dr Shaik K. Noordeen, who heads the Leprosy Unit at WHO's headquarters in Geneva. "We were finding resistance to dapsone wherever we looked for it. We had to do something. There was simply no time for careful, long-term study."

So far, clinically and epidemiologically, MDT is living up to expectations, although it is too early to talk of victory. Many leprosy control officers say MDT seems to reduce the bacterial load in patients more quickly than dapsone alone. It may also reduce the frequency of the dreaded leprosy "reactions," with their concomitant pain, swelling and risk of permanent nerve damage and deformity. It also seems to be effective in preventing or delaying the onset of resistant bacilli — the relapse rate in MDT-treated patients seems to be well under one per cent in most areas. A further benefit of MDT is that it does not require hospitalisation but keeps patients in their communities, and thus helps to erode the social stigma which was fostered by forced isolation of patients in hospitals or leprosaria.

MDT is not without its critics, though. Sceptics fear that it will take more than 6 or 24 months of drug treatment to get the better of a disease that has an incubation time of up to 15 years. It is true that many paucibacillary patients still have leprosy patches after their six-month MDT course, but these lesions nearly always disappear over the next year or two. Other critics say too much emphasis is being put on drug therapy and too little on care for the estimated one to two million patients who are disfigured or disabled, and who require physiotherapy, surgery or special footwear. In Ethiopia and India, for example, facilities are clearly lacking to care for such patients, and in Malawi prevention of disability through early MDT treatment has deliberately been given priority over care of the disabled.

Whatever its merits and shortcomings, MDT must be credited with mobilising national and international resources to bring into the light of day a disease that for centuries has remained out of sight and often out of mind. It is forcing on communities the realisation that the walls of the leprosy ghetto can be pulled down, and that leprosy—like any other disease—can be diagnosed, treated and, perhaps one day, prevented.