Lepr Rev (1980) **51**, 63–72

Leprosy and the community

THE VICTOR HEISER PROGRAM FOR RESEARCH IN LEPROSY

We have in past numbers frequently drawn attention to the various scholarships and other forms of financial support which may be obtained on application, and at advertised times, to this Program (450 East 63rd Street, New York, New York 10021, USA). The back page of one of their current brochures contains the following succinct statement entitled 'Leprosy Research Today':

Current research in leprosy falls under three main headings: Bacteriology, chemotherapy, and immunology.

Bacteriological research revolves around the fact that *Mycobacterium leprae* has not been cultivated *in vitro* (on bacteriological medium). Dr Armauer Hansen in Norway first observed the organism microscopically in 1873, but the organism was not grown outside the human body until 1960 when it was found it would grow in the foot pads of mice. Recently armadillos (*Dasypus novemcinctus*) have been used to grow large numbers of *M. leprae*. Attempts to grow *M. leprae* on bacteriological medium continue and have received recent encouragement from studies that have shown how to grow *M. lepraemurium*, a related pathogen for mice which was also thought to be non-cultivable until a few years ago.

Chemotherapeutic work has involved screening of drugs against *M. leprae* in mouse foot pads, studies of the action of drugs in mice and in man, and investigation of the pharmacokinetics (absorption of the drug, distribution in the body, metabolic alterations of drug and disposition). The most useful drugs are dapsone (DDS), clofazimine, and rifampin. In its severe (lepromatous) form, leprosy is an extraordinarily difficult disease to treat, and it requires chemotherapy for many years, practically for life. If treatment is interrupted too early, the patient relapses, with damage to himself and risk of infection of his contacts. During the long treatment, drug-resistant *M. leprae* may emerge, also causing progressive disease in the patient and risk to his contacts. More rapidly effective drugs or combinations of drugs are badly needed.

On the immunological front, new diagnostic skin tests and blood tests are being developed that may be useful in detecting early infection. Use is being made of the larger amounts of *M. leprae* grown in the armadillos to develop

vaccines for *M. leprae* and study the chemistry and antigenic makeup of the organism.

All these research efforts are directed along two lines. One line is the attempt to increase understanding of this microorganism, which is so difficult to work with because it appears to multiply so slowly (1/12th as fast as the tubercle bacillus), and because it has not been grown on bacteriological medium or in tissue culture. The other line of effort is to develop new methods of treatment and control. Even the milder (nonlepromatous) forms of the disease cause frequent crippling and require years of treatment. To stop transmission of the disease, lepromatous disease must be prevented or detected early and promptly treated. An effective vaccine would offer the best chance of control or eradication, but methods for early diagnosis and more rapidly effective treatment would be extremely helpful.

'COMMENT COMBATTRE LA RESISTANCE A LA DAPSONE?'

Rapport de Heathrow, 1977. ILEP

This is the French translation of the booklet originally issued in English in 1977, as the result of a meeting between members of ILEP, LEPRA, WHO and The Leprosy Mission in Heathrow, London. It could profitably be read in conjunction with the Fifth Report of the WHO Expert Committee on Leprosy, Technical Report Series, 607, 1977 (on which much of its main subject matter is based), and with 'Drug resistance in leprosy' by Dr S G Browne, published in *Partners*, March, 1977. (It should be noted that in some of the original copies of the Heathrow Report in English, there was an error on page 7, concerning the dose of dapsone. Under Dapsone tablets, line 9 should read '. . . in a dose of 6–10 mg/kg body weight per week.' – the words *per week* having previously been omitted).

UNIT FOR THIRD WORLD HEALTH:

University of Oxford Medical School and World Community Development Service

As a development of an organization called World Community Development Service, founded by a medical student in Oxford, Mr Mukesh Kapila, a unit for Third World Medicine was formed some months ago, with a more recent change to the present title of *Unit for Third World Health*. The President is Professor David Weatherall, FRCP, FRCPath., FRS, and the Vice-Presidents are Dr Bent Juel-Jensen, DM, FRCP, FRGS, and Mr Mukesh Kapila, BA. The Unit's purpose is described as follows:

'The Unit for Third World Health is a forum to explore issues related to the problems of health and techniques of appropriate medical practice in the lesser developed countries. It is sponsored by the University of Oxford Medical School and World Community Development Service.

PRINCIPLES

'The problems of health in the Third World are awesome in their extent and implications. Oxford has an active tradition of contact with the lesser developed countries and has the human and material resources to play a more significant role in helping to tackle these important issues. The Unit provides an arena for contact between health practitioners and others working in the field of development.

PRACTICAL AIMS

'The Unit has begun to undertake the following activities, from September 1979:

(1) A series of monthly *Lectures & Seminars* on health and related issues. The topics include:
Tropical Epidemiology;
Nutrition & Hygience
Population, fertility & mortality patterns. Fertility control.
Clinical topics – leprosy, malaria, TB, etc. New developments.
Medical care in disaster situations
Models of alternative health delivery systems. 'Paramedics'.
Economics of health care. Political factors in planning.
Work and role of Medical Missionaries; other charities.
Work and role of international agencies, WHO, UNICEF, etc.
Drugs and the role of pharmaceutical companies.
(2) Guidance on *electives* in the Third World. Orientation courses for medical students and others going to work overseas are offered. The Unit hopes to maintain long-term links with certain projects.
(3) The following *awards* are offered for activities in Third World Medicine:
Three Travel Scholarships for Electives (value approx. £200).
Three Prizes for piece of research or study (value approx. £150).
(4) It is hoped to publish a regular *Bulletin* containing original articles, reports, book reviews, in conjunction with the Oxford Medical School Gazette.
(5) It is hoped that, in time, a service will be established (books, journals, other materials) to provide up-to-date information on current medical activity in development, here and elsewhere.'

Ideas and involvement in the activities of the Unit would be greatly welcomed.

Further details (including, current programme card for lectures and seminars, dates of orientation courses and application forms for Awards) may be obtained from David Vickers, Osler Cubicle, Level 3, John Radcliffe Hospital, Headington, Oxford.

WHO; $25.5 MILLION IN 1979 FOR TROPICAL DISEASES RESEARCH AND TRAINING

With acknowledgements to the *WHO Chronicle*, we reproduce the following extract of information concerning the budget for the Special Programme:

A maximum 1979 programme budget of US $25.5 million, of which $22 million has already been made available or pledged, was approved by the Joint Coordinating Board of the Special Programme for Research and Training in Tropical Diseases at its first meeting in Geneva in November 1978. The Board is the programme's top administrative body and comprises the three co-sponsors – the United Nations Development Programme, the World Bank and WHO – together with 27 governments and organizations. The programme was launched in 1976 to develop effective controls against six major tropical diseases; malaria, schistosomiasis, filariasis (including onchocerciasis), trypanosomiasis, leishmaniasis and leprosy.

Addressing the opening session of the Board, Dr Halfdan Mahler, WHO's Director-General, said that in the past, when the industrialized countries mounted campaigns aimed at worldwide health problems, it was they who often reaped the greatest rewards. With the Special Programme, however, all the world's peoples will benefit. Also, he said, the technology being developed by the programme, in its broadly-based framework of research, can have a much greater and more immediate impact on the health situation in developing countries than has ever been achieved before.

The Special Programme is now deeply committed to the involvement of developing countries in the solution of their disease problems, with the full participation of the global scientific community in setting the broad scientific priorities and engaging in the goal-oriented research leading to new drugs, diagnostic tests, vaccines, pesticides and other tools. Although the programme is looked upon as an effort of 20 years or more, it is hoped that within the next five years some new technology for control of some of the tropical diseases mentioned above will be ready for extensive trials in the countries needing them.

WHO; THE USE OF FORMULATED PLANS OF ACTION FOR NATIONAL LEPROSY CONTROL PROGRAMMES (A HYPOTHETICAL PLAN FOR UNIFORM STRATEGY)

Prepared by the WHO Leprosy Unit, Division of Communicable Disease, LEP/79.1, the first three paragraphs of the Introduction to this excellent document read:

'The Report of the Fifth Expert Committee on Leprosy has attributed the disappointing progress made in many leprosy control programmes "mainly because of the failure to define the true magnitude of the problem, or to provide a true estimate of the level of human and financial resources required, and the period of time for which they are required, to attain the programme objectives".

'The planning and programming of leprosy control measures are regarded as essential, and involve three basic principles which, in brief, are (a) the need for coverage of the whole country, (b) the provision of resource allocations to be sustained for a prolonged period of time, and (c) the control measures to be developed as an integral part of the health services.'

In the light of these considerations, an attempt to provide effective leprosy control measures involves a project formulation within the country health programme – a process which ensures a full examination of the current epidemiological, operational and administrative problems.'

Taken with WHO's new *Guide to Leprosy Control*, 1979, this document should be of immense value to those who have to formulate plans of action. The section on drugs is particularly good. Page 14 refers to the potentially very useful *standardized reporting forms* (OMSLEP) which have been jointly devised by WHO and the School of Public Health, Louvain University, Brussels – already described in *Leprosy Review* in its account of the last meeting of ILEP in Madrid, June 1979.

WHO; *WEEKLY EPIDEMIOLOGICAL RECORDS*; LEPROSY SURVEILLANCE

1. No 14; 6 April 1979

LEPROSY SURVEILLANCE

Singapore. – In 1977, 90 new leprosy cases (including 11 imported cases) were registered in Singapore. One third of these cases had bacteriologically positive skin smears. Of 2,449 contacts which were screened, 19 (0.8%) were found to have the disease. There were 4.4% of the cases in the age group 0–9 years, 10% in those 10–19, 22.2% were 20–29, 11.1% were 30–39, 20% were 40–49, 13.3% were 50–59 and 18.9% were more than 60 years old. The male to female ratio was 1.5 to 1.

The distribution of the different forms of the disease in 1977 was similar to that for the preceding five years: lepromatous 24.4%,

SURVEILLANCE DE LA LÈPRE

Singapour. – En 1977, 90 cas nouveaux de lèpre (dont 11 importés) ont été enregistrés à Singapour. Chez un tiers des malades, les frottis cutanés se sont révélés bactériologiquement positifs. Sur les 2449 contacts qui ont été contrôlés, 19 (0,8%) étaient atteints de la maladie; 4,4% des malades avaient entre 0 et 9 ans, 10% entre 10 et 19 ans, 22,2% entre 20 et 29 ans, 11,1% entre 30 et 39 ans, 20% entre 40 et 49 ans, 13,3% entre 50 et 59 ans et 18,9% plus de 60 ans. Le rapport de masculinité est égal à 150.

En 1977, la distribution des différentes formes de la maladie a été semblable à celle des cinq années précédentes: lépromateuse

borderline 12,2%, tuberculoid 58.9% and indeterminate 4.4%. As shown in *Table 1* a lower percentage of cases occurs in those of Indian origin than those of Malay and Chinese origin.

The drug principally used for therapy is dapsone but lamprene, rifampicin, ethionamide and thiambutosine are also available. Thalidomide is used as a drug only on selected male patients with severe erythema nodosum leprosum reactions. With the increase in sulfone resistance and the introduction of initial multiple drug chemotherapy, the cost of treatment has increased tremendously. This is particularly so with the greater use of lamprene and rifampicin. In 1977 there were 30 cases in which relapse occurred.

24,4%, borderline 12,2% tuberculoïde 58,9% et indéterminée 4,4%. Comme le montre le *Tableau 1*, le pourcentage est moins élevé dans le group indien que chez les individus d'origine malaise et chinoise.

La chimiothérapie repose essentiellement sure la dapsone, mais on utilise aussi les produits suivants: lamprène, rifampicine, éthionamide et thiambutosine. La thalidomide n'est administrée qu'à certains malades de sexe masculin présentant un érythème noueux lépreux grave. Du fait de l'accroissement de la résistance aux sulfones et de l'introduction d'une chimiothérapie initiale associée, le coût du traitement a considérablement augmenté, surtout depuis que l'on fait davantage appel au lamprène et à la rifampicine. En 1977, il y a eu 30 rechutes.

Table 1. Ethnic distribution of different forms of leprosy, Singapore, 1972–1977
Tableau 1. Répartition des différentes formes de lèpre selon la race, Singapour, 1972–1977

Ethnic Group – Group ethnique	Tuberculoid Forme tuberculoïde	Borderline Forme borderline	Lepromatous Forme lépromateuse	Indeterminate Forme indéterminée	Total
Chinese – Chinois	253 (49.8%)	85 (16.7%)	135 (26.6%)	35 (6.9%)	508
Malays – Malais	22 (51.2%)	7 (16.3%)	10 (23.3%)	4 (9.3%)	43
Indians – Indiens	29 (54.7%)	9 (17.0%)	7 (13.2%)	8 (15.1%)	53

(Based on/D'aprés: *Epidemiological News Bulletin*, Singapore, Vol. V, No 1, January/janvier 1979)

2. No 21; 25 May 1979

LEPROSY SURVEILLANCE

UNITED STATES OF AMERICA. – Reported leprosy cases in California have gradually increased over the last two decades: the case rate per million population rose from 0.7 in 1960 to 3.7 in 1975. Currently, 50 to 70 new cases of leprosy are reported yearly in California. The increase is due mainly to increasing immigration from areas of the world where leprosy is still prevalent. Also, the medical community is more aware of the disease and patients are less afraid of being "discovered". While individuals born in the US who live in tropical countries may acquire leprosy and return with it, the majority of California cases are reported among

SURVEILLANCE DE LA LÈPRE

UTATS-UNIS D'AMÉRIQUE. – Les cas de lèpre notifiés en Californie ont progressivement augmenté au cours des deux dernières décennies, la proportion des cas par million d'habitants passant de 0,7 en 1960 à 3,7 en 1975. A l'heure actuelle, de 50 à 70 cas nouveaux de lèpre sont notifiés chaque année en Californie. Cette augmentation s'explique principalement par une immigration plus forte en provenance de régions du monde où la lèpre reste répandue. En outre, le corps médical est davantage conscient de la maladie, les malades redoutant moins quant à eux d'être «dépistés». Encore que les personnes nées aux Etats-Unis et demeurant

the foreign born. Of 493 new cases reported in California since 1970, over 90% were foreign born.

The emphasis in leprosy control has shifted from prolonged isolation and confinement to early detection and treatment of cases, with surveillance and chemotherapy of contacts. With appropriate therapy a patient can be rendered non-infectious in a very short time but must continue with medication. No restrictions in employment or school attendance are indicated for patients regarded as non-infectious.

dans des pays tropicaux puissant contracter la lèpre et la rapporter, la majorité des cas notifiés en Californie concernent des personnes nées à l'étranger. Sur 493 cas nouveaux notifiés en Calfornie depuis 1970, plus de 90% étaint nés à l'étranger.

En matière de lutte antilépreuse, isolement et enfermement prolongés le cèdent au dépistage et au traitement précoces des cas, avec surveillance et chimiothérapie de contacts. Moyennant un traitement convenable, le malade cesse d'être infectieux dans des délais très brefs, ce qui n'empêche qu'il doit continuer la médecation. Il n'y a pas lieu d'apporter de restrictions à l'emploi ou á la fréquentation scolair des malades considérés comme non infectieux.

(Based on/D'après: *California Morbidity, Weekly Report*, No 48, 1978.)

WHO; *IMMLEP; TDR THIRD ANNUAL REPORT*, Facts and Figures No 2 (1 July 1978–30 June 1979).

We are grateful to WHO for permission to publish the following list of the *Principal Investigators and Project Titles* in the Special Programme for Research and Training in Tropical Diseases, of which IMMLEP is a sub-component:

Studies on Antigenic Specificity of *M. Leprae*: Dr Masahide Abe, National Institute for Leprosy Research, Tokyo, Japan

M. Leprae/Monocytes: Dr N H Antia, The Foundation for Medical Research, Bombay, India

In vitro Interaction between Macrophage Lymphocytes and *M. Leprae*: Dr N H Antia, The Foundation for Medical Research, Bombay, India

Experimental Reproduction of *Lep.* in *Dasypus Novemcinctus* and *Dasypus Hybridus*: Dr Luis Maria Balina, Universidad del Salvadore (ILAFIR). Buenos Aires, Argentina

Furniture de *M. Leprae* (Supply of *M. Leprae*): Dr G Baranton, Institut Pasteur Francaise, Cayenne, French Guiana

Suppressor Cells in Leprosy: Dr G Bjune, Ullevaal Hospital, Oslo, Norway

Induction of CMI: Sensitization of Guinea Pigs to *M. Leprae*: Dr B R Bloom, Albert Einstein College of Medicine, New York, United States of America

Isolation and Characterization of a Protein Specific for *Mycobacterium Leprae*: Dr T M Buchanan, University of Washington, Seattle, United States of America

Vaccine Studies Against Lepromatous Leprosy: Dr J Convit, National Institute of Dermatology, Caracus, Venezuela

Epidemiological Studies: Dr J Convit, National Institute of Dermatology, Caracus, Venezuela

Purification of *Mycobacterium Leprae* from Armadillo Infected Tissues: Dr J Convit, National Institute of Dermatology, Caracus, Venezuela

Antigen Fractionation: Dr K Dawidowicz, National Institute of Dermatology, Caracus, Venezuela

Taxonomy: Dr J Delville, Catholic University of Louvain, Bruxelles, Belgium

M. Leprae Purification: Dr P Draper, MRC, National Institute for Medical Research, London, United Kingdom

Physiology and Cultivation of *M. Leprae*: Prof J H Hanks, Johns Hopkins University School of Hygiene and Public Health, Baltimore, United States of America

Importance of Defined Antigenic Components of *M. Leprae* for Protective Immunity and Other Immunologic Aspects of Leprosy: Dr M Harboe, Ullevaal Hospital, Oslo, Norway

Antigenic Interrelationships among Mycrobateria: Dr R C Hastings, US Public Health Services Hospital, Carville, United States of America

T Sub Sets in Leprosy – Analytical Study on Cellular Collaborations in Immune Response to *M. Leprae*: Dr S Izumi, Kyoto University School of Medicine, Kyoto, Japan

Lymphocyte Transformation Test in the Epidemiological Study of Leprosy: Dr C K Job, Schieffelin Leprosy Research Centre, Tamil Nadu, India

Supply of *M. Leprae*: Dr A A Juscenko, Leprosy Research Institute, Astrakhan, U S S R

Electron Microscopic Study of *M. Leprae*: Dr A A Juscenko, Leprosy Research Institute, Astrakhan, U S S R

Supply of *M. Leprae*: Dr W F Kirchheimer, US Public Health Services Hospital, Carville, United States of America

Effect of Specific Vaccine on Cell-Mediated Immunity of Armadillos against *M. Leprae*: Dr W F Kirchheimer, US Public Health Services Hospital, Carville, United States of America

Purification and Characterization of *M. Leprae* Antigens and their role in Humoral and Cellular Immune Responses: Dr G Kronvall, Department of Clinical Microbiology, Lund University, Lund, Sweden

Immunomodulation of *Mycobact. Lepraemurium* Infection in Mice: Dr P H Lagrange, Institut Pasteur, Paris Cedex 15, France

Cell Mediated Immunity to *M. Leprae*: Dr M J Lefford, Trudeau Institute, Saranac Lake, United States of America

Transmission of Chimpanzee Leprosy: Dr Joel F Leininger, University of Iowa/ Institute of Agricultural Medicine, Iowa City, United States of America

Autoimmunity to Microfibrils and Schwann Cells in Leprosy: Dr E Linder, University of Helsinki, Helsinki, Finland

Induction CMI: Dr G B Mackaness, Trudeau Institute, Saranac Lake, United

States of America

Production and Supply of *M. Leprae* from Nine-Banded Armadillos: Dr Wayne M Meyers, Armed Forces Institute of Pathology, Washington, United States of America

Immune Complexes in Leprosy: Dr P A Miescher, Hopital Cantonal, University of Geneva, Geneva, Switzerland

A Comparative Study of the Lipids of Leprosy Bacillus: Dr D E Minnikin, University of Newcastle Upon Tyne, Newcastle Upon Tyne, United Kingdom

Purification of *M. Leprae*: Dr T Nakayama, National Institute for Leprosy Research, Tokyo, Japan

Immune Response to *M. Leprae*: Dr T Ozama, National Institute for Leprosy Research, Tokyo, Japan

Supply of *M. Leprae*: Dr J Pacheco, Institute of Tropical Zoology, Caracus, Venezuela

Taxonomy: Dr Y Pervukhin, Leprosy Research Institute, Astrakhan, U S S R

Maintenance of *M. Leprae* Bank; Supply of *M. Leprae*; Purification/Standardization and Antigenicity/Immuno. of *M. Leprae*: Dr R J W Rees, MRC National Institute for Medical Research, London, United Kingdom

Purification of *M. Leprae* and Immunity to *M. Leprae* in Mice: Dr Charles C Shepard, Center for Disease Control, Atlanta, United States of America

Supply of *M. Leprae*: Dr Charles C Shepard, Center for Disease Control, Atlanta, United States of America

Maintenance of a Colony of Armadillos Infected with *M. Leprae*: Dr Charles C Shepard, Emory University, Atlanta, United States of America

Vaccination of Armadillos with *M. Leprae*: Dr Charles C Shepard, Center for Disease Control, United States Public Health Service, Atlanta, United States of America

Vaccination of Armadillos with *M. Leprae*: Dr Charles C Shepard, Emory University, Atlanta, United States of America

Taxonomy: Identification of Protective Immunity to Mycobacteria: Dr J L Stanford, Middlesex Hospital Medical School, London, United Kingdom

Supply of Armadillo Tissues Infected with *M. Leprae*: Prof E E Storrs, Medical Research Institute, Florida Institute of Technology, Melbourne, United States of America

Reproduction of *Dasypus Novemcinctus*, the Nine-Banded Armadillo, in Captivity Year 1/2 of Study: Prof E E Storrs, Medical Reseach Institute, Florida Institute of Technology, Melbourne, United States of America

Taxonomy: Prof G P Talwar, All India Institute of Medical Sciences, New Delhi, India

Macrophage – T Cell Interactions in the Immune Response to *M. Leprae*: Dr E Thorsby, National Hospital of Norway, University Hospital, Oslo, Norway

AG. Purification of *M. Leprae*: Dr M Ulrich, National Hospital of Dermatology,

Caracas, Venezuela

Supply of *M. Leprae*: Dr G P Walsh, Gulf South Research Institute, New Iberia, United States of America

WHO: STUDY GROUP ON NERVOUS DISEASES

Press Release WHO/30, 8 October 1978

Experts in the field of neuroscience and neurology from 12 countries met at the World Health Organization (WHO) in Geneva from 1 to 4 October 1979 to study disorders of the peripheral nervous system

They reviewed the multitude of diseases that affect human nerves and made recommendations concerning prevention, treatment and research.

Dr Ch'en Wen-chieh, Assistant Director-General of WHO, opened the meeting on behalf of the Director-General. He stressed that peripheral neuropathies deserve special attention because of their widespread incidence in both industrialized and developing countries.

Infectious diseases of nerves caused by bacteria, viruses, and environmental toxins were the subjects of discussion. The Study Group also discussed autoimmune disorders such as the Guillain-Barré syndrome which is of particular concern in developing countries, as well as diabetic neuropathy and its social-economic implications, and other diseases caused by under-nutrition in developing countries and malnutrition in industrialized societies.

[The full report has been requested and, subject to permission from WHO, will be published in a later number this year. *Editor*]