

Leprosy and the Community

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LEPROSY CONTROL

Review of technical cooperation and the available funds

The actual number of leprosy cases requiring treatment in the world is not known. In 1970, there were close to 3 million registered patients but a conservative estimate of the total number of cases was over 10 million (6.5 million in Asia, 3.5 million in Africa, and 350,000 in the Americas)*. During 1976/77, questionnaires were distributed to countries through WHO Regional Offices and the results, when available, will give an up-to-date appraisal of the leprosy situation. The article below, which is based on the Director-General's report to the World Health Assembly this year†, describes WHO's efforts in technical cooperation to control leprosy in the various regions and the available resources for carrying out this work.

Guidelines on Leprosy Control

The WHO Expert Committee on Leprosy, in its fifth report published recently‡, laid down guidelines on the strategy of leprosy control and on the formulation and management of a leprosy control programme. Particular emphasis was given to manpower training and deployment of staff, to programme supervision, and to evaluation by the fixing of operational milestones and output targets and by the definition of the most important operational and epidemiological indicators.

In the area of chemotherapy, the Committee was confronted with two major problems: dapsone resistance and the persistence in some treated patients of undestroyed dapsone-sensitive bacilli. Reported rates of secondary dapsone resistance in lepromatous cases range from 2% to 8%, and in one country it is estimated that as many as 30% of infectious cases could cease to respond to treatment within 10 years because of dapsone resistance. To meet these hazards and keeping in mind the economic considerations, the Committee recommended combined drug therapy with clofazimine and rifampicin for multibacillary cases only.

The vital need for adequate information on leprosy prevalence and morbidity in individual countries was also reflected in the Committee's recommendations. As a first step towards meeting this need, an analysis was made by a collaborating centre of the various clinical records and reporting forms

*Bechelli, L. M. and Martínéz-Domínguez, V. (1972). *Bull. Wld. Hlth. Org.* 46: 523.

†Unpublished WHO document A30/14.

‡WHO Technical Report Series, No. 607, 1977.

used by 78 leprosy control services in 45 countries in Africa, the Americas, Asia, and Oceania. The development of a system providing basic standardized information (collected by health staff at the peripheral level) is planned, from which national figures could be derived and used by Ministries to assess the programmes.

From the Committee's recommendations, it is clear that an effective approach to leprosy control will require:

- improved programming and management of control activities
- development of multidisciplinary manpower
- gradual build-up of an integrated information system, by countries
- strengthening of research activities, particularly those to be carried out within the research component of WHO's Special Programme for Research and Training in Tropical Diseases.

Technical Cooperation in Leprosy

GLOBAL AND INTERREGIONAL ACTIVITIES

In recent years many countries have built up their own institutions for training both general health staff and specialized staff, and particularly paramedical and auxiliary personnel. From 1960 to 1974, 389 WHO fellowships were awarded in the field of leprosy; by 1976, only 6 awards were made in this field. With the establishment of a regional training and research centre in leprosy and tropical diseases in South America (in Caracas) and centres in Africa (in Addis Ababa, Dakar, and Ganta in Liberia) and South-East Asia (in India at Chingleput and Karigiri), well-organized training courses are available for the health staff of all endemic countries.

Since 1958, regional seminars and intercountry group educational courses have been conducted for training senior public health staff and for the exchange of views on the strategy and management of leprosy control activities. In 1969 and 1974 the WHO Regional Office for the Western Pacific held combined seminars on leprosy and tuberculosis. However, the need for long-term manpower training plans in most countries and for up-to-date trained teachers in leprosy control — important areas of technical cooperation — has led to provision being made for them in the regular budgets for 1978 and 1979.

An international workshop on leprosy training in Asia and a workshop on the chemotherapy of leprosy were held, respectively, in Bangkok in November 1976 and in Manila early this year. Both workshops were sponsored by the Sasakawa Memorial Health Foundation (SMHF), jointly with the government of the host country, and WHO participated on the technical side. It is the intention of the SMHF to sponsor further workshops in cooperation with governments in Africa, Asia, and South America.

THE AFRICAN REGION

Leprosy control services in the African Region have been integrated into epidemiological or strengthening of health services projects (or both) and do not appear in the WHO programme budget separately.

In Nigeria (70 million population) the leprosy problem is large and ill-defined, particularly in the northern and central states. In three northern states, Bornu, Kano and Kaduna (total population of 28 million), there were 155,199 registered patients undergoing treatment. The total number of registered patients for the whole country may well be over 300,000.

From 1974 till March 1977 the government in Upper Volta and WHO cooperated with a number of voluntary agencies in a combined leprosy-tuberculosis random sampling survey, which confirmed a 75% reduction in the prevalence of active leprosy cases. This achievement was the result of intensive antileprosy work carried out by mobile units in past years. The results of this survey indicate that a significant decline in prevalence may be occurring in other countries where similar antileprosy programmes have been pursued, e.g. Benin, Central African Empire, Chad, Congo, Ivory Coast, Mali, Mauritania, Niger, Senegal, Togo, and the United Republic of Cameroon.

The combining of leprosy and tuberculosis field activities, the feasibility of which was examined in Upper Volta, is an approach that has been adopted (e.g., in Bangladesh, Maldives, Nepal, and Venezuela) and may find wide application in other countries in Africa and elsewhere.

THE AMERICAN REGION

In the Ten-Year Health Plan, 1971–80, the countries where leprosy was considered to be a national problem set themselves goals for 1980 in the reduction of prevalence. Technical cooperation for the development and evaluation of leprosy control services is provided by a WHO leprologist and through the PAHO/WHO Center for Research and Training in Leprosy and Tropical Diseases, both based in Caracas. With funds from a voluntary contribution by the Order of Malta, a consultant was appointed to review and advise on the leprosy control services in Argentina; a small grant was also made to the leprosy control programme in Colombia.

THE SOUTH-EAST ASIA REGION

In 1975 the WHO Regional Committee adopted a resolution emphasizing “the urgent need for coordinated and concerted efforts on the part of the governments, international and voluntary organizations, and bilateral agencies to come to grips with the problem of leprosy within a short time”. Consequently, an intercountry consultative meeting on leprosy was held in New Delhi in December 1975, at which participants from 7 Member States reviewed the magnitude of the problem, strategies for control, and areas for research. Targets were laid down for case detection in endemic areas, for delivery of treatment, and for widening the population coverage. Collaborative field studies were planned on the bacterial reductions in lepromatous cases produced by different drug regimens including combined therapy.

Leprosy control activities in individual countries in the Region are as follows:

(a) The WHO trial in Burma of BCG vaccination of children against leprosy (see below) was terminated in 1975 and the long-term results are being

evaluated. The design of a clinical trial for rifampicin was prepared by consultants with support from the WHO Regional Office.

(b) The review of the leprosy services in Nepal, which was carried out in 1975, is an example of the way in which WHO assists countries develop effective programmes for early detection and closely supervised treatment of the disease. Detailed leprosy project formulation was undertaken as part of the country health programming within the fifth 5-year development plan. A WHO consultant cooperated during 1976 in the initial stages of the implementation of the programme and conducted training courses of field auxiliaries and supervisors.

(c) Bangladesh is now engaged in a combined leprosy/tuberculosis project which health personnel are being trained to operate an integrated field programme for mycobacterial control. A WHO medical officer is cooperating in the field programme.

(d) India has intensified its case-finding and caseholding programme in order to extend present services to hitherto unsurveyed areas of high and moderate endemicity. It is estimated that the total number of untreated cases is two million.

(e) Indonesia has an integrated programme for leprosy control and is now developing, with the cooperation of a WHO consultant, a national training centre for health staff with a view to strengthening case-finding and case-management throughout the country.

(f) Maldives has begun a multipurpose total population survey, which will define the leprosy/tuberculosis problem, with the ultimate aim of developing primary health care.

(g) In Burma and Thailand, operational studies are being conducted to ascertain the best way of integrating the leprosy control services with the health services. In a highly endemic area in Burma, for example, studies on the integration of separate disease programmes — leprosy, tuberculosis, trachoma, and malaria — are in progress. A recent assessment suggests that the retraining of field workers from the separate programmes into a multipurpose worker has to be improved to ensure satisfactory results.

THE EASTERN MEDITERRANEAN REGION

In the course of 1976, three countries in the Eastern Mediterranean Region benefited from technical cooperation in leprosy:

- Democratic Yemen received consultant services, WHO fellowship awards, and supplies and equipment
- Direct field assistance was provided by a medical officer to the leprosy control project in the Sudan and is planned to continue until 1979
- Supplies and equipment for leprosy control were received by Pakistan.

THE WESTERN PACIFIC REGION

Starting this year and until 1980, a regional leprosy advisory team will continue epidemiological and assessment surveys and will guide health authorities in the operation of leprosy programmes in the South Pacific, where

the territories are widely dispersed. An efficient information system, with the prospect of regular appraisals, will be created.

In the Socialist Republic of Viet Nam, the strengthening of the leprosy control programme is considered to be of prime importance in the reconstruction of the health services, for which substantial resources have been and will be made available through voluntary funds from the government of Switzerland (during 1976–80), the Japan Shipbuilding Industry Foundation, and some member associations of the International Federation of Anti Leprosy Associations (ILEP). Technical cooperation in the field of leprosy was also extended to the Republic of Korea and to Papua New Guinea.

Operational Studies and Research Activities

In the last two decades WHO has supported collaborative research on various aspects of leprosy, including studies on the biology of *Mycobacterium leprae* and attempts at its cultivation, development of animal models, drug trials, and diagnostic procedures. Special consideration was given to the possible preventive action of BCG vaccine through a trial carried out in Burma from 1964 to 1975, covering about 28,000 children under 14 years of age and still being followed up. In this trial, protection was found to be limited to about 20% of the children aged 0–14 years old; in addition, the trial enabled valuable epidemiological data to be collected.

Operational studies have been an important feature in a number of national programmes in recent years. For example, sample surveys have provided not only essential information and operational data for evaluation, but also led to improvement of field strategies and diagnostic methods and contributed to the strengthening of health education and an understanding of the psychosocial consequences of the disease.

RESEARCH IN IMMUNOLOGY AND CHEMOTHERAPY

Within WHO's Special Programme for Research and Training in Tropical Diseases, priority is being given to research in the immunology of leprosy (IMMLEP) and chemotherapy for leprosy (THELEP).

The objectives of the IMMLEP programme are (i) development of vaccines, (ii) development of diagnostic tests for subclinical infection, and (iii) exploration of immunotherapy. The need for adequate supplies of *M. leprae* for experimental purposes has been met by increasing the supply of this organism from infected armadillo tissue. Other achievements of this programme so far include purification of *M. leprae* and preparation of antigenic fractions and their evaluation, induction of immune responses in animals, and studies on other mycobacteria (in the environment) antigenically related to *M. leprae*. Although recent progress in research strengthens the hope that an effective vaccine against leprosy will be developed, practical large-scale applications cannot be expected in the near future.

The THELEP programme has four objectives:

— to assess more accurately the risk of the emergence of drug-resistant *M. leprae* in lepromatous patients during single-dose regimens with dapsone

- to develop new laboratory methods for chemotherapeutic trials on patients with leprosy
- to develop effective new drugs against *M. leprae*
- to plan the training of additional laboratory and clinical staff recruited from leprosy endemic countries.

At its first meeting in April 1977, the THELEP scientific working group reviewed and revised the draft standard protocol for chemotherapy trials in lepromatous leprosy and recommended lists of drug regimens and priorities for trials in the following groups of patients: previously untreated, proven dapsone-resistant, and previously responsive to dapsone.

The revised IMMLEP budget for 1976 amounted to \$173,736 and the tentative 1977 budget for THELEP is \$478,000.

OTHER COLLABORATIVE RESEARCH

For technical cooperation in 1976 with 32 research centres or principal investigators in 20 countries the Organization provided \$76,885 from the regular budget and nearly \$70,000 from other sources; these amounts are separate from the funds made available for the IMMLEP and THELEP programmes.

The wide range of research studies and the number of centres involved at present (given in parentheses) are as follows: epidemiology of leprosy (7 centres), pathology (2), histological identification and classification of leprosy (1), immunology of leprosy (10), drug trials (3), research on *M. leprae* (26), and systems analysis approach to leprosy control (1).

Funds for Leprosy Activities; Cooperation with Other Organizations and Agencies

During the past 3 years in particular there has been a wide extension of activities — in research in the multidisciplinary approach to leprosy control, and in coordination with other international organizations and agencies for the mobilization of additional resources.

In Table 1 are given details of contributions from WHO's regular budget and extrabudgetary funds for leprosy activities in 1976. The actual funds were approximately \$725,000 from the regular budget, \$528,000 from the Special Account for the Leprosy Programme (from WHO's Voluntary Fund for Health Promotion), and \$198,000 from the Special Programme for Research and Training in Tropical Diseases (for the IMMLEP and THELEP programmes). In 1975 and 1976 substantial contributions were made to the Special Account for the Leprosy Programme by the Japan Shipbuilding Industry Foundation.

UNITED NATIONS CHILDREN'S FUND (UNICEF)

UNICEF assistance to leprosy programmes has two components: a major one of supplies and equipment (comprising transport, medical equipment, and drugs) and a smaller one in cash (representing stipends for trainees in the lower grades of health services).

TABLE I
Funds from WHO for leprosy activities in 1976 (expressed in US\$)

Activities	Regular budget	Other sources*	Total
WHO headquarters:			
Leprosy unit†	176,890	3,659	180,549
Global and interregional activities:			
Expert Committee on Leprosy	18,203		18,203
Programme promotion		17,288	17,288
Publication "Leprosy in Children"		5,676	5,676
Collaborative research	76,885	69,949	146,834
Collaborating centres	8,500	3,962	12,462
Sub-total	280,478	100,534	381,012
Special Programme for Research and Training in Tropical Diseases:			
IMMLEP programme		173,736	173,736
THELEP programme		23,956	23,956
WHO Regional activities:			
Africa (15 countries)	227,032	42,828	269,860
Americas (1 country and 1 inter-country)		79,620	79,620
Eastern Mediterranean (1 country)	13,508		13,508
South-East Asia (6 countries)	176,888	120,871	297,759
Western Pacific (3 countries and 2 inter-country)	26,717	66,958	93,675
TOTAL	724,623	608,503	1,333,126
Percentage attributable to direct technical cooperation	(61.29%)	(83.48%)	(71.42%)
Other headquarters' and global and interregional activities (percentage of grand total, in parentheses)	280,478 (38.71%)	100,534 (16.52%)	381,012 (28.58%)

*Voluntary Fund for Health Promotion (Special Account for the Leprosy Programme) provided \$528,883 and the Pan American Health Organization regular budget provided \$79,620.

†Leprosy unit staff: 2 medical officers, 1 technical officer, 1 clerk, and 1 clerk-stenographer. Costing based on 1976 average costs.

The UNICEF expenditure on leprosy (including drugs) over the period 1970-75 reached a peak, in real terms of value to countries, in 1972 with \$644,000. During 1973-74 the cost of dapsone, the standard drug, almost doubled in price so that the \$764,000 spent by UNICEF in 1974 does not represent an increase in real terms of assistance in kind. The countries of the African and South-East Asia Regions were the main recipients of UNICEF assistance during 1970-75, 50% going to Africa and 42% to South-East Asia.

NONGOVERNMENTAL ORGANIZATIONS

A close relationship has been maintained for many years between the International Leprosy Association (ILA) and WHO. Although the ILA has a limited budget, it has considerable and important connexions with other

foundations and voluntary agencies. Expert assistance for both WHO and ILA are drawn from the same professional pool. Technical and scientific committees of the ILA (and those of voluntary agencies also) have a deep interest in the public health approach. The *International Journal of Leprosy and other Mycobacterial Diseases*, an ILA publication, and ILA-sponsored meetings are routinely used for publicizing WHO's policies, objectives, and programmes.

It is of special interest that the International Union against Tuberculosis, a nongovernmental organization, has recently begun cooperation with the International Federation of Anti-Leprosy Associations (see below) and other voluntary organizations with the aim of supporting programmes of either tuberculosis and leprosy combined activities or integrated public health programmes with tuberculosis and leprosy components.

VOLUNTARY AGENCIES

There is also close cooperation and liaison between WHO and the International Federation of Anti-Leprosy Associations (ILEP), which represents over 24 voluntary agencies from 16 donor countries. The total expenditure of these agencies reached \$15.3 million in 1975. There is now a general understanding among voluntary agencies seeking to help patients that their action should be integrated with, or closely coordinated with, government programmes. In several countries, e.g., India, Indonesia, Maldives, Nepal, and Sudan, ILEP member agencies are providing valuable contributions to the development of rural and urban community-based health facilities.

Research is given high priority (\$1.3 million in 1975) and also training (\$1.5 million in 1975 in support of 7 training projects, of which 3 were in institutions

TABLE 2
Distribution of resources other than government inputs, by Regions, for 1976 (expressed in US\$)

Region	WHO regular budget	Other sources			ILEP*		Total
		PAHO	VL†	Total	Coordinated with government assistance	Direct assistance	
Africa	227,032		42,828	42,828	3,961,664	1,836,727	6,068,251
Americas		79,620		79,620	280,655	319,117	679,392
Eastern							
Mediterranean	13,508				1,443,094	2,465,015	3,921,617
Europe						351,742	351,742
South-East Asia	176,888		120,871	120,871	550,499	4,112,120	4,960,378
Western Pacific	26,717		66,958	66,958	583,277	218,531	895,483
TOTAL	444,145	79,620	230,657	310,277	6,819,189	9,303,252	16,876,863

*ILEP: International Federation of Anti-Leprosy Associations.

†VL: WHO's Voluntary Fund for Health Promotion (Special Account for the Leprosy Programme).

(in Ethiopia, India, and Liberia) providing courses at international level). Rehabilitation continues to be a particular concern of ILEP member associations; over \$1 million was spent on 24 technical cooperation programmes. Table 2 gives details, by WHO Region, of some of the resources directed in 1976 into country-level programmes.

The efficacy of the services provided by voluntary agencies in the context of public health depends greatly on the support and recognition given by governments to their work. Full participation by the agencies' staff in the planning and organization of countrywide leprosy services fosters good cooperation and coordination of effort. The latter can often be achieved by the establishment of a national leprosy advisory board or committee, which would heighten interest in leprosy control as a national goal and lead to a better appreciation of the needs of each area, and hence to a wiser allocation of total resources.