

**CL91****MALIGNANT TRANSFORMATION OF CHRONIC PLANTAR ULCERS IN LEPROSY PATIENTS**

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The malignant transformation of chronic plantar ulcers may be suspected when clinical signs are present; nevertheless, pathological examination is necessary for diagnosis of certainty. Even so, the histological differentiation between carcinoma and pseudo-epitheliomatous hyperplasia may not be easy.

The authors report on 22 cases of chronic plantar ulcers suspected of malignant degeneration in ancient leprosy patients: 13 of them were shown to be effectively carcinoma while the rest were pseudo-epitheliomatous hyperplasia.

Accurate diagnosis is most important since the line of treatment differs according to the nature of the lesion: amputation in case of carcinoma, deep local excision in case of hyperplasia (depending on healing possibility and functional capacities of the foot). In case of carcinoma, the regional lymphnode dissection should not be systematically considered.

From available data in literature, it is difficult to ascertain whether the malignant transformation of plantar ulcers is frequent. Nevertheless this possible event should be kept in mind and, also, should be remembered during training courses for health workers in leprosy control programmes or in non specialized health programmes when integration of vertical programmes is planned.

**CL92****SQUAMOUS CELL CARCINOMA IN CHRONIC ULCERS OF LEPROSY PATIENTS**

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An analysis is presented of case histories of 38 consecutive cases of squamous cell carcinoma (SCC) in chronic ulcers of leprosy patients treated between 1981 and 1990 at McKean Rehabilitation Centre, Northern Thailand. The study included 37 individual patients; 29 males and 8 females. The average age was 60 years, the average duration of the ulcer was 12 years. Four patients (11%) had histories of SCC on other extremities. Metastatic spread was observed in 2 cases (5%), both instances leading to death. The commonest site of involvement of SCC was the foot, but it was seen on the knee in 1 patient and on the hand in 2 others. The incidence rate of SCC in the group at risk (leprosy patients with disability grading 1 and 2) was 0.79:1000 per year.

A case-control study was performed with the objective to identify factors associated with the development of SCC in plantar ulcers of leprosy patients. No associations were found between the development of SCC and factors concerning race, profession, place of origin, duration of leprosy, type and duration of leprosy chemotherapy, presence of bone involvement and type of ulcer care given. The only statistical valid finding was that the duration of the ulcer was significantly lower in the group with malignant change.

It is concluded that SCC in chronic ulcers in leprosy patients cannot be considered rare and emphasizes the need for an active policy of disability prevention in leprosy programmes. Factors other than ulcer duration need to be searched for, in order to identify factors influencing malignant change in plantar ulcers of leprosy patients.

## CONTROL AND ERADICATION

**CO1****ON THE ROLE OF THE GOVERNMENT IN LEPROSY CONTROL**

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Before the founding of the People's Republic of China, the local governments of Yulin paid little attention to the prevention and treatment of leprosy. Leprosy transmission developed more and more seriously. Not long after the founding of New China, the local governments of Yulin have been not only involved in leading, planning and implementing leprosy control programme and have provided with necessary resources including manpower, lands and funds, and also have mobilized the whole society to support the work against leprosy. As a result the transmission of leprosy was soon controlled and in 1990 this disease was basically eliminated as a public health problem in all cities and counties of this region. Both the incidence and prevalence rates of the disease dropped sharply. The results of the research showed that different attitudes toward leprosy of different governments made the results completely different. The more the government is involved, the faster leprosy will be eliminated. Based on the findings in the research, the authors realize that leprosy is mainly a social disease. For the time being and also in the future, the important factors are the attention, involvement and support of the community and the government, especially in the third world countries where leprosy is seriously endemic.

**CO2****THE DISABLED LEPROSY PATIENT AS PARTNER IN LEPROSY CONTROL: STIGMA AS SIGNPOST.**

Rien Verhage

N. S. L., Bukuru, Nigeria.

The strategy of accelerated implementation of MDT presupposes the political commitment for the allocation of resources, a well motivated leprosy control organisation and a relatively stable political and social environment. The result of this strategy in N. Nigeria will be a sharp decline in the prevalence of leprosy from 15 to 1.7 per 10 000 inhabitants by the end of 1995. The side effects of the diminished visibility of the leprosy problems are likely to create three counterproductive problems: diminished political commitment and funds, diminished motivation of leprosy control staff due to lack of career prospects, and diminished care for "cured" leprosy patients with disabilities. The most common solutions like integration of leprosy control into PHC or combination with TB control do not address sufficiently the problems of care of disabled patients, the motivation of health personnel and the instability of the political and social environment. In addition or as alternative to these solutions the systematic participation of (ex)leprosy patients and patient associations is discussed. The experience with (ex)patients as voluntary leprosy workers has shown that they could become powerful

partners in leprosy control and could contribute greatly to the sustainability of leprosy control in the next decade.

### CO3

#### COMPREHENSIVE LEPROSY CARE PROJECT, "BORSAD MODEL" - A NEW APPROACH TO LEPROSY ELIMINATION

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The Comprehensive Leprosy Care Project envisages the combination of governmental efforts and specialists brought under one roof through international assistance to develop a new approach where a leprosy patient at any stage of the disease process needing medical, surgical or rehabilitative care is offered an opportunity to overcome the disease. In rural field situation at Borsad taluka in Gujarat (population 3,70,000) not only MDT but an integrated deformity care programme was undertaken. The workers were trained to deliver comprehensive services consisting of (a) simple exercises (b) prefabricated splintage (c) identification of early neuritis, reactions and relapses for medical or surgical intervention (d) care of insensitised extremities (f) recognition of handicap and required economic assistance and (g) rehabilitation of advanced deformed patients by Modular grip aids.

During the past four years of its existence the project has detected 485 new patients, started MDT in predominantly monotherapy area, provided deformity care services to 408 patients (including those released from treatment or cured) through training of existing staff and systematically worked towards integration of deformity and rehabilitative care services with chemotherapy distribution, thereby maximising the chances of elimination in true sense. The detailed observations will be presented.

### CO4

#### A COMPARATIVE STUDY ON THE EFFECTIVENESS OF DIFFERENT METHODS OF CASE DETECTION IN NORTH INDIA

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This study was conducted in two endemic areas, Muzaffarpur and Naini in North India. The main objective of the study was to analyse the effectiveness of Mass Survey as compared with rapid surveys (RS) for case detection in leprosy. The results were analysed in relation to the man hours spent on the survey and the profile of the cases detected such as age, sex, type, deformity rate and bacteriological index, etc.

A population of 9,892 in 6 villages were first covered by Rapid surveys by a team of para medical workers and then the same population was subjected to mass survey by a second team. Preliminary findings showed that 35 new cases were detected by the rapid survey giving a case detection rate of 3.5/1000. 8.34 man hours were spent to detect a case. By the conventional survey 58 cases were detected giving a case detection rate of 5.8/1000 which took 13.5 man hours per case detected. More male cases were detected by rapid survey (1.7:1) than in the mass survey (1.2:1). More adult cases were detected in mass survey (7.4:1) than in the rapid survey (4.8:1). More single lesions were detected in the mass survey (1.5:1) than in the rapid survey (0.9:1). The relative merits of these case detection methods will be discussed and presented.

### CO5

#### GUIDELINES AND STRATEGIES OF THE PROGRAMME FOR THE CONTROL AND ELIMINATION OF HANSEN'S DISEASE IN BRAZIL IN THE PERIOD 1990-1994

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The proposal of governmental action for the effective control of Hansen's Disease between 1990-1994 will be presented.

The governmental plan of action, called "National Emergency Plan", used epidemiological and operational criteria to stratify Brazil into priority areas, with the objective of having an impact on the endemy through activities of disease prevention, early diagnosis and ready treatment with MDT/WHO.

Results obtained in the plan's first three years will be presented and debated.

### CO6

#### ERRADICAR LA TRANSMISION DE LA LEPRO PARA 1994: POLITICA PARA LA ACCION EN MEXICO.

José Rodríguez-Domínguez MD, MPH, Lucía B. Yáñez Velasco MD, MSc; Francisco Castellanos García MD, MPH.

En 1989 el Gobierno Mexicano emitió la política de eliminar a la lepra como problema de salud pública cortando su transmisión mediante incorporación de los 16,700 enfermos prevalentes y los nuevos casos a los esquemas de poliquimioterapia (PQT o MDT) recomendado por la OMS.

Se implementó un plan entre el Gobierno de México y dos organizaciones internacionales de ILEP (SMHF y ALM) para intensificar acciones de salud y de atención primaria.

La distribución de los enfermos con lepra abarca casi todo el territorio nacional, pero el 80% de los casos se concentra en 10 de los 32 estados que conforman al país; por lo que se consideró prioritaria a esta área geográfica, para iniciar la primera fase de localización e incorporación al tratamiento de los enfermos. Las principales dificultades para lograrlo han sido renuencia al tratamiento y no localización de casos; por ello se diseñaron estrategias de capacitación en leprología, de promoción y fomento de la salud usando como lema la curabilidad de la lepra; implementación de un programa de rehabilitación de incapacidades; supervisión continua y evaluación periódica.

Actualmente se encuentran 9,000 enfermos recibiendo tratamiento y 2,900 han concluido la vigilancia post-tratamiento.

La tasa de prevalencia del país al iniciar la PQT era de 21 X 10,000, actualmente ha bajado a 1.8. Para 1994 se pretende bajarla a menos de 1 X 10,000 hbs.

### CO7

#### EVOLUTION OF THE ILEP INFORMATION SYSTEM FOR LEPROSY CONTROL PROJECTS 1966 - 1993

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This abstract presents the historical development of the information system used by Members of the International Federation of Anti-Leprosy Associations (ILEP) for the annual monitoring of leprosy projects.

Its evolution parallels the policy direction of leprosy field programmes over the last 27 years and incorporates all the major

advances in leprosy control introduced during this period. The modifications in the information system reflect the changes from the early welfare programmes sponsored by ILEP Members, through institutional care, ambulatory treatment, to systematic Survey-Education-Treatment programmes and the present day leprosy control programmes based on the use of Multidrug therapy. The changing pattern of the organisation of leprosy work in the field, from small/local projects often private, to national government programmes is also one of the factors which have considerably influenced the development of the system.

The objectives and components of the current ILEP information system are described. This system provides for, information on project formulation (the ILEP A questionnaire), annual medical and financial reporting (the ILEP B questionnaire) and the use of indicators for monitoring progress with MDT.

The future development of the system will be outlined.

### CO8

#### RAPID PHOTO SURVEY AS A TOOL FOR CASE DETECTION IN LEPROSY IN URBAN AREAS

Lobo D, Mathews M, Alexander M, Nambudripa K, Thirunavakarasu S, Leo Pandiaraj, Jayaraman R.

Intensive whole-population survey is the main mode of case detection in India. This method is time-consuming and requires abundant manpower. It is difficult to employ this method in Urban areas since it requires house-to-house enumeration and complete EXAMINATION of the population. Hence a RAPID PHOTO Survey was tried as a case detection technique in Madras. This technique involves:

- Household visits and enumeration
- Display of Flash-cards depicting early signs
- People with suspected early signs to report to the nearest clinic.

This survey was conducted in 85 Divisions with a population of 2.1 million and showed the following:

- Population coverage	:	92%
- House hold coverage	:	94%
- Total manday-Daily Coverage	:	3771/522
- Cases detected - MB/PB	:	1332/52/1280
- New Case detection rate	:	0.68/1000

The survey was completed by 44 para medics in six months. Advantages/Disadvantages discussed.

### CO9

#### COMPARITIVE CASE-OUTPUT THROUGH DIFFERENT CASE-DETECTION METHODS IN URBAN AREAS

Mathews M, Alexander M, Thirunavakarasu S, Lobo D, Kothandapani G, Maria Dominic I.

In Urban areas and metropolitan conglomerates, it is impossible to employ an uniform method of case-detection for the entire population.

Madras City has a population of approximately 4 million of which 2.1 million population is covered by our institution GREMALTES for leprosy control work.

Over a six-month period in 1989, we employed three methods of case-detection:

- a. Intensive whole population survey
- b. Rapid photo survey
- c. Health camps

The case-output was as follows:

Method	Pop. Covered	Case-output		
		PB	MB	Total
Intensive	269,096	642	27	669
Rapid Photo	1,969,019	1,280	52	1,332
Health Camps	12,531	44	02	46

The advantages/disadvantages and cost-effectiveness of each of the above methods is discussed along with their role and relevance while planning Urban Leprosy Control Programmes.

### CO10

#### BETTER COMMUNITY PARTICIPATION IN LEPROSY

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A microlevel experiment was carried out during April 1985 to March 1987 for intensive health education through **Individual approach**, to imbibe the scientific knowledge about Leprosy in people and to erase the superstitions, misconceptions and stigma attached to the disease

The Sector wather (K), Dist. Satara, (Maharashtra) was selected with total population, 25000 distributed in 10 villages. Intensive health education with special stress on personal contacts, was given with the help of visual aids. After two years successive efforts following spectacular results were noticed.

- 1) New case detection through **VOLUNTARY REPORTING**, increased from 40% to 80%.
- 2) Increase in **clinic attendance** from 60% to 95%.
- 3) **Survey absentee** reduced from 25% to 5%.

The details about the methods adopted are discussed in my paper. Hence in developing Countries, to have a **KAP** change, individual approach is extremely effective.

### CO11

#### RAPID VILLAGE SURVEY (RVS), AN ALTERNATIVE METHOD IN THE ESTIMATION OF LEPROSY PREVALENCE

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This study aimed to find an alternative method which is valid, simpler, quicker and less expensive to replace the total village survey for the estimation of leprosy prevalence in rural community.

40 rural villages were (cluster) randomly selected. WHO case definition was used. Found cases would be confirmed by leprologist. Standardization of examination methods were done before the survey. Rapid village survey (RVS) was executed by one medical doctor and 5 staff. The village headman was visited one week prior to RVS. He announced objectives, appointment and place of examination for RVS. Focus group discussion with village leaders by one team member would be done in the afternoon as soon as the team entered the village. Suspected cases from this gossip technique would be traced. Registered cases (known cases) and their contacts would also be traced. Announcement by using loudspeaker on the survey car moving through the village with precise content was done to inform those who had symptoms of leprosy to report voluntarily. Total village survey (TVS), consisted of 10 staff, was used as gold standard method one week after RVS. TVS would be informed to villagers after completion of RVS. Registering of all inhabitants, examining all inhabitants and tracing of absentees up to 3 consecutive visits in one month period were main activities of TVS, meeting for cooperation with representatives of all households would be executed the night before TVS.

The surveys were done in Khon Kaen province, Thailand in late 1990. Inhabitants examined by TVS were 20,815 which was 99.6% of target population and absentee was only 0.4%. Leprosy cases found by RVS was 22 compared to 24

by TVS. Reason of two cases missing by RVS was temporarily left the villages. The statistical analysis showed no significant difference between the two methods ( $p$  value  $> 0.1$ ). Total cost ratio (TVS: RVS) was 2.8: 1. The RVS thus was proved to be a sufficient valid, simpler, quicker and less expensive method which should be an alternative tool in leprosy prevalence survey.

## CO12

### HOW TO REDUCE LEPROSY PREVALENCE IN NEPAL

Baral, J. P. and Louhenapessy, Andy A.

Leprosy is prevalent in the Kingdom but not equally distributed, more in Terai Districts and Hill Districts in Western & Mid-Western Regions. Leprosy control started since early 1960 with a prevalence of 10/1000, after a sample survey in 1961 (WHO & Government). In 1966 Leprosy Control Programme was started as a Pilot Project till 1980. About 19 districts have the prevalence more than 12/10000 in 1990/91 (country prevalence 12/10000). MDT was used since 1982, first started in Leprosy Hospitals and few clinics gradually expanded to all almost all clinics/health posts. Leprosy control activities in the field and hospitals were carried out by HMG (His Majesty Government) and NGOs. Epidemiological patron in the last 6 years: 1986/87 to 91/92, prevalence rate from 13.7 to 12.1/10000, case detection rate from 3.6 to 3.2/10000, MDT coverage 33 to 67%.

Action plan to improve leprosy control activities for more better achievements are:

Training programmes for DPHO (District Public Health Officer), Leprosy supervisors and Basic health workers was put as first priority; improvement of the services in clinics/health posts, supervision from National and Districts level will be done more systematically and frequently to the district leprosy supervisors and clinics/health posts workers in the field. Distribution of leprosy drugs will be maintained regularly.

## CO13

A MODEL FOR ERADICATION OF LEPROSY FROM RURAL SOUTH INDIA AT AMBILIKKAI DURING LAST THREE AND A HALF DECADES AMONG 1.5 LAKHS OF POPULATION BY INDIGENOUS INITIATIVE AND EFFORT STARTED IN 1965 LATER ON SUPPORTED BY ALM.

(1) FIRST PHASE OF IMPLEMENTATION 1965-1984 A PERIOD OF MONOTHERAPY, NUMBER OF PATIENTS TAKEN TREATMENT AFTER BASELINE SURVEY-4364. NUMBER OF PATIENTS DISCHARGED CURED, ARRESTED AND ABSENTEES -2468. PREVALENCE RATE CAME DOWN FROM 29 to 12/1000 AND INCIDENT RATE 12 to 4/1000. NUMBER OF PATIENTS LEFT OVER 1896.

(2) SECOND PHASE OF MODIFIED MDT. 1984-87 GIVEN ONLY FOR POSITIVE (BL AND LL)-186 CASES (BECAUSE OF LIMITED FUNDS). 60% OF 186 CASES WERE CONVERTED NEGATIVE IN THE FIRST YEAR ITSELF. WHEN WE RECEIVED MORE FUNDS AND DRUGS FROM ALM, MODIFIED MDT WAS GIVEN FOR THE REMAINING KNOWN NEGATIVE CASES (BB, BT, TT) OF THE WHOLE PROJECT AREA.

(3) THIRD PHASE OF REGULAR MDT (PULSE REGIME) AFTER ANOTHER EXHAUSTIVE SCHOOL AND GENERAL RESERVEY AND CIRCUITS PLANNED TO COVER WHOLE AREA COMPLETELY WITH GOVERNMENT FREE DRUG SUPPLY AND INCENTIVE SUPPORT. MDT COVERAGE 100% AND CLINIC ATTENDANCE 96%. PREVALENCE RATE DROPPED TO 2.4/1000 AND INC RATE 1.4/1000. INC. RATE IN CHILDREN 3/1000. DEFECTIVITY RATE 2.5/1000. INTEGRATED APPROACH ADOPTED THROUGH 24 MINI HEALTH CENTRES. COMMUNITY HEALTH WORKERS CASE-HOLDING, LEPROSY PARAMEDICAL WORKERS CASE-SURVEY, DETECTION AND SURVEILLANCE. HOPING TO ERADICATE ALMOST ALL CASES OF LEPROSY AND MAKE INC. RATE DROP TO ALMOST NIL/1000 BY TURN OF THE CENTURY (2000 AD).

(4) FOURTH PHASE OF PLANNING REHABILITATION OF THE TREATED IS ALREADY TAKEN UP THE HAND-CAPPED AND ALSO SURVEILLANCE OF ALL TREATED.

## CO14

### UTILIZATION OF BARANGAY HEALTH VOLUNTEERS IN THE IMPLEMENTATION OF THE LEPROSY CONTROL PROGRAM

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The Philippine Department of Health integrated leprosy services with MDT as the main approach in 1988. After 1 1/2 years of implementation, problems in case finding, case holding, surveillance, and information dissemination arose due to inability of the health services to cope with the time and personnel requirements. In an effort to find alternatives to the situation, the writer and 2 Regional MDT Coordinators did a study to find out if and how involving the volunteer health aides in the program would have an effect on the success of the program. The group set the criteria for selection of the town where the study was to be conducted and used evaluation indicators set by the National Program.

Cabugao, Ilocos Sur, with a Prevalence Rate of 4.5 per 1,000 and a Case Detection Rate of 1.5 per 1,000 was chosen as the study site. At this time, 7 Rural Health Midwives are implementing the health program with 17 Barangay Health Workers helping them. A 2-week training (with the supervisors) and a house-to-house survey of the barangays in the town preceded the actual year of involvement.

Data gathered at mid-year and at the end of the study period attest to the hypothesis that involvement of these volunteer workers did have a positive effect, not only in the Leprosy Control Program, but also in changing the community attitude towards the disease and the patients and their families.

Proponents of the study recommended a replication of this support method to other hyper-endemic areas.

• Village

## CO15

### EFFICIENT PROGRAMME MONITORING, DEVELOPMENTS FROM THE MURLEP PROJECT

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MURLEP is a multidisciplinary health systems research project for the improvement of management of leprosy and tuberculosis control programmes. It is situated in the Khon Kaen Province, Thailand, started in September 1989 and is planned to end in August 1994. It is the result of an agreement between three parties: the Khon Kaen University, the Ministry of Public Health and the Netherlands Leprosy Relief Association (NSL).

Efficient monitoring of disease control programmes follows the principle of measuring general programme performance first. Only if this general performance (i.e., case finding coverage and cure rates) is below a preset acceptable level, monitoring of contributing factors is warranted. If general performance is satisfying only few details of the programme need to be monitored, saving and time and money.

In the past three years MURLEP has developed tools for the monitoring of the general performance and tools which identify the most important contributing factors to low performance. Flow charts are attached to the tools, indicating the remedial actions for improvement of the programme.

The tools are presently being field tested by the local health personnel (partly by general health workers and partly by leprosy and tuberculosis programme supervisors), and evaluated on feasibility and usefulness by the research team.

The tools and the system for use are explained in the paper. In a second MURLEP paper the results are presented of the development of another tool, the Rapid Village Survey. This survey method can replace the total village population survey method used in the usual cluster sample prevalence survey and is much quicker and cheaper.

**CO16**

INTEGRATION OF EYE CARE IN LEPROSY CONTROL IN NORTHERN NIGERIA

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The prevalence of blindness is generally estimated as to be 2-2.5% amongst leprosy patients. Potentially eye sight threatening lesions may develop in as many as 20% of the patients.

Primary eye care services are in short supply or absent in Northern Nigeria and therefore leprosy patients with eye complications have hardly any options for treatment, except within the leprosy services. In 1992, as an answer to this need a flexible, organisational framework has been developed for the integration of eye care in the leprosy control programmes of 11 states in Northern Nigeria, making optimal use of available manpower and functioning health systems. In this presentation the following essential features are discussed and illustrated: 1) regular, standardized training and supervision of primary health workers and workers in the secondary and tertiary health care level, 2) an appropriate and efficient referral system and 3) the maintenance of a distribution system for standardized equipment and medicines.

**CO17**

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PROS AND CONS OF COMBINING TUBERCULOSIS AND LEPROSY CONTROL ACTIVITIES (BASED ON THE 15 YEARS EXPERIENCE OF THE NATIONAL TB-LEPROSY PROGRAMME IN TANZANIA).

The NTLP (National Tuberculosis and Leprosy Programme) in Tanzania was the first of its kind ever established. It has been successfully operating for 15 years.

Registered prevalence for Leprosy dropped from more than 50,000 cases in 1978 to less than 5000 in 1992. Case detection rates show a steady decline as well, whereas - in the wake of the ongoing HIV endemic in this country - TB notification rates are steadily increasing.

It will be demonstrated which aspects of both diseases could be successfully combined and which not. Simultaneously the advantages and disadvantages of such a combination will be illustrated. Finally some aspects of cost effectiveness of TB and Leprosy Control activities will be discussed. (Costs per death averted, average costs per case treated, overall economic impact).

**CO18**

IMPLEMENTATION OF LEPROSY CONTROL PROGRAMME THROUGH BASIC HEALTH CARE NETWORK

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Since 1960s a network for leprosy control at county to village level has been developed and gradually perfected by integration of leprosy control into primary health care service in Fujian Province. This network has played a very important role in the fight against this disease. The main task of the network is case finding and implementation of MDT. Through this network,

68.3% of the total number of new cases were detected, and 95.9% of the total number of patients on MDT were visited and supervised at home. Furthermore, one healthy member in each patient's family was appointed as supervisor for MDT. In the recent years, through the efforts of basic health workers and patient's family members, 2,684 patients received MDT with a coverage of 97.5% and regularity rate of 95.4%, 2,411 (89.8%) of them had completed the prescribed MDT course. The basic health workers, together with leprosy professionals, have been very active also in propaganda on the knowledge of leprosy, reporting of suspected cases, implementing post-treatment surveillance and patient's hand, foot and eye self care programme.

**CO19**

COST AND EFFECTIVENESS OF INTEGRATING LEPROSY WITH PRIMARY CARE

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The objective of the study was to estimate the extra cost and the extra effectiveness possible by adding a primary care component to a leprosy control programme. The study included two tribal sub-centres (pop. 17,175) of the control unit. The area is unique because of its cultural and geographic isolation. The infant mortality was 120/1000 and immunization coverage was 4% at start in 1987. The source of data included the mobile clinic records from 86 - 92. Pre and post cross sectional surveys are also done in the intervention and control villages. The outcome measured was the no. of non-leprosy service contacts which ranged from 1034 - 3423 per year. This included chronic diseases (e.g. TB, RHD, STD, epilepsy) immunization and antenatal care. The extra cost incurred was an average of Rs.12,500 (\$420) per year mainly for drugs. The intervention area showed improvement in immunization coverage from 4% to 25% compared to control area along with improvement in other indicators of health care. 264 leprosy patients were treated during six years. The leprosy control activities showed steady progress as indicated by general surveys and attendance of patients. The study illustrates affordability and sustainability of integrated leprosy control in a tribal setting. This study is of relevance to health policy relating to integration of leprosy with primary care services.

**CO20**

THE SIGNIFICANCE OF TAKING CARE OF LEPROSY IN-PATIENTS WITH COMPLICATIONS IN GENERAL HOSPITAL

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In the 1980s, thanks to recent advances in knowledge of leprosy, patients have been no longer isolated in leprosaries and leprosy hospitals as before, they enjoy domiciliary fashion of ambulatory treatment schemes. However, a number of leprosy patients with complications must still be sent to the leprosy specialized units. That's why, the dermatology department of Viet-Tiep general hospital has been determined to hospitalize temporarily all the above-said cases.

The care and treatment for leprosy in-patients have created more favourable conditions for the dermatology department whose Head is also Dean of dermatology of Haiphong medical college to contribute valuable experiences to early detection of leprosy patients to treat them with the best success and to prompt discovery and effective treatment of leprosy reactions in order to avoid nerves damage, thus preventing disability for leprosy patients.

Doctors' and nurses' ordinary attitude and behaviour towards leprosy patients as towards patients of other skin diseases have set a shining example for all patients and students. So the department has become a new model for teaching medical students on leprosy, and also a city center of training, health education and communication on leprosy.

## CO21

### INTEGRATION OF A LEPROSY-TUBERCULOSIS-ONCHOCERCIASIS-CONTROL-PROGRAMME INTO A PHC-PROGRAMME IN THE FOREST REGION OF GUINEA

Hannes Wiher, Abdourahmane Shérif

Mission Philafricaine en Guinée, Macenta, Guinea

The integration of a leprosy control programme with two other vertical programmes (tuberculosis and onchocerciasis) and then into a primary health care programme is exemplified with our experience in the Forest Region of Guinea. Work started in 1981, when a leprosy programme was started in a pilot area. In 1986 the leprosy programme was expanded into one of the four regions of the country. A year later the tuberculosis programme, and with the advent of ivermectin an onchocerciasis component was added. Starting from 1989/90 the national leprosy control programme was discussed. Our team took an active part in the formulation of the programme and especially the technical manual. In 1991 finally the tuberculosis control programme was formulated. Experiences, difficulties and statistical data are presented.

## CO22

### EVALUATION OF MDT IMPLEMENTATION FOR LEPROSY CONTROL IN BENDEL STATE OF NIGERIA (1985 - 1990)

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MDT as recommended by the WHO was introduced in the above geographical area in October 1985 as a pilot project in one clinic. By December 1988, the whole treatment centres in the State had been fully covered. A total of 5,662 patients entered the register during this period. Known prevalence dropped by about 85% but the incidence remained the same. The number of treatment centres was reduced from 136 to 53 at Dec. 1990. Factors that accounted for the fall in this prevalence are discussed. Relapses have been few, the reasons and the place of H.E. are also discussed. The results have shown the effectiveness of the WHO MDT regimen and the fact that the known pool of active leprosy cases can be drastically reduced within a short period with this regimen.

The programme was supported by the GLRA.

## CO23

### SAMPLE SURVEY OF LEPROSY AFTER THREE YEARS OF MDT IN BHAVANI TALUK OF PERIYAR DISTRICT TAMILNADU SOUTH INDIA

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A sample survey of Bhavani Taluk was undertaken in March 1992 by the Voluntary Health Services Leprosy Project 3 years after MDT was introduced. 10% of the population was taken for the sample. A population of 45781 was

enumerated and 41554 was examined. The design of the study consisted of stratifying the three sectors according to the prevalence and classifying the villages by the size of the population. Villages were selected by random sampling. The survey was completed in 38 days. 377 active cases were detected. 283 cases were new. 5.55% were bacteriologically positive for AFP. The child rate was 13.54% among new cases. Whereas according to the programme the prevalence has come down to 3.45 from 13.09, according to the sample survey the prevalence rate is 9.07 with a prevalence of new cases of 6.93. This is much higher than the expected ten fold reduction of prevalence under MDT. Independent assessment of NLEP units is advisable before integration to avoid return of the situation prior to MDT following accumulation of undetected cases.

## CO24

### TRENDS IN PREVALENCE AND OTHER RATES DURING A DECADE OF MULTIDRUG THERAPY IN BHUTAN

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National Leprosy Control Programme, Bhutan

Bhutan introduced MDT in 1982, following the WHO regime. A marked decline in prevalence has been seen during the past decade, from 4 per thousand to 0.3 per thousand. However, programme planning demands that the trends in incidence are also known. This study, based on a review of all casenotes for the years 1982-1992, documents the decline in prevalence, and relates it to changes in case detection rate, lepromatous rate, child rate and deformity rate.

A preliminary study indicated that the decline in prevalence was much clearer than the improvements in other rates over the same period, but that evidence of encouraging trends might be emerging. The completed study, covering some 3500 patients, will allow more definite conclusions to be drawn, and will provide evidence of the approach of a genuine state of control.

In view of the need to plan for integration of leprosy control into primary health care, the likely epidemiological developments and the future caseload need to be estimated as far as possible. The practical implications of the findings for programme planning in Bhutan, and in other newly low-endemic situations, will be discussed.

## CO25

### TREND OF LEPROSY IN MULTIDRUG THERAPY AREA OF MYANMAR

Kyaw-Tin, and Hla-Htut-Lwin

Leprosy Control Programme in Myanmar was started in 1952 with intensive case detection and Dapsone monotherapy. Of the country's 14 states/divisions, six divisions constituted 91.6% of the total registered cases in 1982 and were designated as hyperendemic areas. In these divisions WHO Multidrug Therapy was introduced in 1988. The MDT delivery was by the Vertical staff but was integrated into the activities of the Basic Health Staff (BHS) during second half of 1991.

Epidemiological indicators were calculated from the annual reports (1982 to 1991) of the Leprosy Control Programme.

Among the registered cases, Number and Prevalence rate declined progressively but was more marked after introduction of MDT. The Multibacillary rate declined but was more marked two years after introduction of MDT. The Multibacillary proportion increased after introduction of MDT. There was decrease in under 14 year proportion.

As for the new cases, Number and Case Detection rate declined but increased again one year after introduction of MDT and the increase was more dramatic after integration into the BSS. There was increase in Multibacillary proportion. The under 14 year proportion fluctuated but the 1991 figure was lower than the 1992 figure.

Possible reasons for the findings are discussed.

## CO26

### COSTING OF LEPROSY CONTROL PROGRAMMES BEFORE AND AFTER INTRODUCTION OF MDT

Jeyakumar Daniel & Cornelius S Walter.

Figures from 20 leprosy mission centres in India were obtained. The cost per patient treatment prior to and after the introduction of MDT was studied.

The number of patients in these centres prior to the introduction of MDT varied between 258-2947 with an average of 1652 patients. The budget of the leprosy control programmes varied between Rs.86,000 to Rs.3,89,700 and the average budget Rs.200,278. The cost per patient treated varied from Rs.59/ patient per year to Rs.366/ patient per year, with the total average cost as Rs.136/ per patient per year.

Due to decrease in case load after MDT was started, the number of patients in these centres varied from 109-1446 with an average of 526. The budget of the leprosy control programme varied from Rs.111,800 - Rs.6,96,500 with an average cost of 423,327. The cost per patient increased from Rs.136 prior to MDT to Rs.1054 per patient/year.

Analysis of these results are leading to measures to optimise unit costs and make leprosy control measures more cost effective. These will be presented and discussed.

## CO27

### IMPLANTING MULTIPLE DRUG THERAPY IN SAO PAULO - BRASIL - STRATEGIES, OPERATION AND RESULTS

Wagner Nogueira, Marcia R. Buzzar, Otília S.J. Gonçalves, Heléida N. Metello, Zenaide L. Lessa

The implantation of Multiple Drug Therapy in São Paulo, starting from recommendation of the Ministry of Health, had as its starting point the identification of health units for regional reference and upgradation of human resources.

At State level, health sub-regions were motivated for the implantation through the employment of tude and pedagogical techniques with emphasis in the work team and integral attention to the client. Next, the sub-region filled up a pre-established agenda with a situation diagnosis for the sub-regions, after, with a regional reference team underwent a training program designed to reorganize services to implant the therapeutic scheme. The unit which was trained, in a three month period implanted the therapeutic and, as a following step, executed the expansion with training for the other health units of the sub-region.

Results show that therapeutic schemes were implanted in only 18 health units in 1990, passing to 392 in 1991 and 569 in 1992, with an increase coverage to 2,8% in 1990 to 61,6% in 1991, and 91,2% in 1992.

## CO28

### MDT FOR LEPROSY IN 8 FRANCOPHONE COUNTRIES OF WEST AFRICA : TEN YEARS IMPLEMENTATION (1982-1991)

The 8 National Leprosy Control Managers, Report prepared by A. Tiendrébogo and L. Blanc  
Institut MARCHOUX BP 251 BAMAKO MALI

WHO MDT is used in 8 Francophone Countries of West Africa since 1983. Starting with pilot projects in each country, MDT implementation was extended since 1988 through national leprosy control programmes. During the ten years (1982 to 1991), prevalence rate of leprosy decreased from 49.7 to 9.7 per 10,000 (5 fold decrease). Detection rate during the same time increased a little from 1.2 to 1.4 per 10,000.

The drop of prevalence rate was partly due to drug activity and mainly to efforts to clean regions based on systematic skin smears for all MB patients and on WHO leprosy case definition. MDT impact on the prevalence rate started in 1990, but was small because the average MDT coverage was only about 20% for the region.

In order to enhance MDT implementation in the 8 Countries, Institut MARCHOUX organised annual meeting of national leprosy programme managers since 1991. During the first meeting, target of 75% MDT coverage in average for the 8 States was decided for the end of year 1993. Guidelines for leprosy control programmes were given, technical standards were defined, and needs were analysed by NGO's. In December 1991, MDT coverage reached 45% ranging from 8 to 97% depending upon Countries. It is reasonable to think that MDT coverage will reach the target by the end of 1993.

## CO29

### DRUG SUPPORT TO THE USE MULTIDRUG THERAPY/WHO IN BRAZIL BETWEEN 1986 AND 1992

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Six years after the official implementation of MDT in Brazil (1986-1992), an analysis allowed us to see the difficulties found in the area support of supplies needed for the treatment of the 250,066 registered patients.

Brazil, a continental country, with a prevalence of 17 cases per 10,000 population, without a policy for the national production, distribution and control of drugs, and with the central level monitoring three drugs manufactured by different laboratories, had to obtain support from the Sasakawa Memorial Health Foundation.

This paper shows and discusses the programmed use and the coverage reached in supplying medications, under the monitoring of the central, state and municipal levels.

The table presents the impact on the country's epidemiological picture with the assessment of registered patients and the determination of the number of patients requiring drugs for their treatment.

## CO30

### THE IMPLEMENTATION OF MULTIDRUG THERAPY IN PROJECTS SPONSORED BY ILEP MEMBERS 1984-1991

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In 1982, the Members of ILEP, the International Federation of Anti-Leprosy Associations, agreed a resolution to make provision to implement MDT regimens, notably in the framework of national programmes. Of patients worldwide under chemotherapy 20% are treated in ILEP sponsored projects. Statistics illustrating the

implementation of MDT in these projects at the end of 1991, the latest reporting year for which complete data are available, are presented in detail.

Using graphics and diagrams data are presented showing the increase in MDT coverage in ILEP supported projects from 1984 to 1991 and the dramatic drop in patients registered for chemotherapy due to the policy of discharging patients after successful MDT treatment. In 1984, 8 % of the 1 273 221 patients registered for chemotherapy in projects sponsored by ILEP Members were receiving MDT. At the end of 1991, 60 % of the 636 742 patients registered for chemotherapy were receiving MDT.

Trends in the registration of new patients for treatment from 1985 to 1991 are illustrated. During 1991, 89 % of the 155 697 new patients registered for chemotherapy were put under MDT. Among the new patients starting MDT during 1991, 35 % were MB and 64 % were PB.

Limitations in the collection of the data from the field are outlined.

### CO31

PROSPECTS OF GLOBAL ELIMINATION OF LEPROSY AS A PUBLIC HEALTH PROBLEM BY THE YEAR 2000

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The World Health Assembly (May, 1991) approved a resolution about the global elimination of leprosy as a public health problem by the year 2000. It took into account mainly the marked decrease of prevalence suggesting that it was the success of MDT that has brought such a drastic reduction.

In randomized multicentric trials MDT schemes were not superior to DDS alone. Unless follow-up studies provide better results the present findings do not confirm that the world reduction of prevalence was due to MDT. Instead two other causes should be considered: 1) When MDT was adopted (1982) the duration of treatment and follow-up was considerably shortened: six months for paucibacillary cases and only two years for the multibacillary; previously the duration was respectively 3-5 years and 5-10 years. The anticipated release from control of all cases caused automatically a dramatic decline of the prevalence and apparently not the MDT. 2) The improvement of the control programmes in order to implement MDT.

The A. also analysed two other factors and related conditions: 1) Difficulties in implementing the MDT and the control programmes; 2) Socio-economic, cultural, historical, political, demographic and ecological factors, education and related conditions.

In the light of the above it does not seem possible to achieve the global elimination of leprosy as a public health problem by the year 2000, unless a very effective vaccine or drug become available in the very near future. Nevertheless the relevant praiseworthy effort of WHO, Governments and Non-Government Organizations will be of great benefit to countries and populations.

### CO32

PROJECTION OF DEMAND FOR LEPROSY SERVICES IN INDIA, AFTER WHO-MDT

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Quantitative analysis of published data suggests that eighteen years after the introduction of WHO-MDT (1991 Indian guidelines) in a high-incidence Indian district:

- a. The number of patients receiving MDT will be only a tenth of the initial number (of all registered patients before the introduction of MDT.)
- b. The number of patients on either MDT or post-MDT observation will be only two-thirds of the initial number.
- c. The total number of persons in either of the above classes plus the respective numbers:
  - i. diseased and awaiting treatment, or
  - ii. disabled by leprosy,

will probably be double the initial number, and almost certainly no less than 125% of the initial number.

Rational planning of health services should anticipate the increasing demand for leprosy-specific activities other than anti-microbial chemotherapy, including:

- A. Earlier detection of progressive and disabling forms of leprosy, which usually remain inapparent for some time.
- B. Expert 3-monthly monitoring of nerve function with anti-inflammatory treatment as soon as necessary.
- C. Retardation of the progressive disabilities which generally follow the sensory loss of leprosy.

### CO33

DECLINING OF LEPROSY IN MALUKU INDONESIA AFTER INTRODUCING MDT IN 1982  
Ristianto Sugiono, H. Sugiono Tanamal and Andy A. Louhenapessy

Leprosy was known in Maluku Province, Indonesia since last century, until now still prevalent but not equally distributed. More patients found in Ambon town, North Maluku, Kei Islands in S.E. Maluku and Central Maluku. Epidemiological situation since last 1982/83 was: Prevalence rate from 41.8 to 12.0/10000, Case Detection rate from 2.8 to 0.6/10000, MDT coverage from 2.3% to 93%, Cure rate from 5% to 89% and cumulative MDT coverage from 12.8% to 78.5% (1982/83 to 1991/92). Leprosy patients were treated since early 1950th in several leprosy hospitals/leprosaria in N. Maluku, Central Maluku, Ambon town and S.E. Maluku. Leprosy Control Programme (LCP) started since 1969 in Ambon town and Central Maluku, 1970 in North Maluku, and in 1971 in Kei Islands S.E. Maluku, used Dapsone and Lamprone until 1982 started with combined regimen introduced by WHO October 1981.

In the first few years after the introducing of MDT the coverage was still limited to very active cases and in hyperendemic districts/sub districts due to limited stock of drugs. The MDT Programme in Maluku Province was carried out by Government Health Staff and workers assisted by the WHO, Ciba Geigy, Danish Save the Children Organization, NSL and Sasakawa Memorial Health Foundation. Effort is made to continue strengthen the activities to achieve the goal 1 per 10000 by the year 2000.

### CO34

TEN YEARS OF MULTIDRUG THERAPY IN ZIMBABWE

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A national Leprosy Control Programme based on WHO recommended Multidrug Therapy was implemented in 1984.

From 1986, a gradual integration of control into Primary Health Care was initiated after training of health workers from the districts.

The results have shown a decline in incidence (Case Detection) and prevalence. The child proportion (<15 years) in new patients has fallen whilst the MB proportion has increased.

The results also show that although we are now in the elimination phase (<1/10 000) the integration into PHC may have resulted in a decline in diagnostic skills as evidenced by the patients diagnosed already disabled (>50% of new cases have more than WHO grade 1 disability).

As this requires specific attention, a special project for disability prevention has been initiated. Such a decentralised health care programme demands an extra strong supervision and extensive training when the incidence drops in the elimination phase.

## C035

DELENDAL E P R A  
ORGANIZATION OF THE STRUGGLE FOR ERADICATION  
OF LEPROSY IN ALBANIA  
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Since 1944-1992 (50 years) we have treated 88 cases of leprosy (67 LL, 17 LT, 4 LI). Long period of incubation of leprosy (30-40 years) present for us the duty to control 612 household, 988 neighbourhood 1-2 time a year for long time clinically and serologically. Also we must to control all the people in endemic areas one time in two years. In this we can to find early the patients oligosymptomatic or subclinical leprosy. With ELISA method, which we have applied before, we have diagnosed 7 contact persons with DO above 20 %, raised levels of anti-PGL-1 IgM antibody specific markers for infection of leprosy.

## SCHEMA OF THE PROGRAM

I. DIAGNOSTIC	II. TREATMENT	III. PROPHYLAXIS
1. Clinically control of the patients 1-2 time/years, for all life	1. MDT under surveillance 1-2 years for the new patients	1. Earlier discovering of the patients and treat them rigorously and free of charge.
2. Control of relatives and neighbourhood.	2. MDT antirecidivans for short period 1-2 month every two years, if needs them.	2. Improve the economic and hygienic conditions of lives.
3. Control of the people in endemic zones.	3. MDT for the persons with ELISA DO above 20 %, like paucibacilar leprosy.	3. Chimioprophylaxis with Rifadine 25 mg/kg.W. a single dose. Repeat them after 2-3 years (?)
4. Serologic control with ELISA patients and contact persons		4. Education.

## C036

FORMULATION OF A NEW LEPROSY CONTROL PROGRAMME IN REPUBLIC OF YEMEN AS COOPERATION BETWEEN GLRA AND MOPH.

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Yemen Republic is the land of the Queen of Shiba. Historically known as the "Arabia Felix". It has an area of about 5,30,000 sq.km. and a population of about 12.5 million. It is the most densely populated country in the Arabian Peninsula.

Leprosy in Yemen is well documented since 650 AC with very interesting stories.

In spite of the two large Leprosariums built since 1940 the country lacked a programme for leprosy control up to 1990.

In 1989 an agreement between GLRA and MOPH brought to the country its first NLCP.

Passing on geographical distribution of 2320 cumulative registered patients in the old register of City of Light Hospital a pilot area was chosen to start the programme actively by the beginning of 1991.

After two years of support by GLRA to the NLCP a real implementation for MDT has been achieved and a three fold increase in the detection rate is resulted.

The article will discuss the situation of leprosy, policy applied in field activities and the fight against the stigma of leprosy in Yemen.

## C037

COMMUNITY-BASED LEPROSY CONTROL PROGRAM  
A CASE STUDY IN NAKHONRATCHASIMA PROVINCE, THAILAND  
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Village leaders and village health volunteers from Ban Rai, Nakhonratchasima province were trained to have knowledge in leprosy diagnosis, referral for leprosy treatment, and self-care for deformity prevention. In the training process, field trip were set up for trainees to have a site visit at the leprosy colony where trainees could experience real cases of leprosy patients. The preliminary results of these intervention are 1) some trainees had the awareness of the leprosy problem in their community and have compassion to those patients with disabilities whom they saw in the leprosy colony. As a result, when they come back to their community, they provide health education to their community. Some refer cases of leprosy to the Leprosy Center. 2) Patients with deformities organized themselves for occupational training in their village.

## C038

CHINA LEPROSY SURVEILLANCE SYSTEM

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The China Leprosy Surveillance System is a specialized system under Department of Epidemic Prevention of MOPH. Its responsibility is to monitoring leprosy prevalence on a country-wide level, to predict the trends of the disease and to evaluate the leprosy control programme. It is based on institutes of dermatology at county level, which are responsible for recording and reporting data of leprosy cases. It comprises three components: 1) A recording and reporting network over the country. 2) The forms to collect data, together with guidelines and manuals of procedures. 3) Computer equipments and software. The system uses 4 individual forms specially designed for Optical Mark Reader (OMR): 1) New patient form: for active patients and new patients detected annually since Jan. 1, 1990; 2) Follow up form: for the cases under treatment and surveillance since Jan. 1, 1990; 3) Relapsed form: for relapsed cases on annual basis; 4) Old patient form: for cases cured, died, transferred out, left by end of 1989. Special training courses had been given to leprosy workers at various levels, in such a way that they accurately fill in forms. This system using OMR is of great advantage for entering the data into the computer more accurately and with high speed. It takes only a second per patient form; more than 6 000 forms can be entered per day. The reading error is less than 1/1 000 000 marks. More than 400 000 leprosy cases data have been entered into the computer by the end of year 1992.

## C039

IMPACT OF A VERTICAL PROGRAMME ON LEPROSY IN LALITPUR 1986-1992 : EPIDEMIOLOGICAL AND MANAGERIAL IMPLICATIONS

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Anandaban Leprosy Hospital was established in Lalitpur, south of Kathmandu in 1957. In the early years a few mini surveys were carried out but in general case finding was passive and relied on a hospital based programme. From 1986-1990 a mass intensive survey was carried out. Out of a population of 210358 enumerated, 179811 were examined (85.4%) and 162 new cases were registered. A further 72 patients presented voluntarily during the survey period. After the survey was completed the team visited every patient who had ever been registered at Anandaban in order to do a post treatment surveillance check, update registers, examine healthy contacts and check their antibody

status. The team also did rapid school surveys in the north of the district. A further 47 patients have been registered in 1991-92 (NCDR 1/10000) of whom 41 presented voluntarily and the rest were found during the school/contact surveys. At the end of 1992 there are 56 patients still on treatment (registered prevalence of 2.2/10000). A number of the leprosy control staff have been relocated to other parts of the programme and the focus of the control programme has been redirected. This could serve as a model for other areas with trained staff who are no longer able to be fully employed in leprosy control.

#### CO40

##### DRUG RESISTANCE IN NEPALI LEPROSY PATIENTS

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Due to difficulties associated with regular attendance for leprosy treatment in Nepal, one third of registered patients still receive monotherapy. Also, undiagnosed leprosy patients may receive rifampicin for tuberculosis without other anti-leprosy drugs. To assess the extent of dapsone and rifampicin resistance, this study was undertaken at a leprosy referral hospital.

Over a 4 1/2 year period, 106 outpatients with B.I. > 2+ were studied for drug resistance using the mouse footpad technique of Rees. Subjects were previously untreated or relapse cases, or those who showed unsatisfactory response to multi-drug therapy. In 20 cases there was no growth in control mice.

Of 59 biopsies from previously untreated patients, 5% showed dapsone resistant strains. Of 27 biopsies from previously treated patients, 41% demonstrated dapsone resistant strains.

6% of 86 biopsies tested for primary rifampicin resistance initially showed growth, but the *M. leprae* were sensitive on subsequent passage. From the two biopsies tested for secondary resistance, no rifampicin strain was demonstrated.

Primary dapsone resistance in Nepal is present at a low level, but may be expected to increase as 41% of treated cases tested exhibited secondary dapsone resistant strains. Rifampicin resistance was not confirmed.

#### CO41

##### LUCHA ANTILEPROSA EN LA REGION SUROESTE DE LA REPUBLICA DOMINICANA PROGRAMA MODELO CON PARTICIPACION DE LA COMUNIDAD

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La lucha antileprosa en la región Suroeste de República Dominicana se desarrolla en 4 provincias con una población de 309,000 habitantes, presentando niveles críticos en cuanto a pobreza se refiere. La unidad dermatológica Suroeste ejecuta un programa modelo con participación de la comunidad y coordinación con las diferentes estructuras de salud del área.

Todas las metas programadas en lo que se refiere a descubrimiento de casos nuevos, revisiones a enfermos de lepra, tratamiento a enfermos, consultas dermatológicas por auxiliares y por médicos, contactos intradomiciliarios y extradomiciliarios, censos escolares etc. se vienen cumpliendo rigurosamente. La unidad tiene 595 enfermos de lepra inscritos. 327 han sido dados de alta; 210 están activos en control; 36 enfermos multibacilares en tratamiento y 83 sin tratamiento; 54 enfermos paucibacilares en tratamiento y 37 sin tratamiento. No hay enfermos renuentes y solo dos están perdidos.

#### CO42

##### RECIDIVAS EN ENFERMOS DE LEPRO MULTIBACILARES Y PAUCIBACILARES TRATADOS CON TRES DROGAS REPUBLICA DOMINICANA OCTUBRE 1982 DICIEMBRE 1992

Rafael Isa, Huberto Bogaert, Freddy Simón, Sócrates Canario.

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Se hace una revisión de los 4,992 pacientes tratados con tres drogas en el período octubre 1982 a diciembre 1992 para determinar el porcentaje de recidivas que se han presentado al finalizar la multiterapia. Se dividen los pacientes por forma clínica y de éstos los que están en revisión postoperatoria y los que han sido dados de alta por curación. Se precisa además el lapso en meses transcurridos antes de la presentación de la recidiva, el esquema de tratamiento recibido, el número de lesiones que presentaba el paciente al examen inicial y el sexo al cual pertenece. Se observa que la frecuencia global de las recidivas es del 0.22% con 0.20% en pacientes multibacilares y 0.23% en paucibacilares.

De los once enfermos que han presentado recidiva, dos pertenecen al sexo femenino.

#### CO43

##### COMPUTERIZED MONITORING OF LEPROSY PROGRAMME

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For improved monitoring both at the macro and micro levels some of the important components like treatment, prevention and care of disability and epidemiological and operational changes, currently available softwares are not found to be suitable. Hence the following softwares were developed.

##### 1. Computerised Central Registry :

To overcome multiple registration and problems of follow up of patients and to arrive at more accurate macro epidemiological picture, this software was designed. The Cross-notification facility is one of the important features. This simple software helps programme managers to obtain data on a large scale for better planning especially for metropolitan leprosy programmes.

##### 2. Prevention and care of Disability :

This is a micro monitoring system useful for monitoring services needed and services offered to deformed leprosy cases for prevention and care at the field level.

##### 3. General management of Leprosy :

This is specially designed to monitor individual leprosy patients during MDT and surveillance to track reaction and relapses.

All these three softwares were designed by using foxbase package.

#### CO44

##### STRENGTHENING OF ACTIVE CASE-FINDING STRATEGIES AND CLINICAL STUDY OF HOUSEHOLD LEPROSY CONTACTS IN MEXICO.

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Leprosy in Mexico has a prevalence of 0.20/1000 inhabitants. Most cases (95%) are distributed in 18 hyperende-

mic States located on the West coast and central part of the country. In order to reinforce early diagnosis and case-finding strategies included in the National Programme for Leprosy Control, a field project was carried out in Sinaloa State, a hyperendemic leprosy area on the Pacific coast. Patients from several endemic areas of the country were also studied in a specialised hospital in Mexico City. A total of 125 leprosy patients were diagnosed by trained dermatologists and were classified according to the Ridley and Jopling criteria.

Household contacts of patients were thoroughly studied and immunological and mycological investigations were performed when necessary. Fungal infections caused by dermatophytes were found to be a common skin condition posing problems in the differential diagnosis with leprosy. Health education activities for patients, their relatives, medical/paramedical staff, and for the community were carried out in order to emphasise the importance of early diagnosis and application of strategies directed to break the transmission of leprosy. Correlation of clinical, epidemiological, laboratory and anatomical findings was carried out to identify precise problems in the control of leprosy. Specific recommendations from this study were included in a field trial aiming at the elimination of leprosy in Mexico.

#### CO45

THE NATIONAL LEPROSY ELIMINATION PROGRAMME OF PAPUA NEW GUINEA, FIRST YEAR OF IMPLEMENTATION

C. Malau and R.J. Quimpp

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In the 1960's and 70's, leprosy in Papua New Guinea were progressively phased out as dapsone therapy became available. After independence in 1975, the services were decentralized to the provinces including the health services. Reorganization of the health services was completed in 1983, with tuberculosis and leprosy consolidated into one program within the integrated health services.

Review of epidemiological data at the end of 1988 showed that the declining trends in the prevalence of leprosy in the country could be further influenced by the introduction of MDT. The National Leprosy Elimination Programme was initiated to eliminate leprosy from PNG by the year 2000, established on the revised strategy for leprosy elimination based on MDT.

The main program phases are: mobilization and planning; implementation; consolidation; and, surveillance. Two teams were formed to carry out the phased introduction of the program in the 20 different provinces of the country as part of the program implementation. This paper covers the first year of the implementation phase of the program.

#### CO46

UPGRADING OF HUMAN RESOURCES FOR HANSEN'S DISEASE CONTROL ACTIONS IN THE STATE OF SAO PAULO - BRAZIL - DURING 1988 TO 1992.

Heleida N. Metello, Zenaide L. Lessa, Wagner Nogueira, Marcia R. Buzzar, Otília S.J. Gonçalves

Since the State Secretary of Health of São Paulo started the Special Program Group for Hansen's Disease, in August, 1988, priorities were set up for reorganization of Hansen's Disease control actions. Upgrading of Human Resources was one of these priorities and, since then, training programs were developed regarding the perfecting of assistance to patients of Hansen's Disease, intensified with the integration of actions with the Instituto Dr. Lauro de Souza Lima/Baural

More than 5.000 technicians from the 65 administrative sub-regions of the State were upgraded during this period and evaluation of the distribution of such personnel by kind of training and institution responsible for the training can be made by maps.

Central level for Hansen's Disease control in the state of São Paulo, based on this evaluation, which is routinely and permanently performed, which is participation in the programmed trainings to meet the needs for all sub-regions.

#### CO47

SITUATION DIAGNOSIS AND REORGANIZATION OF SOCIAL ACTIONS FOR HANSEN'S DISEASE IN THE STATE OF SAO PAULO - BRAZIL

Otília S.J. Gonçalves, Heleida N. Metello, Wagner Nogueira, Zenaide L. Lessa, Marcia R. Buzzar

Since the state Secretary of Health created the Special Program Group, priorities reorganization of control actions were established, including among these upgrading of Human Resources.

Therefore, it was possible to identify the need for social actions, starting a process of mobilization of social workers in all the State through meetings per greater region in attention to clients of health services and, especially, patients of Hansen's Disease.

This process is already in course for five years, ensuing evaluation and organization of some important aspects for social accompaniment including routines attention. The register of social actions is made in appropriated charts, with a special agenda, ensuing the sistematization of these data, evaluation of social data and lines of research.

Two yearly meetings are made per sub-region, in a total of 10 per year, and one State Encounter for Evaluation per year. In the year of 1993, will be presented. The group sharing the efforts and results obtained. This process involved social workers, acting at local, regional and central level.

#### CO48

PROJECT FOR IMPLANTING INTEGRATED HEALTH ATTENTION CENTRES FOR REHABILITATION IN THE 65 HEALTH SUB-REGIONS OF THE STATE OF SAO PAULO - BRAZIL FOR THE PERIOD OF 1993 A 1995.

Wagner Nogueira, Marcia R. Buzzar, Heleida N. Metello, Otília S.J. Gonçalves, Zenaide L. Lessa

Implanting Integrated Rehabilitation centers is a need which has been felt since the start of the Unique Health System in São Paulo.

The existence of services designed to the assistance of deficiencies, in general, is adequate to the new system, and the existence of specific Rehabilitation Services for Hansen's Disease patients is no longer justifiable.

An agenda of meetings between the Hansen's Disease Program and the Programs of Mental Health Worker's Physical handicaps was met, establishing the need for implanting regional reference services for each of the 65 sub-regions of the State of São Paulo.

The regions for 1993 were prioritized and proceedings for selection of the sub-regions for the years 1994 and 1995 were established. These procedures include sensibilization for the problem elaboration of regional situation diagnosis, selection of regional reference unities and, upgrading of Human Resources for services as well as formal and informal leaderships of the cities where the services will be implanted. Resources for implanting this program were requested to non governmental entities.

**CO49**

MAINTAINING A NATIONAL HANSEN'S DISEASE PROGRAM IN A BUDGET-DEFICIT REDUCTION ERA

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The National Ambulatory Hansen's Disease Program (NAHDP) provides Hansen's Disease (HD) related outpatient medical services to patients living in the continental United States and in the Territory of Puerto Rico. Services are provided by the Federal Government through third party reimbursement contracts with medical facilities throughout the country. A decrease in the Ambulatory HD Care budget, for HD care, has necessitated an assessment of these Programs and the development of multiple options for optimum service delivery.

Our HD contract with the Texas Department of Health, with its multiple service delivery systems, may well serve as a model for the near future.

**CO50**

SURVEILLANCE SYSTEM FOR LEPROSY  
A FIELD APPROACH

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Leprosy control programme in West Africa was using in 1989 a surveillance system conceived during the seventies. This system was adapted to a vertical programme using dapsone monotherapy and specialised nurses. With the introduction of MDT and programme integration in peripheral health centers the system was no longer efficient. In order to get complete and reliable data for programme and leprosy evaluation, a health center based information system was elaborated. Six essential indicators were selected, necessary information to collect identified and two simple forms containing only these informations developed. Treatment notebook allowed calculation of prevalence rate, detection rate, proportion of disable and proportion of MB patients among new cases, proportion of compliant patients, MDT coverage in order to avoid form compilation. An annual statistic form was used to convey these informations from peripheral to intermediate and central level.

Sensitivity and specificity of data collected by the surveillance system were evaluated in two urban health centers of Nouakchott (Mauritania). Depending upon items, sensitivity ranged from 50% to 100% and specificity from 76% to 100%. Evaluation showed 100% form completion by health centers nurses.

**CO51**

ROLE DE L'AGENT DE SANTE DANS UN PROJET DE CONTROLE DE LA LEPRE; EXPERIENCE D'UNE ANNEE

Gysette Blanc, Florence Desvarieux, Claude A. Leveille, Claude Pean.

Evaluation du travail des agents-lepre dans un programme vertical de lutte contre la lepre a Port-au-Prince (HAITI) sur une periode d'une annee. Des parametres tels que le nombre de contacts intra et extra-domiciliaires, le nombre de visites (passages repetes), le nombre de frottis bacteriologiques seront evalues. Des facteurs socio-economiques et culturels seront aussi discutees.

Institut Cardinal Leger contre la lepre (Haïti).

**CO52**

INVOLVEMENT OF SCOUTING MOVEMENT IN LEPROSY CONTROL

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The work of Bharat Scouts and Guides in leprosy awareness and health education during last few years has helped leprosy control work in India. The world scouts have adopted this work as a model and one of their activities specially for regions which are known for leprosy endemicity. Scouting as one of the voluntary activities of schools in India has been an effective educational movement. Nearly twenty different activities are undertaken by scouts and guides for helping leprosy control including case detection in schools.

With the help of appropriate health education material in hand nearly 1.5 million scouts and guides are getting involved in leprosy control activities for their own schools and for the community.

Scouting movement is an example of role of organised youth groups in leprosy control activities. Examples of work will be presented with the help of slides.

**CO53**

SOCIAL ACTION FOR LEPROSY ERADICATION  
AN INEXPENSIVE INDIAN MODEL

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Making use of the fundamental principles of Social Work, a community based action programme was initiated for controlling leprosy in Nilgiri District of Tamilnadu.

Based on this encouraging experiment the following methodology was found effective.

- The Social Worker had identified the community to be involved in this process as target community.
- Established rapport with the community by familiarising with them through a known voluntary organisation in the community.
- Interacted with the community and made them aware the role and functions.
- Motivated the community and made them interested in leprosy control and eradication work.
- A core group was formed comprising deeply committed volunteers who are interested in leprosy eradication work.
- A Madar Sangham (Mother's Group) and a youth group was formed as core group.
- Provided training to the core group members to identify cases of leprosy within the community.
- Core group members conducted Health Education Programmes and referred leprosy cases which were identified for treatment to the nearby leprosy centres.

This model is found less expensive and highly effective which had brought about the formation of a fundamental core group in the community that could take up continuous community based action programmes towards leprosy eradication.

**CO54**

LA PLANEACION ESTRATEGICA DE MERCADOTECNIA UTILIZADA PARA ERRADICAR LA TRANSMISION DE LA LEPRO EN MEXICO.

Alberto Barocio (Ciba Geigy México) y Francisco Castellanos (Coordinador Nacional del Programa Contra la lepra - Secretaria de Salud, México)

Teniendo como objetivo la erradicación de la transmisión de la lepra en México para

1994, se están realizando acciones que permitan el cumplimiento de la meta.

Dichas acciones, estructuradas dentro de un plan estratégico de acción, han sido sustancialmente apoyadas dentro de un marco social.

La planeación estratégica de mercadotecnia incluye lugares o plazas de acción; promociones basadas en fuertes campañas dirigidas a los diferentes públicos objetivo, que abarcan publicidad y relaciones públicas, el producto y el costo-efecto del programa integral.

Así, se desarrolla el análisis de cada una de las áreas de la mercadotecnia utilizada, el por qué de los mismos y su importancia dentro del contexto del programa tendiente a erradicar la transmisión de esa enfermedad.

Se abarca, de manera específica, la promoción de la campaña y su plaza de acción, como pilares dentro de la planeación estratégica de mercadotecnia social.

### C055

ACTIVE SEARCH FOR LEPROSY PATIENTS BY PARAMEDICAL PERSONNEL IN ALTO AMAZONAS PROVINCE, LORETO REGION, PERU. NOVEMBER 1987 - DECEMBER 1989.

Eduardo Falconi, Pedro Legua, Ciro Maguina and Gilma Ruiz.

Instituto de Medicina Tropical "Alexander von Humboldt" de la Universidad Peruana Cayetano Heredia and Centro de Investigación en Salud "Dr. Hugo Lumbreras Cruz" del Instituto Nacional de Salud, Lima, Perú.

Leprosy was not considered a public health problem in Alto Amazonas. In order to perform an active search for leprosy patients, the working area was divided in two parts: Yurimaguas (the capital) and the rest of the province (rural area), with a total population estimated in 109,700 inhabitants.

For the field work, five male auxiliaries (with no previous training in health) were trained on leprosy during six weeks. Emphasis was put on the recognition of early stages of the disease. For the work in Yurimaguas, three health auxiliaries and one nurse (females) were trained. Additionally, short training courses (one week) were done for health auxiliaries and promoters of the whole province. The area was combed house by house, visiting every village and examining the dwellers. The paramedical workers detected early leprosy cases, with no obvious signs of nerve involvement, including infiltrative lesions without evidence impairment of sensation. They detected 45 confirmed cases in the field and 43 in Yurimaguas, 11 leprosy suspect cases and they had three diagnostic errors. Leprosy patients were concentrated around the most populated areas.

The population examined was 72,341 inhabitants, by the end of the period, total registered patients were 101, which makes a prevalence of leprosy for the area of 1.4 per thousand, a public health problem according to WHO standards. Well trained regional paramedical personnel is a most useful human resource for field work as an intervention model for the control of leprosy and other prevalent disease. (These paper was financially supported by Red Barnet-Denmark).

### C056

LEPROSY CONTROL PROGRAM (LCP) IN ALTO AMAZONAS PROVINCE LORETO REGION, PERU. OCTOBER 1987 - SEPTEMBER 1990.

Pedro Legua, Eduardo Falconi, Ciro Maguina and Gilma Ruiz.

Instituto de Medicina Tropical "Alexander von Humboldt" de la Universidad Peruana Cayetano Heredia and Centro de Investigación en Salud "Dr. Hugo Lumbreras Cruz" del Instituto Nacional de Salud, Lima, Perú.

Registered patients in the LCP were evaluated and for two years, an active search for leprosy cases was performed in the whole province. Through this activity new patients

were identified and old patients were engaged again when a active disease was shown. Patients were treated with WHO recommended regimens (MDT). Results were as follows:

	Old Cases	New Cases
Number	58	43
Age: mean in years (range)	52 (21-94)	47 (9-82)
Sex: males	43 (74%)	32 (74%)
females	15 (26%)	11 (26%)
Means of detection:		
- Search + contact tracing	8 (14%)	26 (61%)
- Self reporting	25 (43%)	10 (23%)
Diagnosis: - Multibacillary	33 (57%)	20 (47%)
- Paucibacillary	25 (43%)	23 (53%)
Illness duration: mean (range)	19y (2-42)	3y (2m-21)
Nerve trunk involvement:		
- Enlargement only	53 (91%)	38 (88%)
- Paralysis	14 (26%)	15 (39%)
Normal hands	23 (43%)	9 (24%)
Normal feet	22 (38%)	24 (56%)
Normal eyes	22 (38%)	25 (58%)
Normal eyes	25 (43%)	26 (60%)
Complications during treatment	27 (47%)	19 (44%)
- Type 1 or 2 reactions	13 (22%)	2 (5%)

Prevalence of leprosy in the province was 1.4 per thousand. The active search for leprosy cases allows the detection of patients in early stages of their illness and with less physical

### C057

EPIDEMIOLOGICAL IMPACT OF MULTI-DRUG THERAPY OF LEPROSY IN BHARUCH DISTRICT GUJARAT, INDIA.

N.K. CHOPRA, MRS.M.P. TRIVEDI AND R.K. GUPTA

The epidemiological impact of multi-drug therapy project in Leprosy eradication program in tribal Bharuch district (Gujarat) was measured covering population 1296451. The Multi-Drug Therapy project commenced on 1st March 1989 with financial assistance of Government of India and World Health Organisation. The prevalence rate at commencement of project on 1st March 1989 was 4.76 per thousand population which declined to 2.15 per thousand population till Dec. 92. 11447 cases of leprosy are brought under Multi-Drug Therapy during last 4 years. 8393 (73.33%) cases of Leprosy are released after adequate treatment as per recommended by W.H.O.

The results of MDT and in built system of delivering the therapy almost at the door steps have instilled confidence in patients and hence very high rate of attendance and drug compliance i.e. 92%, only 15 PB cases relapsed after surveillance of 2 years.

Despite annual surveys and health education, some cases are missed each year are detected late. Incidence rate, relapse rate, deformity rate, MB rate and other epidemiological parameters will be presented.

Hence MDT is very effective tool in National Leprosy eradication program and the study showed that MDT can be implemented in tribal rural urban population with high rate of compliance.

### C058

STUDY OF FIELD TRIALS OF COMBINED CHEMOTHERAPY AND FIXED DURATION COMBINED CHEMOTHERAPY IN MULTIBACILLARY LEPROSY IN MDT PROJECT BHARUCH DISTRICT GUJARAT, INDIA.

N.K. CHOPRA, DISTRICT LEPROSY OFFICER, DISTRICT PROJECT OFFICER, BHARUCH

The main object of MDT is 1) to prevent drug registers and presisters 2) to achieve the more rapid arrest of transmission of the disease. 3) to prevent relapse. MB cases were treated as per regimen recommended by World Health Organisation. Treatment was continued for minimum of two years or till bacteriological negativity

which ever is later. Total 4355 M.B. patients were included in the study till Dec.92. 1181 MB cases were positive prior to MDT. 237 (20.06%) patients were positive after 24 months pulsed therapy. No case of relapse has been reported.

The persistent strains of *M. leprae* are not significantly reduced by present day Chemotherapy. The benefits of extended Chemotherapy till bacteriological negativity need to be evaluated. This can only be ascertained by measuring relapse rates after fixed duration Chemotherapy.

351 newly detected untreated bacteriological positive MB patients were studied with fixed duration 2 years pulsed therapy as per W.H.O. Only 137 (39.03%) MB patient who have completed 2 years treatment show gradual bacteriological clearance even after cessation of Chemotherapy. During 570 person-years follow up no relapse and encountered.

### CO59

SKIN DISEASE DIAGNOSTIC, TREATMENT & EDUCATION (SDDTE) CAMPS : A TOOL FOR COMMUNITY EDUCATION IN TRIBAL DISTRICT BHARUCH (GUJARAT) INDIA.

N.K. CHOPRA Mrs. M.P. TRIVEDI AND R.K. GUPTA

71 Skin disease diagnostic, treatment and education camps were organised in preparatory and intensive phase of M.D.T. Project in forms of Local Festivals in different rural and tribal villages in Bharuch district during 1989-92.

The idea was basically used for bringing openness for diagnosis. The secondary objective was new case detection. The gathering in the camps usually comprised of patients, their relatives, teachers, onlookers and the NLEP-PHC functionaries. Case selection and demonstration for differential diagnosis was used as a method of Health Education. The method used to increase community's knowledge "from known to unknown" 167 leprosy cases (82 New and 65 old) including 13 deformed cases were detected in these camps. 3505 other skin ailment cases were also benefited. The services offered was free of charge. The role of community was vital in such camps as they were the organisers and NLEP functionaries were helpers and guides. Primary health care system was mainly responsible for diagnostic facilitation.

### CO60

AN EXPERIMENTAL STUDY OF INVOLVEMENT OF GENERAL HEALTH WORKERS IN LEPROSY WORK.

S.K. BANDYOPADHYAY

Although the NLEP in India has been functioning for over 3 decades as a vertical programme, the ultimate objective of the programme is to integrate it with general health services so that separate vertical programme is not necessary.

In Salarampur Unit of Gandhi Memorial Leprosy Foundation in India, on an experimental basis, the staff of a primary health centre were involved in leprosy control work in addition to their routine health care activities. In 1988, 41 general workers were first given a short-term training in medical and social aspects of leprosy and the areas of the programme in which they could participate. Annual meetings of these workers were held for 4 years in which the progress made by general health workers was reviewed and additional inputs related to their participation in this programme were given.

A questionnaire was prepared in 1992 and administered to the 41 health workers to assess the role played by these workers in the leprosy control activities in their area. The data was

tabulated and is discussed. It was observed that 25 out of 41 health workers have participated in active case detection. 100 cases were suspected by the health workers of which 98 were confirmed and brought under treatment. The participation of these health workers in health education, absentee persuasion, and counselling the patients in various socio-economic situations were discussed based on the data tabulated.

### CO61

THE IMPORTANCE OF THE EXAMINATION OF ALL FAMILY MEMBERS IN FIELD WORK

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Because of the endemic situation found in São Gonçalo municipality, and the diagnosis of LL in a two year old boy, we decided to make a home visit to examine the other family members. In a family of twenty five people, we diagnosed thirteen with leprosy. In other words, more than 50% of the family members had the disease.

### CO62

EPIDEMIOLOGICAL AND ECOLOGICAL ASPECTS OF LEPROSY: AN ANALYSIS OF MAJOR DIMENSIONS OF DISEASE ECOLOGY AND HEALTH CARE MANAGEMENT

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The total number of leprosy cases in the country is estimated to be around 4 million cases based on the average prevalence rate of 5 to 6 per 1000 population. Of the cases reported in India 60% of the cases are actually new and 40% are old undetected cases. A majority of the cases were noticed in the adult age group as against 25% of the cases reported in the age group below 14 years. The present study is an attempt to analyse the spatial distribution of Leprosy in Tamilnadu (India) state with reference to epidemiological and ecological parameters and to observe intra-regional variation in relation to disease ecology and different types of leprosy and health care utilization under various types of treatment and associated variables. An attempt is also made to identify the major dimensions and to map out the same. The study was based on the medical statistics reported at various leprosy control units of the different districts of Tamilnadu. The data were analysed with the help of factor analysis to identify the major dimensions of ecology of leprosy and health care system. The epidemiological and ecological perspectives of spatial pattern of paucibacillary types of leprosy has identified seven major dimensions viz., Case History of Paucibacillary type, (22.56%), Disease prevalence (15.85%), Need for Lab. Technician (12.9%), Population and Case detection rate (9.30%), Curative efficiency of MDT on Paucibacillary (8.10%), Efficacy of Medical Treatment and personnel (7.35%) and treatment effect.

**CO63****"DEFORMITY CARE CLINICS" - A NEW APPROACH TO INTEGRATE 'CARE AFTER CURE' CONCEPT IN ROUTINE MDT PROGRAMME**

PV Dave, A Shah and R Ganapati

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Under the "Borsad Model" of Comprehensive Leprosy Care Project sponsored by Government of Gujarat and Ciba-Geigy Leprosy Fund in a population of 3,71,000 inhabitants, spread over 96 villages with low endemicity, this new approach was experimented. All workers were trained in basic deformity care delivery. Wherever the MDT clinics were held at drug delivery points (DDP) all patients release from treatment with sensory motor loss were called in subsequent 2 hours to begin "deformity care clinic". Travel cost of patients was defrayed by paying the incentive in cash for attendance. The patients were then taught on taking care of anesthetic extremities, ulcer care, proper application of splintage and studied for requirement of grip aids or MCR sandals. By this approach it was feasible to render and integrate "Care after Cure" services in better way. The data of 408 patients in need of such services was analysed and will be presented.

**CO64****COMBINED TUBERCULOSIS/LEPROSY DETECTION PROGRAMME IN AN URBAN METROPOLITAN CITY - A PILOT STUDY**

Leo Pandiaraj, Nambudripad K, Jayaraman R, Lobo D, Mathews M.

Many countries including India have well established VERTICAL infra-structure and manpower for Leprosy Control.

With declining trends of leprosy prevalence and case-load, many such programmes are faced with the problem of under-utilisation of staff and over-stretching of resources.

In order to tackle this problem, our institution decided to combine leprosy with Tuberculosis (TB) Control. As a first step, a pilot survey for detection of Leprosy and TB was conducted in four Corporation divisions with a total population of approximately 100,000. The summary of results are:

Population covered so far	: 24,448
Number of new leprosy cases detected	: 41
Number of old treated leprosy cases	: 203
Number of TB symptomatics detected	: 73
Number of old treated TB cases	: 20
Number of TB symptomatics confirmed	: 06

The survey was conducted by 4 para medics over a period of 22 weeks. The results and importance of the survey in planning combined Leprosy/TB programmes is discussed.

The survey is ongoing and the results up to July 1993 will be presented.

**CO65****INTEGRATION OF LEPROSY CONTROL PROGRAMME INTO PRIMARY HEALTH CARE. 4 YEARS PRELIMINARY STUDY, OGUN STATE OF NIGERIA.**

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Ogun State Leprosy Control Programme, Nigeria

The aim of the 4 years preliminary study was to analyse the problems associated with integration of Leprosy Control into Primary Health Care and to find practical solutions.

The study was conducted in Ogun State of Nigeria with 2008 registered leprosy patients within 15 local government areas in an area of 16762 square kilometers with a total population of 2½ million.

During this study the existing problems with the vertical leprosy control programme, segregated leprosy patients' community, leprosy health workers, government general health workers, problems in the community at large and managerial problems were analysed.

The national health policy, the network system of the PHC in the state and logistics were studied. In the process of a step by step integration the problems found at various levels were treated. The results were positive and encouraging.

**CO66****INTEGRATION-FOLLOW-UP STUDY OF GENERAL HEALTH STAFF TRAINED IN LEPROSY IN WARDHA DISTRICT - INDIA.**

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In India, leprosy services were vertical & aloof from general health services for over 4 decades. Several suggestions were made to integrate leprosy with general health services. A few attempts were also made in this directions.

A pre-requisites for integration is the training of health staff in basic medical and social aspects of leprosy and an initial follow up of their performance to understand their achievements and difficulties hindering their participation. This enables to evaluate, modify the course content and also the expectations from them concerning leprosy work.

The Gandhi Memorial Leprosy Foundation conducted a one day orientation course in leprosy for 330 health staff at 27 primary health centres level. Medical and social aspect of leprosy were covered and method of participation by health staff was decided after mutual consultations.

After one year, a detailed questionnaire was framed and administered to evaluate the knowledge of health staff in leprosy, assess their participation and the difficulties by them in this work. 130 workers have responded to the questionnaire. Detailed observations about their responses were tabulated and discussed.

**CO67****THE APPLICATION OF CONTROL THEORY IN THE MANAGEMENT OF MDT**

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**ABSTRACT** This paper presented the preliminary analysis and summary of the application of cybernetics in the management of MDT. Many operational problems of MDT implementation were also discussed by the combination of the cybernetics and its application.

The theoretic basis of this article is the advance control, feed control and feedback control of the cybernetics, of which the most important one is the field control. The application of cybernetics in the MDT implementation aims at the regularity of treatment, especially the supervised intake and the daily self intake of drugs. The more the levels of the control, the higher regular treatment rate will be. In addition,

the scientific management can help in the improvement of staff and the personnel and the basic health system.

The enhancement of initiative and responsibility of all the people concerned, including the patients themselves, by the scientific management is also the task of the control. The more the measures of control, the better quality the MDT will have.

The International Conference on the Basic Health System in Alma Ata, 1978 called for the integration of leprosy control into the basic health care services, which makes it necessary that the leprosy control activities should be supported by the community. This paper proved that the scientific management of MDT contributes to the increase of quality and effect of the leprosy control but also aids in the integration of the leprosy control activities into the basic health care services.

## CO68

THE NATIONAL LEPROSY CONTROL PROGRAMME OF BHUTAN: FACTORS IN A SUCCESSFUL MDT PROGRAMME

Paul Jakeman

National Leprosy Control Programme, Bhutan

Bhutan is a small mountainous country in the eastern Himalayas. Designated "least-developed" by the UN, it has extreme constraints of terrain, communications, finance, and trained personnel.

The National Leprosy Control Programme was constituted in 1982, and has been supported by two NGOs. MDT was introduced at the same time, and has proved very successful in reducing the prevalence of the disease. It is clear in retrospect that the success was largely due to the care taken in establishing the programme at the outset.

This presentation will document the preparatory steps taken, and the structures and policies within which the programme has functioned. Now that more is known about the effectiveness of MDT, some of the requirements may be proven to be excessively rigorous; these areas will be identified and discussed.

## CO69

THE EPIDEMIOLOGICAL IMPACT OF MDT ON LEPROSY IN GUANGDONG PROVINCE

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A province-wide comparative analysis of leprosy data of DDS monotherapy period (DDSP) of 1982-1986 and that of MDT period (MDTP) of 1987-1991 was reported.

The cure rates of the DDSP and the MDTP groups were 52.68% and 66.23% respectively with an increment of 25.72% (66.23% - 52.68%/52.68%) in the MDTP group, but in the period of dapsone monotherapy of 1952-1986, the highest range of such increment was 10% only.

The prevalence rates in the DDSP and the MDTP groups were reduced by 44.55% and 59.26% respectively, and they were reduced either by 13.71% and 20.11% annually in the average in the DDSP and MDTP groups respectively.

The age specific incidence rate of 0-14 year group was decreased by 38.06% in MDTP as compared with that in DDSP.

After the implementation of DDT for 5 years, the number of medium endemic counties (prev. rate  $\geq 0.1-0.99\%$ ) decreased from 12 (1986) to zero and the number of non-endemic counties increased from 56 (1986) to 98, including 31 counties with a prevalence (0.01%).

The results showed that the implementation of MDT has given a positive impact on leprosy control in Guangdong province.

## CO70

ON THE COST-EFFECTIVENESS OF MDT FOR LEPROSY

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The authors reviewed WHO-MDT Programme and studied its feasibility. The authors also analyzed the effects of the MDT Programme implemented in Guangxi and found that RMB 1,050 yuan was needed to be invested for one-year-treatment for one MB leper and RMB 250 yuan for every six-month treatment for one PB leper in this province. The prolonged one-year treatment of all the leprosy patients in Guangxi costs RMB 320,000 yuan and at the same time we have to pay 9,000-14,000 yuan more for the management of liver damage caused by the drugs. In all, at least 329,000 to 334,400 yuan will be used more than necessary. The authors realize that the WHO-MDT Programme is adequate and practical and the way of investment should be changed. Instead of implementing prolonged treatment, the limited funds should be used to develop the three-tier health network, to improve the training of health workers at the basic level, to increase necessary equipments for strengthening the quality control of MDT and to standardize our work strictly according to the criteria approved by the Ministry of Health. The authors emphasized that the MDT regimens should be implemented individually. The patient should be released from treatment and be monitored immediately when the disease recovered to the required criteria for stopping drugs. If not, the additional treatment is still necessary, otherwise it is also a waste of money.

## CO71

THE IMPACT OF MULTIDRUG THERAPY ON EPIDEMIOLOGICAL TRENDS OF LEPROSY IN GUIZHOU, CHINA

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Guizhou Provincial Institute of Dermatology, Guizhou, China

Since 1986, with the great assistance from ALM International and WHO, the multidrug therapy (MDT) recommended by WHO has been introduced into Guizhou province, China to treat all patients suffering from active leprosy. By the end of 1991, MDT coverage rate had reached 100%. After 6 years, a remarkable decrease of leprosy prevalence rate from 2.4 per 10,000 in 1986 to 1.1 per 10,000 in 1991 (linear regression curve:  $Y = 48.47 - 0.0243x$ ,  $P < 0.001$ ) and of leprosy mean annual detection rate from 0.221 per 10,000 in 1986 to 0.122 per 10,000 in 1991 (power regression curve:  $Y = (1932.028 X^{-1} - 3.91 \times 10^{-3})$ ,  $P < 0.05$ ) has been observed. On the basis of the fact that the relapse rate was nil in Guizhou patients put on MDT, our results may suggest that the implementation of MDT has caused a decrease of prevalence rate and detection rate for leprosy because of interruption of transmission of the disease by MDT.

## CO72

ACCELERATED PROGRAMME FOR MDT IMPLEMENTATION

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In the four Northern States of Bihar, Madhya Pradesh, Uttar Pradesh and West Bengal the MDT implementation has been the slowest. To

accelerate it a programme was undertaken by the Government and the Leprosy Mission India in 10 Districts of these 4 States to estimate the magnitude of the problem.

A special team of 15 field staff lead by a Medical Officer covers each district in 4 months to screen old cases and conduct a chase survey after a 2 day orientation programme. With the help of local NLEP Staff cleaning up of the registers where all the patients who are inactive, cured, self healed, died, left, wrong diagnosis and double entries are removed. In addition a quick round of health education through the streets of the villages is done and new cases of leprosy identified.

The results obtained in the first 3 districts showed that 72% of all the villages were visited and 85% of 6.5 million population covered and 9,430 new cases detected giving a case detection rate of 1.7/1000. Out of 6,103 old cases on monotherapy 22.5% were found to be active, 17.2% cured and inactive and 6.8% died or left. 53.5% of the cases could not be contacted. The results of the full study will be analysed and presented.

### CO73

RESULTS OF MDT IMPLEMENTATION IN THE MILE FOUR LEPROSY CONTROL PROJECT, ABAKALIKI, ENUGU STATE, NIGERIA

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GLRA Medical Advisor, P.O. Box 1815B, Ogbete-Enugu, Enugu State, Nigeria

The Leprosy Control Services of Mile Four Hospital (Catholic mission hospital) in Abakaliki Zone, Enugu State, Nigeria cover an area with a population of over 1 million (1992). The implementation of WHO Multiple Drug Therapy (MDT) for leprosy started in 1984, replacing Dapsone monotherapy. In 1987 the overall MDT coverage was 98%. Between 1985 and 1991 the number of registered leprosy patients decreased from 2371 to 962 (respective prevalence rates per 10,000 population, 21.1 and 7.31). The case detection rate (CDR/10,000) was 2.6 in 1985 and 3.1 in 1991. The proportion of children diagnosed increased from 19.3% in 1985 to 25% in 1991. Possible epidemiological and operational reasons for this will be discussed.

The outcome of MDT treatment was determined in a review of 629 records of patients who started MDT between January and June in four consecutive years (1986 - 1989). Preliminary results of this cohort analysis of treatment outcome indicate that overall, 87% of PB patients and 83% of MB patients completed their treatment, and that MDT was successfully implemented.

### CO74

THE IMPACT OF THE IMPLEMENTATION OF MDT/WHO ON THE CONTROL OF HANSEN'S DISEASE IN BRAZIL, IN THE PERIOD 1986-1992

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Coordenação Nacional de Dermatologia Sanitária, Ministério da Saúde, Brasília, Brasil

The multidrug therapy regimen for the treatment of Hansen's Disease, recommended by WHO in 1982, was gradually implemented in pilot units in Brazil, since 1986.

We present the implementation strategy for this therapeutic regimen in the country, and its monitoring using specific indicators, up to decision of making this the only regimen in the country, starting in 1991.

We will present and debate the main epidemiological and operational indicators which are essential for the "National Programme for the Control and Elimination of Hansen's Disease" between 1985 and 1992, a period coinciding with the National Programme's restructuring and the implementation of MDT/WHO.

### CO75

TEN-YEAR COHORT ANALYSIS OF MULTIBACILLARY LEPROSY PATIENTS WHO RECEIVED MULTI DRUG THERAPY

Renuka Ramakrishnan, Narayanan R, Devanbu V, Lobo D, Ramanujam R.

Our institution GREMALTES based in Madras is a pioneer in URBAN Leprosy Control. We initiated Multi Drug Treatment (MDT) in 1983.

Between 1983 and 1992 - 13,250 patients received MDT, of which 1698 are Multibacillary (MB).

A COHORT analysis of all the MB cases cover the Ten-year period is presented, using the following parameters:

- MDT Coverage
- Treatment Regularity/Compliance
- Proportion of Drop-outs
- Skin Smear Status
- Cure Rate
- Relapse Rate
- Proportion of cases with complications like Neuritis/Reactions

The significance of the results, their relevance to the impact of MDT and for planning and implementation of Leprosy Control Programme is discussed.

### CO76

MULTIDRUG THERAPY IN THE STATE OF AMAZONAS 1982 - 1992

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CEP 69.063-130 Amazonas BRAZIL

Amazonas is an enormous state with an extremely low population density. Half of its people live in the capital, Manaus, and the rest are evenly divided between the towns of the interior and the rural zones. Multidrug therapy in Amazonas was started in 1982, and the authors set out to evaluate its impact on the endemic leprosy situation 10 years after its implementation. The leprosy prevalence has come down to 5.1 cases per 1,000 population from 10.6 in 1982. By December 1992 a total of 20,217 patients were on or had completed MDT.

The proportion of new cases presenting with deformities fell from 12% of those diagnosed in 1982 to 6.4% in 1992.

## C077

EPIDEMIOLOGIE ET POLYCHIMIOThERAPIE  
APPLIQUEES AU PROGRAMME DE LA LEPRE EN TUNISIE

La Tunisie, pays méditerranéen située au Nord est de l'Afrique, la lèpre a une prévalence de 0,03%, malgré cette faible endémicité le besoin d'entreprendre une action de lutte contre ce fléau a été rendu nécessaire par la prédominance de la F.lepromatjuse et l'existence de foyers dispersés.

De ce fait un programme de lutte antilepreux a débuté en 1985 avec l'aide du C.I.O.M.A.L. qui a pour objectifs :

- Sur le terrain par la formation d'une équipe médicale mobile qui a pour tâche : la prise en charge des malades, le dépistage, l'examen des contacts, la distribution et la surveillance de la PCT.

- Au centre hospitalier de traiter les complications de la maladie et de réunir tous les données sur les malades dans un fichier central.

Jusqu'en 1992, 200 cas sont fichés et répertoriés.

Les régions les plus concernées sont Mahdia 60 cas, Medenine 51 cas, Sfax 45 cas.

61 % des malades sont des lepromateux.

16 % sont âgés de 60 - 64 ans.

La contamination reste essentiellement familiale.

20 % ont une invalidité au degré 3.

Tous les malades sont sous PCT Rifadine, Disulone ou Fanasil, Lamprène.

Deux schémas thérapeutiques sont préconisés. 30 % des malades sous Rifadine, dose unique 30 mg/kg supervisée pour les patients des régions montagneuses d'accès difficile et ceux nécessitant de grandes distances à parcourir. 70 % des malades sous Rifadine 1200 mg/mois (6 mois supervisée), associés aux 2 schémas DDS-Lamprène en auto traitement.

Les résultats après 7 ans sont pratiquement identiques avec un contrôle clinique et surtout bactériologique régulier.

## C078

## MARTINIQUE : Evaluation

de 1980 à 1992 de la polyantibiothérapie (PAT) ou polychimiothérapie (PCT) traitement de la LEPRE

\*\*\*\*\*  
M. CONSTANT-DESORTES PIERRE ROSE, B. JI  
J. GROSSET, H. SANSARRICG,  
R. BELLANCE, C. DALLOZ, P. PINVILLE-LOGER,  
P. RENE-CORAIL, JC. SAINT-ZEBY, Y. SCAT  
J. MAGDELEINE, JC CAROLINA, A. LEOTURE  
\*\*\*\*\*

D'abord la mise en route de cette nouvelle approche thérapeutique a nécessité une démarche communautaire grâce à la participation du personnel soignant et de beaucoup d'acteurs sociaux afin de prendre en compte le versant culturel. Puis avec l'aide du laboratoire de bactériologie du CHU Pitié Salpêtrière de PARIS la surveillance des malades nous a fait évoluer dans le choix des antibiotiques, en raison de la fréquence des résistances double ; de leur association et la durée du traitement.

Enfin cette maladie infectieuse touchant la peau et les nerfs a permis la constitution d'équipes médicales regroupant des médecins spécialistes hospitaliers et des médecins de famille.

## C079

## PATIENTS COMPLIANCE AND DRUG TRIALS: AN ANALYSIS OF EFFICIENCY OF MONOTHERAPY AND MULTIDRUG THERAPY (MDT) TREATMENT

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The spatial pattern of distribution of leprosy in different districts of Tamilnadu has been analysed to understand the health situation of Tamilnadu and its status in recent years before and after the implementation of MDT. The present study has made an attempt to highlight the importance of MDT in controlling the prevalence rate of leprosy in most part of the distri-

-cts of Tamilnadu compared to Monotherapy treatment. The study was based on the statistics collected from all district leprosy units of Tamilnadu. The data were analysed with the help of a multivariate statistical technique Factor analysis to identify the major dimensions. A questionnaire survey was also employed to collect the patients compliance in relation to monotherapy and MDT treatments. The Monotherapy has identified 3 major dimensions and these were on Case History of Monotherapy, Inefficiency of Monotherapy treatment, Treatment awareness, Examined population and Detection rate, Irregular treatment Effect, Persistence of disease under monotherapy treatment, Susceptibility of children to disease under monotherapy. Whereas the MDT treatment has identified eight major dimensions and these explained the case history of multidrug therapy, Curative efficacy of MDT, Treatment Awareness, Disease cycle, Examined population and Treatment efficiency, Treatment effect and susceptibility of school Children. The patients compliance towards the preference of MDT was strongly felt due to short duration of treatment and quick improvement in deformity status, MDT programme was perceived to be highly satisfactory among males aged 35 to 64 years (60.7%) than the females who aged 14 to 34 years (47.9%). More than 50% of the patients of either sex have had their regular drug supply under MDT.

## C080

## LONG-TERM EVALUATION OF A PROVINCE-WIDE CLUE SURVEY FOR LEPROSY IN LIAONING

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Based on the effective health education activities, a province-wide clue survey was carried out from 1977 to 1978 in Liaoning province. Through this survey, 4,882 suspected cases were reported, among them 54 new leprosy patients, including 19 multibacillary (35.2%) and 35 paucibacillary (64.8%), were diagnosed.

The survey was completed in the end of 1978. From that time on to the end of 1991, various modes of leprosy case finding, including small scale clue survey, focus survey, examinations of patients' households and contacts, dermatological consultations and rewards for reporting suspected individuals, were carried out actively and continuously in order to detect leprosy patients as early as possible. The results of the past 13 years showed that the number of newly detected leprosy cases has reduced significantly.

During the period of 1979 through 1991, the total number of newly detected patients in the whole province was 65, only 13 of them were late cases. We probably can say that the reported province-wide clue survey had detected 80% of the patients (52/52+13) existed at the time the survey was implemented, and only 20% (13/52+13) were missed, most of them may be because of their absence when the health education was given, or their symptoms might have been very slight.

In the period of 20 years before and 10 years after the implementation of the province-wide survey, the incidence rate of leprosy of Liaoning province decreased by 94% and 93% respectively. It is evident that the province-wide clue survey accelerated (facilitated) the declining incidence rate of leprosy in Liaoning province.

## C081

## AN EVALUATION OF THE ACHIEVEMENTS OF COMMUNITY-BASED LEPROSY CONTROL FOR 35 YEARS IN CHENGQU COUNTY, SHAANXI PROVINCE, CHINA

Wang Huiming Wang Zhenbao Xie Xueyi Wang Wentang Huang Lingsheng Ying Zheng

Health and Epidemic Prevention Station of Chengqu County, Shaanxi Province, China

Since 1956, along with the principle of "Prevention First and Active Treatment on Community Basis", comprehensive measures of leprosy control, consisting of "Health Education, Survey, Treatment, Prevention, Management, Research", were carried out in Chengqu County, Shaanxi province. The accumulative number of registered leprosy patients was 1,300. Excluding cured (1,050, 80.77%), died and migrated cases, there were only 11 active cases at the end of 1990. The prevalence reduced from 2.1% in 1958 to 0.022% in 1990.

The average incidence rate of 5 years decreased from 20.07/100000 of 1956-1960 period to 0.42/100.000 of the period of 1986-1990. The incidence of children (0-14 years of age) also declined from 7.75/100.000 to 0.12/100.000 of the above mentioned periods. The number of villages with patients diminished from 559 to 7. A programme of disability survey and health education of prevention of disabilities has been implemented. The above facts strongly indicated that Chenggu County, as a high endemic county (prev. rate >1%) in the past, has become non-endemic (prev. rate (0.05%). It is expected that the goal of basic elimination of this disease could be reached in this city in 1995 according to the prediction with exponential function.

### CO82

AN ANALYSIS OF RELAPSES AMONGST 21,878 CURED LEPROSY PATIENTS

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Fuzhou, Fujian Province, China

By the end of 1991, the accumulative number of registered leprosy patients was 28,458 in Fujian province, among them 21,878 cases (MB 7,195 PB 14,683) were cured with monotherapy, and 728 (MB 598, PB 130) of them relapsed. The relapse rate of cured MB (8.31%) was much higher than that of cured PB (0.88%). The average duration from cure to the occurrence of relapse of MB (7 years and 9 months) was much longer than that of PB (5 years and 7 months). As time went on, the relapse rate increased and the number of new cases reduced. The proportion of relapsed patients among active cases increased from 0.10% (1957-1961 period) to 5.63% (1987-1991). The existing disabilities of 247 (33.9%) of 728 relapsed patients worsened. Disability-worsening of relapse was more common in PB (44.6%). Since 1986, 2,352 patients (MB 1,161 PB 1,191) have been cured with WHO-MDT, no relapse was found up to now. The authors emphasize that preventing cured cases from relapse and detecting relapses early are very important to leprosy control.

### CO83

COHORT STUDY IN THE LEPROSY CONTROL PROGRAMME IN AMAZONAS

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The authors present a cohort study of leprosy patients detected and registered in the state of Amazonas in 1988.

Clinical, laboratorial and epidemiological aspects of leprosy, as well as some of the Leprosy Control and Elimination Programme's operational aspects are discussed in with reference to the national norms and protocols.

### CO84

IMPROVING PATIENT COMPLIANCE - A MULTICENTRE EVALUATION OF THE 'DDS TILE TEST'.

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Previous longitudinal studies of drug default in Bombay using the 'DDS Tile Test' and counselling of defaulters showed improved drug compliance from 35% to

87% (Naik et al., Ind. J. Lepr., 1990, 62, 305). A similar study was launched in field condition in rural areas with the participation of leprosy centres (98 Government and 14 non-government). During one year, 2959 urine samples were examined for DDS presence using a 'DDS Tile Test Kit' by paramedical workers. 284 (9.6%) urine samples were found DDS negative, suggesting default or poor compliance.

Analysis of information returned by 52 leprosy centres showed that though 90% of the paramedicals used the 'kit' for the first time, they could perform the simple "Tile Test" well in field conditions and counselling of patients on the basis of results of the Tile Test helped to improve drug compliance of patients.

The paramedical workers judged the kit too cumbersome to carry to the field and suggested modifications in container. They also felt less utility of the test, particularly with the drop in case number in MDT districts. The collection of urine from female patients was also difficult. However, the Tile Test could be satisfactorily performed in the treatment centre itself where more patients attended.

### CO85

INFLUENCE OF MULTIDRUG THERAPY ON SMEAR POSITIVE CASES IN TALUKA PANVEL.

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Panvel Taluka has its unique features, such as surrounded by costal and hilly area where the residents are uneducated, in low socio-economic group of tribal and fishermen community and generally males among them are out of homes six months in year to earn their livelihood. At the other hand there are several developed and developing big industrial packets in same Taluka, where residents around are highly educated, economically well settled but under the influence of constant influx of semi and unskilled persons.

MDT was initiated in Panvel Taluka in 1990. The comparison of newly detected cases in pre and post MDT era in centres having different regional and population set up was made. During last 5 years (1988-1992), total 1597 new cases (234 MB and 1363 PB) registered by conventional methods of SET. The analysis showed that there is a no change in child rate, deformity rate and smear positive cases rate in newly detected cases in pre and post MDT era but bacterial quantum based on B.I. of smear positive cases (n=166) reduced considerably after MDT and brought to the negligible state irrespective of regional and population variation. It is further noticed that the results are more impressive in area of educated and stable population.

### CO86

CURRENT SITUATION OF HANSEN'S DISEASE CONTROL PROGRAMME IN THE AMAZON REGION OF BRAZIL

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MoH-BRAZIL/PAHO/OMS

THE NORTHERN REGION, WITH 9.30% OF BRAZILIAN POPULATION AND 22.36% OF REGISTERED CASES OF LEPROSY (1991) IS THE LARGEST REGION OF THE COUNTRY.

THE GEOGRAPHIC AND UNDERDEVELOPED CHARACTERISTICS OF THIS REGION PLUS THE INADEQUATE CONTROL STRATEGIES CERTAINLY WAS RESPONSIBLE FOR THE ACCUMULATION OF INFECTED CASES OF LEPROSY.

EVEN WITH AN INTENSIFICATION OF THE ACTIVE SEARCH FOR NEW CASES IN THE MAIN STATES OF THIS REGION FOR OVER THAN A DECADE, AND THE HIGH MDT COVERAGE THIS REGION IS STILL RESPONSIBLE FOR THE HIGHEST DETECTION RATE (53.94/100000 HAB) AS WELL AS FOR THE HIGHEST PROPORTION UNDER 15 YEARS OF AGE (17.36%).

NEVERTHELESS, THIS REPORT REMARKS CONCERN THE PERSPECTIVE RELATED TO OPERATIONAL IMPROVEMENT OF THE PROGRAMME ACTIVITIES WHICH HAVE BEEN COMING TRUE. IN MOST STATES THE PROPORTION OF DEFORMED NEW PATIENTS IS LOWER THAN 5% AND THE MDT COVERAGE IS THE HIGHEST IN THE COUNTRY.

FOLLOWING THE AMAZON AND ACRE STATES EXPERIENCE THE MACROREGIONAL SUPERVISION IS PROVIDING ADVICE TO THE STATE MANAGERS WITH AIM OF ACHIEVING NOT ONLY THE SHORT TERM TARGET OF ELIMINATING LEPROSY BY THE YEAR 2000- DECREASING PREVALENCE RATES THROUGH CLEANING OF FILES, BUT ALSO CONSOLIDATING THE STRATEGIES TRIGGERED IN ORDER TO CHANGE THE ENDEMY'S TREND IN A LONG TERM.

### CO87

SITUATION OF LEPROSY ELIMINATION IN THE AMERICAS

Clovis Lombardi

Par. American Health Organization, Caracas, Venezuela

Presentation of the latest available data on the epidemiological and operational situation of leprosy control in the endemic countries of Latin America, through indicators such as Prevalence Rates, Detection Rates, MultiDrug-Therapy (MDT Coverage, Cumulative MDT Coverage, etc.

Comments on the several organizational aspects of national leprosy control programs and other related items as research and training. In connection with the descriptive picture presented, projections concerning the possibility of reaching at regional, subregional or country level the targets of elimination of leprosy as a public health problem from the Americas, according to the PAHO/WHO Regional Plan of Action.

### CO88

THE INTERN. L. CONGRESSES AND OTHER OUTSTANDING EVENTS IN THE STUDY, EPIDEMIOLOGY AND ELIMINATION OF L. (with bibliography and fotos. of nearly all)

BALIRA LUIS M. and VALDEZ RAUL P. Hospitals Argerich and de Clinicas, av. Alvear 1890 (1129) Buenos Aires, Argentina

1873 G.A. Hansen starts the scientific era.

1897 I Int. Conf. about L. (Berlin) Virchow Prds. "L.

is produced by a microbe, not hereditary and is possible to prevent it"

1902 II Int. L. Conference on L. (Bergen) Pathologists and dermatologists under the honor. Presid. Hansen  
1923 III Intern. L. Congress (Stras) a meeting that provokes the birth of ILA. Pres. E. Janselm, vicepres V. Heiser and the journal "Leprosy" (P. Lee & H.W. Wade)  
1938 IV Int. L. Congress (Cairo) The Indian European classification and the South American with Ind. form. Native chaulmoogra seeds as centuries ago.  
1947 R.G. Cochrane 1st. edition: reference book.  
1948 V Int. L. Congress (La Habana) Pres. A. Oteiza Section: ILA's H.W. Wade. With sulphones L. enters in the chemotherapeutic age. (Faget) Stanley Stein (founder editor starts with "the Star" a unique campaign.  
1953 VI Int. L. Congr. (Madrid) Pres. F. Contreras, ILA's H.W. Wade. Thiosemicarbazones, B.C.G., leprosan to be replaced by out-patients clinics.  
1958 VII Int. L. Congr. (Tokio) Compulsive international banned as institutionalization of patients children. Pres. of ILA: J.M.M. Fernandez: B.C.G. and relation L.-T.B.

1963 VIII Int. L. Congr. (Rio de Janeiro) L. a disease like all others, the term leper has to be avoided.  
1968 IX Int. L. Congr. (London) Physical rehabilitation (Brand) and psychological (Hasselblad) Inoculation of the mouse foot-pad (Rees and Shepard)

1973 and 5 more events are presented

### CO89

LEPROSY CONTROL IN KARAKALPAKSTAN

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Republic Antileprosy Dispensary, Nukus,  
Karakalpakstan

For Karakalpakstan Republic leprosy presents a main problem of the regional pathology. More than 20% of the total amount of leprosy cases in the former USSR are registered here, while a population of the Republic is only 0,3%. Three phases may be followed in the organization of leprosy service in Karakalpakstan endemic area. The 1st phase continued till 1933 when no case recording was kept and no special measures were taken. The 2nd phase was from 1933 to 1963 when every effort was directed towards setting up a leprosarium, active case-finding, isolation and treatment of leprosy patients. During that period active case-finding through mass surveys of the total population was initiated. The 3d phase (from 1963 up to now) is characterized by a well developed network of antileprosy institutions (Karakalpak Branch of Uzbek Institute for Study of Skin and Venereal Diseases, 2 leprosy dispensaries, 5 leprosy rooms and a specialized sanatorium for children of leprosy parents. Current antileprosy service is based on a continuous and multidisciplinary approach to implementation of leprosy activities: active case-finding, hospitalized and outpatient treatment of leprosy patients with post-treatment surveillance and epidemiological control of leprosy foci and their sanitation. Effectiveness of such an approach is proved by more than 10-fold decrease in leprosy incidence, leprosy prevalence being decreased in average by 2% annually.

### CO90

LABOR DEL LABORATORIO NACIONAL DE REFERENCIA DE LACHIOSCOPIA DE SERIA EN CUBA.

Delaisy Suárez Moreno, Ansel González Secredo, Reynaldo Gil Suárez.

Instituto "Pedro Kouri". La Habana, Cuba.

Este trabajo muestra la estructura y funcionamiento del laboratorio nacional de referencia de Lepra y de sus laboratorios de la red nacional, también se describe la retroalimentación de la información que se deriva del trabajo tanto de los laboratorios de la base como el propio laboratorio rector y el apoyo que se brinda con estos resultados al Programa Nacional de Control de la Lepra en Cuba.

### CO91

FOURTEEN YEARS OF HD CONTROL IN ACRE STATE.

William John Woods, Leila Borges Marques, Alvaro Romero.

Secretaria de Saúde, Acre State, Brazil.

The most remote of all Brazilian states Acre had an average prevalence of HD of 10.5/1000 for over 20 years. With no roads and only river travel most patients were attended once a year. The prevalence in 1992 fell to 3/1000.

The factors involving this change and the importance of assistance from non

governmental agencies is discussed. The implantation of MDT, even in remote areas and a 5 year follow up of patients not included in MDT is presented. The rehabilitation, prevention of deformities and education programmes mentioned.

Co-operating with the State Government team are DAWH, Germany, ALM, USA and AIFO, Italy.

### CO92

MDT IN REMOTE AREAS OF THE ACRE STATE.

William John Woods, Maria do Socorro Lins  
Brasiliense, Silvano Renzo,\* Luiz Ferreira+

Secretaria de Saúde, Acre state Brazil  
\* AIFO, Italy. + University of Amazonas.

The Acre state, which is the most inland of all Brazilian states has few roads and almost all travel had to be done by taxi plane or river. To attend HD patients living on the river Juruá alone take 12 weeks, travelling daily. The difficulty to implant MDT is discussed.

The monthly supervised dose was released for self administration, and patients were attended by para-medical workers at 3 monthly intervals. To initiate MDT and to release from treatment each patient was evaluated and orientated by the medical supervisor. To initiate MDT in these circumstances took 3 years and involved travelling on 30 different rivers.

The clinical results compared with a sample of 50 histopathological exams have been satisfactory.

### CO93

A Health Education Intervention in Cuba to diminish the delay in diagnosis of leprosy.  
Vivianne de Rojas, Olenia Hernández, Reinaldo Gil.  
Institute "Pedro Kouri", Havana, Cuba.

Early diagnosis of leprosy is important to establish treatment, prevent disability and eliminate the patient as a source of infection. In a previous study we demonstrated that in 2 cities with different prevalence rates: Guantánamo (Gt) high and Havana City (HC) moderate, the diagnosis took longer in the latter due to a low index of clinical suspicion among primary health care (PHC) doctors (15.5 months HC, 5.5 Gt). In Gt the patients sought medical attention 5 months after the initial clinical manifestations while in HC they did so during the first month. These findings allowed us to design 2 different interventions: in HC to increase physicians index of clinical suspicion; and in Gt, to encourage the patient to seek medical care at the onset of symptoms. During almost 2 years we gave lectures, seminars and used participatory techniques with PHC doctors. We also utilized posters illustrating the first symptoms of leprosy. In Gt we used posters, leaflets, mass media and group dynamics to

spread 3 messages: leprosy is curable, leprosy is not contagious if the patient is under treatment and deformities are avoidable. We also developed a poster campaign with the aim of easy recognition of the first symptoms of leprosy. With every message we emphasized the need to seek immediate medical attention. In HC, the in Gt, the number of consultations for skin disorders were increased. This intervention also led to considerable gains in knowledge about leprosy among the people in the community.

### CO94

IMPLEMENTATION OF MDT IN A LOW ENDEMIC REGION  
AN OPERATIONAL STRATEGY

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One of the district in Kerala State, with a population of 10,70,629 (1991 census) has been taken up for this study. The literacy rate in this region is high. 45 PHCs, 2 LCUs and 2 ULCs exist in the district, but there was a GROSS deficiency of manpower in the leprosy centres.

A 2 days task oriented training in leprosy was instituted for staff of the PHCs and the existing vertical leprosy control programme. Facts about leprosy and a schedule of an extensive network of Skin camps spread out all over the region, were widely publicised through mass media and during a Rapid Enquiry Survey, during which PHC health workers were instructed to identify all suspected cases of leprosy.

The Survey was completed within 15 days, and 57.3% of the total population was contacted. Suspects were reviewed by a well trained medical team, at subsequent skin camps. 12,619 skin cases including those with Hansen's disease were screened and 603 leprosy cases were detected. 62% had active leprosy lesion and 38% had inactive lesions.

MDT was initiated on the day of screening. Further treatment delivery was entrusted to the PHC STAFF and DLO. This programme was completed within a period of two months.

This methodology may be adopted to implement MDT in uncovered low endemic areas, utilising the existing Primary Health Care facilities. However, the health staff may require further training. The cost effectiveness of this strategy is to be worked out.

### CO95

IMPACT OF MULTI DRUG THERAPY ON THE FIELD WORKERS IN  
LEPROSY AND THEIR FUTURE PROSPECTS.

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With the successful implementation of Multi Drug Therapy on a large scale the active case load has started falling drastically with this tool, leprosy eradication by 2000 AD seems to be a possibility. This is because of the sincere efforts put in by the leprosy workers with this goal in mind. All the same a sense of insecurity now seems to be creeping into the workers as to what would be their future with leprosy work coming down.

The Maharashtra Lokahita Seva Mandal is a Multi faceted organisation not only dealing with leprosy but also other projects like T.B. Control and Community Development aiming at serving the slum population with as much benefits it can offer. The paper discusses a Pilot Study where integration of a select leprosy workers was done in T.B., Community Welfare Schemes and Rehabilitation

This experiment has definitely boosted the confidence of the workers and helped in driving out the feeling of insecurity and giving them ideas about reaching newer horizons after their success story in Leprosy.

**CO96**

LUTTE CONTRE LA LEPRE AU ZAIRE 1987 - 1991

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Actuellement, la lutte contre la lèpre sur le terrain se fait grâce aux infirmiers des centres de santé et par les infirmiers des équipes spécialisées. Actuellement, notre stratégie repose essentiellement sur l'intégration de la lutte contre la lèpre dans les soins de santé primaire, et l'application de la polychimiothérapie (PCT) O.M.S. Cette approche va entraîner, nous en sommes convaincus une augmentation de la couverture du programme lèpre et de la PCT/O.M.S., deux piliers nécessaires à la réussite du programme lèpre.

En 1991, la couverture des activités antilépreuses était de 33%, cela veut dire que nous ne couvrons qu'un tiers du pays, et pourtant celle-ci était respectivement de 62% en 1988 et 61% en 1989.

Le départ massif de nos collaborateurs en 1990 et le retrait de l'appui de certains O.N.G. dans une bonne partie du pays ont conduit le pays à cette situation. La couverture de la PCT/O.M.S au Zaire en 1991 était de 53% et pourtant celle-ci n'était que de 7% en 1987 et de 27% en 1988. Ceci est donc le résultat de notre nouvelle stratégie de lutte contre la lèpre lancée en 1988.

**CO97**

EPIDEMIOLOGICAL CHANGES IN AN URBAN LEPROSY CONTROL PROJECT-15 YEARS OBSERVATIONS IN BOMBAY

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Leprosy control in metropolis and other developing cities in endemic countries, is becoming a major public health problem. Due to heterogeneity in socio-economic conditions with artificial living habits, health practice behaviour etc., the epidemiological trends in leprosy could vary from rural areas. No studies are yet available on impact of MDT intervention in metropolitan cities. A retrospective analysis of 15 years field data was undertaken in Bombay Leprosy Project with special reference to prevalence rate, new case detection rate, child rate, monolesion case rate, deformity rate and smear positive rate.

Between 1977 and 1991, a total of 11,062 cases were registered from a population of 1.8 million essentially from slum population in a well defined area in the city. Till 1981, patients were treated with dapsone monotherapy. Since 1982, all the new cases were brought under WHO-MDT. The following changes are observed before and after introducing MDT.

The active registered prevalence rate reduced from 17/10,000 to 6/10,000 population. However, the new case detection rate was ranging between 4/10,000 and 5/10,000 without showing an appreciable change. The child rate was ranging from 27% to 29%. Smear positive MB rate reduced from 12% to 8%. Though disability rate was showing a decline among new cases, the cumulative total showed increase. The implications of these observations are discussed.

**CO98**

SIXTY YEARS OF LEPROSY CONTROL IN SOUTH-EASTERN NIGERIA: THE UZUAKOLI EXPERIENCE

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Founded in 1932 as a settlement for lepers, the Uzuakoli leprosy centre was second only to Itu in an area which was "One of the most heavily infected regions in the world" (J.A.K. Brown 1960). The paper outlines the operational strategies adopted by the pioneer leprologists including Drs J.A.K. Brown, T.F. Davey and S.G. Brown from the 30's through the 60's in combating the seeming epidemics.

Sixty years and many developments later, we review the leprosy situation in Imo and Abia States- two states in the area which have all along maintained reasonable control services disrupted only by the Nigerian civil war. The paper presents and compares prevalence figures, case detection rates as well as proportion of diseased children and reaches the conclusion that the WHO elimination goal is feasible in this area. More importantly the figures indicate a decline in the rate of transmission of infection in the community. Several factors in our view contributed to this welcome development. These include the segregation villages, the sulfone era, 100% MDT patient-coverage as well as high and increasing BCG coverage. Finally, the paper turns attention to a very important issue: ways and means of consolidating and sustaining the gains so far made. The following approaches are proposed: (a) Functional integration through 'empowerment' of general health staff. (b) Renewed vigour in public awareness activities to further reduce stigma and encourage community participation. (c) To encourage committed and dedicated individuals to form indigenous Non-governmental organisations (NGO's)

**CO99**

EXPERIENCES WITH EVALUATION OF LEPROSY CONTROL

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Experience has been gained in the evaluation of more than 30 leprosy centres in over 10 countries in Africa, Asia, the Far East and the Western Pacific regions. The different methods used in evaluation include questionnaires, field visits and sample surveys. The evaluation covered epidemiological aspects both descriptive and analytical, operational and organisational/administrative/economic aspects.

Disease patterns and secular trends over periods of time were also studied in high and low endemic regions in relationship to period after MDT was implemented and MDT coverage.

It was seen that the functioning of the traditional indicators depended considerably on the methodology used in leprosy control and traditional interpretations of these indicators can be misleading.

These issues are analysed and presented in the paper.

**CO100**

CHANGE IN LEPROSY PROFILE IN A HYPER ENDEMIC BOMBAY SLUM OVER 15 YEARS

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At the 11th International Leprosy Congress, Mexico City, we presented (Ganapati et al, 1978) the challenges posed by leprosy in an overcrowded Bombay slum with 3812 population. Our subsequent efforts at leprosy control in urban slums including leprosy colonies (Ganapati et al 1989) indicated that although a leprosy colony concentrates huge reservoir of infection, it was relatively easier to achieve success in reducing the quantum of infection, the same degree of success was not possible in a vast slum with 80,000 population, due essentially to logistic difficulties.

We report here the radical change in the leprosy profile assessed through survey in a slum with about 3000 to 4000 population referred to above over a period of 15 years.

Year	Fami lies	Enum visi tion ted	Exam ina tion	% Exa tion mined	Cases PB	Total MB Cases (+ve)	PR**
1977	729	3812	3178	83	68	11	79
1992	801	4113	3653	89	4*	Nil	4

\*All 4 patients had monolesions and had migrated from other slums \*\*PR: Prevalence expressed as Rate per total slum population enumerated.

This transformation was brought about by promoting attendance of all the patients in the slum at a nearby "integrated" clinic and a special drive made to reach treatment to infectious reservoirs in the community through adequate training of staff. Rapid increase in the population density in large urban slums posing logistic problems is the crucial factor in overcoming leprosy transmission.

### CO101

PRELIMINARY EVALUATION TO MEASURE THE FUTURE EFFECTS OF DECENTRALIZATION ON THE CONTROL OF HANSEN'S DISEASE IN THE METROPOLITAN REGIONAL AREA OF BELO HORIZONTE, MINAS GERAIS-BRAZIL FROM 1990 TO 1992

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The authors discuss some of the epidemiological and operational aspects in the detection of new cases of Hansen's disease in the metropolitan region of Belo Horizonte, Minas Gerais, Brazil. Changes are discussed in relationship to the municipalization and decentralization of health services which started in 1990.

The use of this preliminary evaluation is a baseline for measuring the future impact of training health care workers and decentralization of HD control in the municipality of Belo Horizonte.

### CO102

CONTROL AND ELIMINATION OF LEPROSY  
A RURAL/URBAN STRATEGY ANALYSIS

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Control and elimination are not synonymous. The two terms indicate two phases of activities towards eradication of the disease. Multi Drug Therapy is no doubt essential for the control and elimination of leprosy in rural and urban settings. However, there are some varying factors needing attention.

This analytical study covers a population of 10 million in 5 urban and 5 rural leprosy control projects situated in endemic regions in India. Findings are as follows:

- Varying socio economic conditions of the population have a direct influence on the incidence of leprosy. On analysing the cases detected it was found that the cumulative case detection rate was 8.4%<sup>oo</sup> in urban and 1.8%<sup>oo</sup> in rural areas.
- It was observed that the urban/rural case load per worker though differs numerically (75 and 14) the work load is found to be similar since the rural workers have to cover a larger area for better case holding.
- It was found that the coverage of the population examination was found better in rural in comparison with the urban areas.

The strategy of Survey, Education and Treatment holds good for Urban as well as Rural areas.

### CO103

LEPROSY ERADICATION PROGRAMME IN METROPOLITAN CITIES : A CRITICAL EVALUATION

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Rapid industrialisation and population migration to urban areas in search of job opportunities has shifted a sizable leprosy problem to these

areas, which demand for an urgent need for tackling it effectively to make the goal of leprosy eradication a success. A retrospective analysis of an Urban Leprosy Centre data with a large attendance of new and follow-up patients from a pre-MDT year (1983) is compared to three-year MDT period (1989,1990,1991) and its impact on various aspects of the disease-pattern are studied.

The observations reveal that the total clinic attenders per annum have increased (1983-332, 1989-480,1990-435,1991-440). PB leprosy has shown an upward trend(1983-48.2%,1989-54.0%, 1990-57.5%, 1991-58%)while MB has gone down. Childhood leprosy has nearly doubled and deformity rate has remained static. The most depressing aspect is that only 20% patients take treatment regularly. Number of patients coming from an endemic state have registered an increase from 14.1% to 31.3% showing a cause for concern in the matter of implementation of the MDT programme. The implications of these findings are discussed and a coordinated plan of action is suggested for effectively combating the problem of leprosy in these areas.

### CO104

A TRIAL BASED ON PGL-I SEROLOGY FOR LEPROSY CONTROL. PRELIMINARY RESULTS.

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The trial area is the city of Trinidad, Cuba, and 2 other small neighbor villages with an estimated population of 46000 inhabitants. The number of leprosy patients registered on 31 December 1992 was 69 for a prevalence rate of 1.5 per 1000. Leprosy cases have been detected every year in the last decade. This city is being used as a pilot area to test a control strategy based on PGL-I serology which consists in performing serological tests by ELISA to the whole population above the age of 9 years as well as clinical examination, lepromin and bacteriological tests and follow-up of those showing anti-PGLI antibody levels above the cut-off value which was established at an O.D.=0.200. The administration of chemoprophylaxis to some of these individuals is included in the follow-up scheme. The interest in testing this strategy is based on the expectation of finding actual and potential *M. leprae* "transmitters" which would lead to an earlier administration of chemotherapy and of chemoprophylaxis and, in this way, to an effective cut of the chain of transmission. To date, 10848 individuals have been tested for PGL-I antibody. Of them, 660 (6%) showed O.D. readings higher than 0.200 and, among these, readings higher than 0.500 were observed in 43 (0.39%) individuals. Results of the serological tests performed on the whole study population as well as of the clinical examination, bacteriological and lepromin tests on seropositive individuals will be presented.

### CO105

LEPROSY CONTROL PROGRAM IN SANTA FE PROVINCE, ARGENTINE REPUBLIC: RESULTS AFTER 30 YEARS

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The Leprosy Control Program in Santa Fe Province was launched in 1962. A partial evaluation after 30 years leads to the following conclusions:

Epidemiological facts: (1) The geographical distribution is uneven, with major prevalence in the northeastern zone (6,6 per 10.000 population); (2) A

progressive decline in the incidence has been documented during the last 20 years; (3) Two facts have been observed in association with the falling incidence rates: an increase in mean age at onset (44/52) and an increase in the proportion of multibacillary forms among new cases (43%/64%); (4) There is a high proportion of cases (83%) without any antecedent of infective contact; (5) Intrafamilial transmission is higher among consanguineous contacts. It suggests the importance of genetic factors; (6) The disease in the zone is not at all associated with poverty.

Operational features: (1) Selective integration is being implemented in highly endemic areas; (2) MDT has been introduced since 1982. The current coverage is about 45%; (3) A high percentage of cases is under private assistance (44%). This sector is not yet adequately integrated; (4) Case holding, defaulters retrieval, training of personnel and research have been so far the main activities of the Program; (5) Active case finding activities have been somewhat neglected and are still to be reorganized.

### CO106

LONG-TERM EFFECT ON PATIENT DETECTION AFTER 30 YEARS OF LEPROSY CONTROL IN PREFECTURES OF TWO PROVINCES IN CHINA, 1980-1992

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Weifang of Shandong and Wenshan of Yunnan were highly prevalent for leprosy in the 1950's. Due to differences in geographical condition and socio-economic development, the decline of prevalence is 99.3% (0.9 - 0.006/1000) in Weifang and 93.7% (1.42 - 0.09/1000) in Wenshan; the decrease of detection rate during this period in Weifang is 99.9% (23.6 - 0.005/100,000) and 91.7% (69.9 - 5.8/100,000) in Wenshan. The endemicity of leprosy in Wenshan appears to be still in the level of 1960's of Weifang. The features of patients detected between 1980-1992 of these two prefectures will be presented, their differences and solutions discussed.

### CO107

A BENEFICIARY STUDY OF LEPROSY SERVICES AMONG THE TRIBAL AND NON TRIBAL POPULATION IN THREE SELECTED DISTRICTS OF MADHYA PRADESH, IN INDIA.

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The tribal population constitutes 7.7% of India's population. In the selected leprosy endemic districts the tribal population is 18.5% in Raipur, 12.6% in Durg and 25.3% in Rajnandgaon. A beneficiary study of leprosy services conducted in the above three districts indicate that the prevalence rate of leprosy and Annual New Case Detection Rates are less among tribal community compared to the non-tribal community in all three districts. The awareness of both tribal and non-tribal community is good in general regarding curability of the disease, availability of the treatment at the nearest place, visits of the leprosy workers to the villages and activities undertaken by the workers in the villages. 80-100% of the patients are taking treatment regularly and 91-100% of the patients are living with their families. While level of leprosy awareness in general is slightly less in the tribal people in Durg & Rajnandgaon districts in comparison to non-tribals, this gap is wider in Raipur district. This may be due to intensive health education campaign conducted in

Durg & Rajnandgaon districts by DANIDA assistance. Both tribal & non-tribal community members & patients have inadequate knowledge and awareness about cause of leprosy. Although majority of tribal and non-tribal people say Allopathy is the best treatment available for leprosy (84-100%), a small percentage of people still feel Ayurveda and Homeopathy as better remedy for leprosy. Women in tribal areas & girl students in both tribal & non-tribal areas are less aware about leprosy compared to the male groups of the same villages/schools.

### CO108

SELF-ASSESSMENT TOOLS IN MONITORING OF LEPROSY CONTROL PROGRAMMES.

Henk Eggers

Leprosy Control Programmes collect, analyze and report with different purposes and in various manners. Most Leprosy Control Programmes stress reporting upward toward a higher hierarchical level. The new ILEP-B form and the proposed WHO-surveillance report are examples of reporting tools. In addition, importance should be given to methods of self-assessment of intermediate and peripheral levels of the Leprosy Control Programmes, for two main reasons: expected increase of management capability and improved quality of data collection.

Epidemiological indicators can be used (such as defined in the reviewed ILEP-B form), but also essential operational indicators, necessary to monitor programme support activities (such as logistics, training).

Self-assessment is done comparing indicator values of Leprosy Control Programme units (eg clinic, district, province or national level) in three ways:

1. With a set target or a range;
2. In time (comparing the unit now with earlier periods);
3. In place (comparing this unit with other units).

Self-assessment tools facilitate this comparison by forcing the transformation of data into interpretable information.

Typically this implicates:

- 1: Transformation of data into proportions or rates. Where it is useful, proportions of targets reached are used.
- 2: Presentation of information in tables and graphs.

Possible standard formats are proposed, some of them to be used in conjunction with the current ILEP-B form. The inclusion of the use of these tools in management protocols is stressed.

### CO109

ANALYSIS OF 1096 NEWLY REGISTERED CASES OF LEPROSY FOUND IN JIANGSU PROVINCE, CHINA

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ABSTRACT 1096 cases of leprosy newly detected in Jiangsu province from 1983 to 1987 were analysed and compared with those from 1976 to 1979. The results showed that the incidence of leprosy during 1983 to 1987 decreased by 64.8% compared with that during 1976 to 1979, of which the proportion of lepromatous leprosy increased and the proportion of children declined. The early detection rate increased and the diagnosis level improved. Voluntary reporting, reporting by non personnel and consulting as the outpatient department for leprosy, the three ways became the main approach of case detection. The average interval between the time of making diagnosis and the time of starting treatment was eight days. 99.62% of patients accepted treatment, and stadium shortened. These data proved that the leprosy control activities in Jiangsu province were successful and effective.

**CO110**

FIVE-YEAR EVALUATION OF A PROGRAM OF CHEMOPROPHYLAXIS FOR LEPROSY USING A SINGLE DOSE OF 25 MG/KG RIFAMPIN

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In January-February 1988, a program of chemoprophylaxis for leprosy was implemented in French Polynesia: 2,786 (98.7%) inhabitants of the Southern Marquesas, a remote archipelago, and 3,144 South Marquesan "emigrants" in other islands and their families were given a single supervised 25 mg/kg dose of rifampin within 4 weeks.

During the subsequent 5 years (February 1988-February 1993), 2 leprosy patients were detected in the treated population (instead of 8 expected patients if no chemoprophylaxis were given), the first, 4 months and the second, 21 months after chemoprophylaxis, respectively. In addition, a case of lepromatous leprosy was observed in a South Marquesan "emigrant" who had not been given prophylaxis because he was not known by the leprosy control unit.

During the same period, a decrease in detection rates for leprosy in the entire population of French Polynesia has been observed, which makes difficult the interpretation of findings. Nevertheless, according to our present data, the effectiveness of chemoprophylaxis with a single dose of 25 mg/kg rifampin may be estimated at 50%.

Those results, and the financial and logistic constraints raised by such a program (in which entire eligible population could not be included despite careful preparation), lead us to conclude that chemoprophylaxis, even with a single dose of rifampin, cannot be considered for leprosy control.

**CO111**

THE REASONS WHY LEPROSY IS DIFFERENT IN ERITREA WHEN COMPARED TO THAT OF ETHIOPIA

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Leprosy in Eritrea is almost dying and we have very few patients when compared to that of Ethiopian patients. The indigenous leprosy patients in Eritrea are of majority lepromatous while that of Ethiopia are more of tuberculoid type of leprosy. The incidence of leprosy in Eritrea is 0.002/10,000 of the population and while that of Ethiopia is 0.9/10,000. In Eritrea no patient is discharged from treatment, but after completion of MDT the patients are put on dapsone monotherapy for life even the practice of keeping patients on the register did not increase the number of patients more than that of Ethiopia patients. The prevalence of leprosy in Eritrea is 0.04/10,000 and that of Ethiopia is 50/10,000 of the respective population.

Now Eritrea is facing the challenge of organizing a combined control programme of leprosy and tuberculosis in such a way that the programme will be integrated to the basic health services under the district health management.

The above points will further be discussed in detailed.

**CO112**

PREDICTIVE VALUE OF GELATINE PARTICLE AGGLUTINATION TEST (GPAT) IN LEPROSY CONTROL

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GPAT using semi-synthetic trisaccharide antigen (manufactured by FUJIREBIO INC, Japan and provided by WHO) has been applied to 1,030 apparently nor-

mal people, including 680 household contacts and 350 people living in areas exempt of leprosy.

After 4 years of following-up (1988-1992), some interesting conclusions have been made by the authors:

1. GPAT was positive in 20% of household contacts as compared to only 3.1% of apparently non contact people.

2. Among 135 household contacts showing positive GPAT, 17 have developed leprosy after 4 months to 3 years (12.8%), while among 884 people with GPAT negative, none (0%) has developed the disease during the same period.

3. Of these 17 cases, 16 (94%) belong to PB group (I, T, BT). Only one case who had very strong reactivity has developed L type of leprosy.

4. In children under 15 years, a high titer of antibodies constitutes a valuable indicator of high risk in developing the disease: 63.1% of them developed clinical leprosy within 3 years period, while it was only 7.7% in adults.

5. 100% leprosy patients' children showing GPAT positive at serum dilution of 1:64 or over, have developed leprosy.

In conclusion, GPAT can be used in field conditions as a practical tool for early diagnosis and assessment of leprosy epidemiological trend, and also as an indicator for chemoprophylaxis.

**CO113**

PRELIMINARY EXPLORATION OF LEPROSY RELAPSE SURVEILLANCE WITH IMMUNOLOGIC ASSAYS

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This paper describes the use of serologic (GPAT, PGL-ELISA) and lepromin tests as a screening procedure for the detection of suspected cases, and for the follow up of clinical relapse. Since 1989, 1,658 cured cases were screened in Weifang Prefecture, Shandong Province and the combination of PGL-IgM (+) and lepromin (-) was assumed as a risk factor for relapse. The results showed the positive risk factor in cured cases was 24.6% (174/707) for MB and 3.9% (37/951) for PB. During 3 successive years of follow-up, it was found that the relapse rate of risk factor (+) was 9.8% (17/174) for MB and 16.2% (6/37) for PB. The total relapse rate of risk factor (+) was 11.0% (23/211), whereas the relapse rate was only 0.28% (4/1447) in the 3 other combination groups. The relative risk of risk factor (+) was 39.5.

The result of screening reflects immunologic status in cured cases after chemotherapy. PGL-IgM level tends to subside and there is a ability to restore cellular immunity with the passing of years after cure in MB cured cases. The negative correlation between the levels of PGL-IgM and intensity of lepromin reaction suggests that the combination of these two tests may not only indicate the capability of eliminating M. Leprae but also provide a practical tool for screening cases in risk of relapse. The majority of cases with clinical evidence of relapse had high PGL-IgM. It is to be noted that 5/7 relapses had rising PGL-IgM in 3 successive years prior to relapse, whereas in PB relapses no rising of PGL-IgM level was detected. Hence, cured cases with high PGL-IgM level or rising PGL-IgM in successive years but without evidence of clinical manifestations should be monitored carefully in order to detect relapse early.

**CO114**

BASIC ELIMINATION OF LEPROSY IN SHANGHAI, CHINA

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Shanghai, the biggest city of China, covers an area of 6,185 square kilometers with a population of over a 12 million. By the end of 1991, the accumulative number of leprosy patients diagnosed was 5,424. Exclusive of those who died, migrated and lost of track, there were 3,136 patients who remained on the register, including only 29 active cases. The prevalence was reduced to less than 0.01% and the mean annual incidence of the period of recent five years was declined to less than 0.5/100,000 on county or district

bases since 1988 and were confirmed by experts from MOPH after their 10-day field evaluation.

In the past 40 years, under the leadership of the government and the support of the whole society, leprosy control programme has been implemented successfully and fruitfully in Shanghai by leprosy professionals at different levels. Systematic health education activities for the public, continuous training of health workers of different categories, early case detection through various methods and timely treatment of patients, including the provision DDS-cured patients with re-treatment with MDT, and development a well-organized health care network at different levels in particular, were main components of the comprehensive measures set up by leprosy control programme. Together with the improvements of the standard of living of the people and their health care services, the implementation of above mentioned comprehensive measures resulted in progressive reductions of prevalence, incidence and detection rates to 0.0023%, 0.02/100,000 and 0.02/100,000 respectively in this big city at the end of 1991.

### CO115

AN ANALYSIS OF 392 LEPROSY CASES NEWLY DETECTED IN 1985-1991 IN SOUTH-EAST PREFECTURE OF GUIZHOU PROVINCE

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In 1985-1991 392 leprosy patients newly detected in South-East Prefecture of Guizhou Province were analysed. Two hundred and fifty five of them were MB (LL 193, BL 30, BB 32) and 137 were PB (BT 20, TT 106, I 11), males 258, females 134, their age ranged from 6 to 78 (11 of them less than 14). One hundred and ninety seven cases (50.26%) detected had a duration of 2 years, 63.77% of them came from the villages which had leprosy patients previously and 86 of them from patients' family. Regarding the mode of case detection, 234 cases (59.69%), 86 (21.94%), 25 (6.38%) and 47 (11.99%) were found through or by clue survey, household contact examination, patients' neighbour examination and skin clinics respectively. The disability rates among newly detected patients were 30.6% (1985), 22.6% (1986), 21.6% (1987), 20% (1988), 18.51% (1989), 13.3% (1990), and 12.6% (1991). The authors emphasized the importance of: 1) not neglecting the population of non-focal villages because there were 132 new cases detected in the past 7 years; 2) intensifying health education to the general health workers and to the community to keep them more aware of early signs of leprosy.

### CO116

EPIDEMIC AND CONTROL OF LEPROSY IN TIBET

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Leprosy is an old disease in Tibet. It has a long history of more than 1,400 years. From 1952 to 1991 there 3,431 leprosy patients were detected and 2,160 cases were cured. By the end of 1991, the number of active cases was 868 and the prevalence rate was 0.4 per 1000 was one of the most high epidemic area in China at that time.

The distribution of leprosy in Tibet is not uniform. In the east and south-east parts of Tibet are high epidemic areas. In the north and west parts are low and/or non-epidemic areas. The other parts are middle epidemic areas of leprosy.

There are 72 counties in Tibet. By the end of 1991 there 33 (45.8%) counties had no active cases of leprosy and the leprosy was controlled in these counties. But there were 6 counties still in the range of high level of epidemicity and the prevalence rate was over 1 per 1000.

Since 1987 the multidrug therapy (MDT) recommended by WHO was implemented in the places of Tibet where leprosy patients had. By the end of 1991 the coverage rate of MDT was over 90% and the most of the patients were treated regularly.

The problems of leprosy control in Tibet are difficulties of transportation, lack of medical and financial resources. Because Tibet has an area of 1.2 million square kilometers with a total population of 2.1 million. If these problems could be solved the possibility of basic eradication of leprosy in Tibet by the end of this century would be able to realize.

### CO117

THE ANALYSES OF DELAY FOR 19472 LEPROSY CASES IN YANGZHOU PREFECTURE, CHINA

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The median of delay in 19472 cases is 1.9 year (23.3 years with 95% upper limit and 37.3 years with 99% upper limit). The shorter delay, i.e. median less than 2 year, is observed with the following case-finding methods: dermatological clinics, group surveys, contact examination, voluntary and notification. General surveys have the longest delay (median > 5 years). The TT and LL cases have longer delay (> 2.2 year) and BB shorter delay (< 1 year). The delay in females (2.0 year) is significantly longer than in males (1.8 year, 0.05 > p > 0.01). The results show that earlier case-finding may be important for prevention of deformities, ulcers and keep patients' ability to work. The older patients in 45 and 65 age group have the longest delay (> 4.2 year). Recently the delay has been shortened. The cases detected in the first two years represent 80% of all cases and 99% of the cases detected within 10 years since 1985. The study suggests that the health education and popularizing knowledge of leprosy may improve case-finding in the early stages of the disease. At present more than 80% cases are detected by dermatological clinics, general hospitals and basic health units. As a consequence integrating leprosy control within general health care should be strengthened in order to detect more leprosy cases in the early stages. Case-finding can be accepted as early if a case is detected within 2 years of onset and if deformities are less than grade II.

### CO118

HANSEN'S DISEASE AND ITS ELIMINATION

Maurice J. de Mallac

The term elimination enjoys, as it were, quite a Janus-faced perspective in the case of Hansen's disease. Thus, the decision of the 44th WHA attendant to "the global elimination of leprosy as a public health problem by the year 2000" bespeaks an 'outward' political pronouncement as strikes a familiar chord in line with the slogan "Health For All by the Year 2000" of the previous decade, grave doubts being, incidentally, entertained from many quarters as to the timely implementation of the latter.

As regards the 'inward' perspective, is one naive enough to believe that eliminating Hansen's disease in a given region from a public health standpoint would, by the same token, remove stigma, solve the magnitude of disability and/or deformity, facilitate the social re-insertion of patients in its integrality?

The danger that the connotation elimination be taken at its face or 'outward' value is all there, while the 'inward' consequences of Hansen's disease be left to their own devices. Moreover, one cannot from an epidemiological viewpoint speak of eliminating Hansen's disease when its control, the root and bark of the whole issue, demands that it be carried out to its all-round conclusions over, more likely, decades to come. Shouldn't it be more appropriate, then, to delete that rather misleading term elimination, since, however unwittingly, underpinning the central perception of Hansen's disease as underplaying the complexities of its realities as has been observed elsewhere?

**CO119****AN IMPAIRMENT SCORING SYSTEM**

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For the purposes of evaluation of disability control activities in a leprosy programme it is important to monitor year to year change in levels of impairment in numbers of present and former patients in a district. In this paper an impairment scoring system suitable for the purpose is described.

Some uses of impairment scoring are:

1. To draw attention to inconsistencies in the recording of impairment and thus to any need for retraining of staff in recording skill. For example, staff may have illogically recorded that toes have regrown or that sensation lost for 20 years has recovered.
2. To identify any patients losing or regaining sensation or strength, and to monitor both the extent of change and the effect on nerve function of neuritis treatment.
3. To assess the effectiveness of self-care in patients with insensitve limbs through monitoring year to year change in the prevalence of wounds, cracks and bone loss.

Activities can also be scored, for example the category of protective footwear each patient is using at review or the duration and starting dosage of Prednisolone courses.

Examples are given of the application of impairment scoring in various countries and projects. A demonstration computer programme, based on scoring, is described.

**CO120****EVOLUTION OF THE LEPROSY ENDEMICITY IN BENIN (1982-1992)**

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- 3: Direction Nationale de la Protection Sanitaire, Cotonou.
- 4: Association Française Raoul Follereau (A.F.R.F.).

With the generalization of new combined treatments (PCT), the leprosy endemity has been declining considerably since the 1980's, particularly since 1988. Recently (1992) the prevalence has been estimated at 0.22 p.1000 versus 3.18 p.1000 in 1986.

Presently 1,429 patients have been enrolled (MB: 39.7%, PB: 60.3%). Among them 8.6% are children under 15 year of age.

As far as case-finding is concerned, new cases have been increasing from 541 in 1986 to 1,023 in 1992, due to systematic active case-finding in the neighbourhood of MB patients. Among new cases, 23.5% are MB patients and 11.9% are children under 15.

New regimen is presently available within the whole country and coverage is 100% on Dec. 31, 1992.

Compliance to treatment is 95% and regularity to PCT 97%. Integration of leprosy control activities in the primary health care structures has been achieved. All health agents have been trained or retrained between 1990 and 1992, thank to A.F.R.F. These two factors are responsible for the good results notified since the last 5 years by the national program of leprosy control.

**CO121****LEPROSY AND CHILDREN: FUTURE PERSPECTIVES**

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With the effective MDT programme for leprosy control in India the prevalence rates are declining. The child incidence rate appears to be high i.e. around 13 per cent of the total number of patients. Review of literature indicates a variety of issues involved in leprosy among children ranging from clinical, epidemiological, psychological and rehabilitation aspects.

With the time bound goal of elimination of leprosy as it affects children is of significance. The issues under discussion are:

- (a) case finding methods for approaching each and every school going and out of school child,
- (b) labeling of child cases in view of possibility of self healing leprosy in the context of social stigma,
- (c) ratio of PB & MB cases among children and its implications from control
- (d) primary health care approach and integration of case finding methods with other MCH services,
- (e) need for epidemiological studies,
- (f) role of NGOs,
- (g) problems of street children
- (h) social mobilisation.

Published review of literature and unpublished proceedings of a National workshop on leprosy and children in India will be presented.

**CO122****LEPROSY CONTROL PROGRAMME IN LORETO REGION, PERU. OCTOBER 1990 - MARCH 1992**

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UDES LORETO/Hospital Regional Loreto/Hospital de Iquitos.

The LCP in Loreto was reactivated in Iquitos (The capital city) and the provinces of Ucayali and Requena, while maintained in the province of Alto Amazonas. Theoretical and practical training courses were delivered to health auxiliaries and 3 nurses in the region. An active search for leprosy patients started in Ucayali and Requena, combine the rural area nouse by house with local health personnel. Patients were treated with WHO recommended regimens.

A total of 22,338 persons were examined and 52 new leprosy cases were found, 20 PB and 24 MB. From these, 19 were from Ucayali, 18 from Requena, 9 from Alto Amazonas and 6 from Iquitos. Additionally, 62 old leprosy cases were readmitted to the LCP. Prevalence rates for leprosy were 4.5/1000 in Ucayali and 2.1/1000 in Requena. By the end of the period there were 324 patients under control (127 PB, 197 MB), 184 receiving treatment and 140 under surveillance.

The LCP in these areas has been reactivated and the active search has been performed by local paramedical health personnel (from the official health system), who additionally gave support to other health problems, within a Primary Health Care approach. According to WHO standards, observed prevalence rates for leprosy in these areas, represent a public health problem. (These paper was financially supported by Red Barnet-Danmark)

**CO123****SOME POINTS ON THE ELIMINATION OF LEPROSY**

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To make it possible to monitor adequately the WHO Resolution to eliminate leprosy, some basic concepts and indicators should be further clarified.

1. **Prevalence.** In some MDT programmes, the reduced number of registered cases is not necessarily due to MDT. It is the result of removing from the registers those patients who had been cured but who, prior to MDT, had never been removed from the registers. The extent of this problem and its causes should be investigated.

2. **Distribution.** Because of the well-known uneven distribution of leprosy, it seems necessary to clarify the level of population to be used as denominator to monitor the decrease in prevalence and incidence rates (e.g. total population of a country? Only the population of endemic areas?).
3. **Incidence.** Decreasing incidence is the only true indication of progress towards elimination. Reports from a number of countries show declining incidences following MDT programmes. It is essential to assess the real impact of MDT and other factors in these situations.

The points outlined above will be discussed along with some other relevant issues (definition of cure, under detection of cases at the maintenance phase of MDT programmes, and problems in "difficult areas").

It should be possible to agree on standardized concepts and indicators to allow adequate monitoring of progress in the elimination plan. The demonstration of progress would in turn be a great stimulus for those engaged in this effort.

## EPIDEMIOLOGY

### EPI

THE STUDY OF APPLYING TWO-STAGE CATALYTIC MODELS TO COMPARISON BETWEEN LEPROSY AGE-SPECIFIC PREVALENCE RATES

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The Two-stage catalytic models can be used to simulate the distribution of age-specific prevalence rates of some infectious diseases and age-specific positive rates of some indicators, to measure their "force of infection" and "force of eliminating disease". It is certainly significant for researching and evaluating the prevalent features of infectious disease and the effect of the disease control programme. In this paper the author uses an improved two-stage catalytic model (LogTCM) developed by the author which is transformed in an equation to simulate age-specific prevalence rates of leprosy in Yangzhou Prefecture in 1985 and to analyse the results in comparison with 1975. The results of the study confirm that the parameters "a" and "b" in the model represent the force of infection and the force of eliminating disease respectively, by vertical section of leprosy endemic situation and leprosy control. By analysing and comparing the practical leprosy prevalence rates and the parameters of the catalytic model, it becomes clear that the prevalence rates are positivity related to parameter "a" and inversely related to parameter "b" and "k"(a/(a-b)). Catalytic models may be used to fit and analyse the epidemiological data in various periods, regions or populations.

### EP2

EPIDEMIC SITUATION OF LEPROSY AFTER MDT IMPLEMENTATION AND PREDICTION OF BASIC ERADICATION IN YANGZHOU PREFECTURE

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Yangzhou Prefecture of Jiangsu Province was one of the former leprosy hyper-endemic area in China, which had once the highest prevalence rate of 1.88% in 1973. Since 1983, all the active cases were treated with MDT recommended by WHO. At the end of 1990, 1176 (MB 621 and PB 555) patients have been treated with MDT. Through the comparative analysis of the theoretical endemic indicators of 1983-1990 calculated by the mathematical models of DDS mono-therapy (1973-1982) and the actual indicators, the results showed that the detection and prevalence rates after MDT were usually higher than the theoretical ones (difference between theoretical and observed values,  $\Delta Y > 0$ ) and  $\Delta Y$  values declined significantly after 1989, moreover  $\Delta Y$  was less than 0 in some counties. However, the incidence rates of leprosy after MDT introduction were lower than the theoretical rates calculated, which means the effect of MDT on epidemiology would be presented significantly in 5 years. The time trend of this area have been fitted with the exponential function models ( $Y = e^{bt}$ ) with  $b < 0$  and  $R^2 > 0.8558$  except one county with  $R^2$  of 0.6027.

Through the results the authors suggested that the short-term endemic situation of leprosy can be predicted using the mathematical models fitted by the complete date of past years. The prediction results showed that leprosy will be basically eradicated by 1997 in Yangzhou Prefecture.

### EP3

MEASURING EPIDEMIOLOGICAL IMPACT OF MULTIDRUG THERAPY IN LEPROSY CONTROL AREA

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Given the increased acceptance of MDT and greater political commitment, there are great hopes that the transmission of leprosy could virtually be stopped over a period of time. However, the expectations have not been fully realised, perhaps because the epidemiological impact depends on several other host and environmental factors that need assessment and proper management.

MDT has been in vogue for over a decade in Gudiyatham Taluk (400,000 population) and its epidemiological impact is measured through annual screening of a sample population. Leprosy newly found among those normal in the previous year are labelled as incident cases and other new cases discovered in the area considered case detections. During the decade, deaths, births and migrations have resulted in qualitative and quantitative changes in the population under study. These have been carefully monitored and documented. Using actuarial methods and Cohort analysis, as well as linked cross-sectional data, the epidemics of leprosy within geographically defined areas and time-trends in incidence of leprosy are determined and associated with relevant factors. After substantial initial declines, current rates are around 1/1000 with no further significant reductions. Possible reasons for this scenario and implications for future reductions are discussed

### EP4

ASSOCIATION OF LEPROSY AND TUBERCULOSIS BETWEEN 1902 AND 1991 IN FRENCH POLYNESIA.

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From 1902 onwards, notification and lifelong follow-up of leprosy patients has been systematic in French Polynesia. Since