Lepr Rev (1993) **64,** 85–88

News and Notes

Statement on the Chemotherapy of Leprosy, Greenville, USA, April, 1992

This is the report of a conference recently held in Greenville, South Carolina, USA, which '. . . brought together clinical leprologists, pharmacologists, epidemiologists, leprosy control programme managers, sociologists, health educators, therapists and patient representatives . . .' in order to address the following questions:

1. Are current WHO/MDT regimens working satisfactorily in the field?
2. Based on results to date, can application of the WHO/MDT regimens be improved, particularly in relation to duration of therapy, the classification of cases, drug delivery, and/or the use of a single regimen for all cases?
3. Can the duration of chemotherapy be shortened significantly through the use of alternative regimens and what would be the practical impact of this on leprosy control, on patients and on programme managers?
4. Are new strategies indicated for the delivery of chemotherapy and other aspects of leprosy in the light of contemporary health, cultural, psychological, and economic factors?
5. What should be the focus of leprosy therapy research during the next decade?

The Conference included presentations and discussions by a wide range of experts over a period of 3 days. The conclusions were as follows:

1. Experience to date with the WHO/MDT regimen is very satisfactory. Toxicity appears to be minimal, patient acceptance is excellent and the relapse rate thus far is very low. Prevalence rates have fallen radically, but incidence rates have not yet shown a consistent fall attributable to MDT. The currently recommended durations of 6 and 24 months for PB and MB disease, respectively, appear to provide sufficient therapy. Follow-up is no longer required for uncomplicated cases where resources are limited provided the patients understand they must return at once if complications or signs of relapse develop.
2. A better understanding is required of the economic, social and cultural factors which influence MDT coverage, case finding, compliance, and other aspects which may promote or impede leprosy programmes.
3. Application of MDT is not as widespread as desirable in many countries. Mobilization of additional resources and stimulation of political support are required to extend it to the whole population of leprosy patients in all countries.
6. New drugs may allow significant further shortening of therapy. The current trial of rifampin with ofloxacin should provide significant data in this regard. In evaluating any new treatment regimen, the incidence of disabilities during and after chemotherapy is as important a measure of the value of a new regimen as the relapse rate. Development of designer drugs specific for *Mycobacterium leprae* is possible but may be prohibitively expensive.
7. Development of an anti-leprosy vaccine continues to be a priority. Methods utilizing recombinant technology hold some promise here. BCG offers considerable protection against the development of both multibacillary and paucibacillary disease. Until a more effective anti-leprosy vaccine is developed, use of BCG should be encouraged in endemic countries. Although

effective immunotherapy would be useful, there is no data to support any of the current approaches to such treatment.

8. In view of the declining case loads, vertical leprosy control programmes will have to consider integration into basic health services or a combination with another vertical programme (e.g., tuberculosis or dermatology). The minimal requirements should be that MDT be maintained and that treatment of reactions be continued. In some countries basic health services may initially not be able to cope with the treatment of disabilities. An integrated programme should maintain specialized leprosy expertise for training, supervision and management of complications.

Copies of the report are available from ALM International, 1 ALM Way, Greenville, SC 29601, USA.

International low-price Sources for Essential Drugs, price indicator, 4th edition, 1991

Medico International has revised and updated this highly useful booklet, which gives current prices for generic drugs on the international market. Medico International is a non-profit medical relief organization with over 20 years' experience working with organizations in Africa, Asia and Latin America in the field of primary health care. This booklet was developed as a contribution toward making essential drugs available to all people, but particularly those of the developing world.

The list of drugs is based on the most recent WHO Model List of Essential Drugs, with a few additional products that are in widespread use. Lists of drugs are in English only, but the booklet's introductory and explanatory notes are in English, French and Spanish.

Prices are given in US dollars, based on the most recent price information available from a selected group of 8 suppliers of generic drugs. Additional information from the suppliers, such as terms of payment, minimum order, transport and packing costs in relation to price quoted, extra costs, and special product information, is also included.

Available at DM10 plus mailing costs (up to three copies free to non-profit organizations in developing countries) from:

Medico International, Obermainanlage 7, D-W-6000 Frankfurt/M, Germany.

International Health Exchange (IHE), London, UK

A British register has been launched, listing health professionals available at short notice for emergency relief work. The charity International Health Exchange (IHE) has set up the Emergency Disaster Relief Register in consultation with the UK government and such agencies as Oxfam and Médecins sans Frontières. To be included on the register, health workers must have had experience in a developing country and/or a disaster situation. *Details:* IHE, 38 King Street, London WC2E 8JT, London, UK.

Fractals, medicine and the epidemiology of leprosy

In *Leprosy Review*, 1992, **63,** Supplement 1, 31s–39s, Professor M. F. Lechat drew attention, in the final paragraph of his contribution entitled, 'Epidemiometric modelling in leprosy based on Indian data' to the potential value of fractals in the future study of the epidemiology of leprosy: 'Due to the present success of MDT-based control, this modelling approach in leprosy is no longer part of basic research. The future belongs to microscale modelling for disappearing diseases. What can be expected in terms of limited foci, clusters and erratic time fluctuations? This could be called, to use a fashionable new avenue of research, fractal epidemiology.'

To those not yet familiar with this term, the following information, extracted from an editorial in the *Lancet*, 338, 7 December 1991, may be helpful:

'Much medical investigation is concerned with the quantification of events. Since most of the existing methods of quantification rely on the principles of regular Euclidean geometry, the complex

patterns of many medical observations have to be considerably distorted or 'smoothed' to be described within this analytical framework. Fractal geometry may provide another way to fashion the answers.

The term fractal was introduced by the mathematician Benoit Mandelbrot to describe a type of distribution of points in space or time. The word is derived from the Latin *fractus*, meaning irregular or fragmented, and this reflects one of the fundamental properties of a fractal structure: self-scaling similarity over a wide range of scales. Consider, as Mandelbrot did, the outline of the coast of Britain at different map scales. A road atlas map with the whole of Britain on 1 page will show the major irregularities of the coast; on the pages with larger scale maps, one can identify smaller bays that are not apparent on the initial map; and a 1 : 50 000 Ordnance Survey map will show still smaller bays. Nevertheless, all the bays visible at the different scales have the same general shape. This self-similarity occurs over an infinite range of scales in abstract mathematical fractal structures, but over a limited range in natural objects.

An important feature of fractal objects is that the measurements used in regular Euclidean geometry are often inapplicable. If the length of the British coastline is measured by taking callipers of a fixed width and 'walking' them around the boundary of water and land, the total length of the coastline will depend on the size of the steps. With small step sizes, more of the tiny irregularities are included and the total length becomes greater, tending towards infinity if the steps are very small. Since the British coastline has a fractal structure, its absolute length cannot be measured but the complexity of its boundary can be expressed in terms of a fractal dimension. A fractal dimension differs from the Euclidean topological dimension in that it is not an integer: the outlines of coasts have fractal dimensions between 1 and 2, the more complex outlines having a fractal dimension closer to 2 than to 1. The limitation of topology is that it cannot tell one island from another except by measurement of area.'

The Editorial gives examples of the application of fractals in cardiology, respiratory medicine, ophthalmology, dentistry and the diagnosis of breast cancer. The final paragraph reads:

'What are the limitations of fractal geometry? Since fractal analysis is essentially mathematical, as with all mathematical models there must be a close link with the biological event if the model is to be useful. Relating the fractal dimension of an arterial tree to a diffusion-limited aggregation process may be a useful analogy, but it does not imply complete understanding of the process of angiogenesis. Natural objects are often self-similar over no more than 3 or 4 levels of recursion, so the scales at which the fractal dimension is calculated must be selected accordingly; many of the methods of fractal analysis require confirmation by further research. Nevertheless, the concept of fractal geometry is likely to prove very productive in areas of medicine where Euclidean geometry fails. With the availability of high-speed computers and high-resolution graphical displays we can now see that the iteration of very simple formulae can produce infinitely complex structures—perhaps the infinitely complex forms of nature will be revealed as repetitions of simple formulae after all.'

Health education materials needed

TDR's communications unit is about to start a pilot project in communications for development. The project will concentrate on health education for the TDR target diseases (malaria, schistosomiasis, lymphatic filariasis, onchocerciasis, African trypanosomiasis, Chagas disease, leishmaniasis and leprosy) and will be carried out in consultation with TDR's social and economic research steering committee and WHO's Divisions of Control of Tropical Diseases (CTD) and Health Education (HED).

As part of this project, TDR has hired a consultant to collect health education materials on the TDR diseases, as well as reports of studies relating to health education in these diseases.

TDR would greatly appreciate readers' help in putting this collection together.

If you have copies of such materials or can indicate where they can be obtained or can give

references to or send copies of relevant study results, please address your materials and information to: Ms Ane Haaland, TDR Communications Consultant, Skogbrynet 9, 1458 Fjellstrand, Norway [tel: (47-9) 918419; fax: (47-9) 918713].

Health Images

Health Images is a UK-based charity devoted to helping small groups in developing countries to produce their own, locally relevant, visual materials, usually in the form of posters. Founded several years ago by Bob Linney, the office is based at Holly Tree Farm, Walpole, Halesworth, Suffolk IP19 9AB, UK, but the work is mainly carried out by visits abroad to countries which in recent years have included Laos, Mexico, Brazil, Kenya, Zimbabwe, Sudan, India and Nepal. The subject matter has covered family planning, breast feeding, clean water supplies, diet and immunization, whilst at the same time encouraging local artists and health workers to explore various aspects of visual communication and possible misunderstandings in a poster's message.

International Leprosy Congress, Orlando, Florida, 29 August–4 September 1993

Message from the ILA President

Nearly 5 years ago, field workers, laboratory scientists, and others from around the world met to share their experiences and their goals to control and ultimately eradicate leprosy. The 14th International Leprosy Congress will take us a step closer to achieving those goals.

The number of registered patients has fallen dramatically in recent years, and in 1991 the World Health Organization resolved to eliminate leprosy as a public health problem by the year 2000. There is great hope, but questions remain: Is present technology sufficient? Are social, economic, and political conditions of endemic countries adequate? What will happen to patients with social and physical disabilities? The 14th Congress will address these issues and formulate plans of action.

The ILA is grateful to ILEP and WHO, Congress co-sponsors, and to the Gillis W. Long Hansen's Disease Center and ALM International for helping to organize the Congress.

We look forward to seeing you at the 1993 Congress and to renewing our efforts to help patients and to conquer leprosy.

WAYNE M. MEYERS
President, ILA Congress

Congress Subjects

Presentations at the Congress will cover all aspects of leprosy and its control including experimental and laboratory science, clinical science, programme planning and management, training, education, and the psychosocial sciences. Each day a State-of-the-Art lecture will be presented on one of the key Congress issues.

Poster Sessions

Special attention will be given to poster presentations in order to maximize the personal discussions and explanations of participants' research and work. The Organizing Committee will provide a well-planned schedule of poster presentations during the Congress in connection with, and completing, the Congress themes.

Teaching and Training Sessions

Teaching and training sessions will be held each day during the Congress. Videos, continuous slide presentations, and films will cover a variety of subjects.

Secretary for administration: ILA Congress, c/o ALM International, Greenville, South Carolina 29601, USA. Telephone 803-271-7040; Fax 803 271-7062.