in conbination. As those changes have taken place, the leprosy control programme in Guangdong province has reached a big achivement.

The mode of case detection was quite different now. Between 1970-1987 years, most of new cases were detected by mass survey and notification, only a few cases were detected through skin diseases clinics and by self reporting. In the last 15 years, 62.07% of new leprosy cases were detected through clinics, 23.5% by self reporting, and only 2.1% by household contacts survey. Most of new cases were detected in time and treated at early stage. In the period of 1983-1987, 3 009 new leprosy cases were diagnosed, the number of new cases detected in the second 5 years of 1988-1992 was only half of the first 5 years. The total number of newly detected cases in the last 15 years obviously decreased than before. At present, most of cities in Guangdong province have reached the China's criteria of basic erdication of leprosy. Incidence of children with leprosy was also significantly lower than before, only 145 cases were detected in the last 15 years. The average annual children incidence was less than 0.001%, showing that the infection of the disease has been basically controlled.

Relapse has been the main trouble for DDS monotherapy. The number of relapses after cure has increased gradually from 1983 to 1996 with a proportion as high as 21.27% among the newly registered cases in 1989 and an average proportion of 15.91% in the last 15 years. Majority of relapsed cases were cures with DDS monotherapy. Since 1988, thousands of leprosy patients have been cured by MDT. Up to now, only 3 relapses were detected. The authors recognized that MDT has been proved effective in reducing the number of relapses and consequently very helpful for eradication of leprosy in China.

CO112

EPIDEMIOLOGY AND CONTROL OF LEPROSY IN FUJIAN PROVINCE
CURRENT STATUS AND FUTURE PROSPECTS

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On the basis of every known patient's history record, space-time-population clustering data and epidemic characteristics of the disease in Fujian province of the past forty years (1954-1996) were analysed. At the same time, the number of counties in Fujian likely reaching the goal of basic eradication of leprosy by the end of 1998 was predicted.

By the end of 1996, 28 951 leprosy cases (MB: 9 365; PB:19 586) were diagnosed with a sex ratio of 2.72 and an average age at onset of 32.74 ± 15.49. Prevalence, incidence and case detection rates decreased as time goes on, but the speed of the decline of the above three rates increased gradually.

With a comparison of the data of the periods of 1975-1984 and 1985-1994, the proportion of newly detected patients with an average disease duration of less than 2 years increased from 44.75% to 57.8%, disability rate of the new cases dropped from 22.77% to 13.33% and average age at onset increased. More and more high or medium endemic counties have become low endemic areas. All of these demonstrated that leprosy has been effectively controlled in Fujian. However, there are still many patients cured with DDS monotherapy, possible relapses among them should be given more attention. Furthermore, the proportion of MB patients amongst active cases went up as high as to 97% in the period of 1990-1995, which was only 65% in the period of 1985-1989, indicating that source of infection still remain in the society.

The authors suggested that: 1) health education should be carried out contineously; 2) early detection and prompt and regular treatment should be intensisfied and reached to every patient in need of chemotherapy; 3) In order to timely detect relapsed cases, follow-up of cured persons affected by leprosy also should be carried out regularly.

It was estimated that the China's criteria of basic eradication of leprosy could be reached in 97.5% of all counties in Fujian province by the end of 1998.

CO113

- PROPOSE OF NITERÓI TO ELIMINATION OF LEPROSY BY THE YEAR 2000.

THE MUNICIPALITY OF NITERÓI HAS THE FLUMINENSE FEDERAL UNIVERSITY, SIX "SANITARY DERMATOLOGY" TREATMENT CENTERS, AND TWELVE FAMILY CARE UNITS (GENERAL PRACTITIONERS THAT WORK DIRECTLY WITH POOR COMMUNITIES). NITERÓI WAS THE PIONEER IN DECENTRALIZING ITS MUNICIPALITY. TRAINING GENERAL PRACTITIONERS TO DIAGNOSE AND TREAT LEPROSY UNDER WEEKLY SUPERVISION BY A SPECIALIST (DERMATOLOGIST). NITERÓI HAS MADE MUCH PROGRESS IN THE TREATMENT OF THIS ILLNESS. BECAUSE OF THE DECENTRALIZED SYSTEM MORE DIAGNOSES HAVE BEEN MADE, ESPECIALLY IN THE INITIAL PHASE OF THE ILLNESS, AND DISCONTINUANCE OF TREATMENT HAS BEEN ELIMINATED AS THE PATIENTS RECEIVE HOME VISITS BY THE FAMILY DOCTOR. DUE TO THESE RESULTS WE BELIEVE THAT THE MUNICIPALITY OF NITERÓI WILL REACH ITS GOAL OF LESS THAN ONE LEPROSY PATIENT IN TEN THOUSAND IN HABITANTS, AS PREDICTED BY THE OMS, BY THE YEAR 2000.

DISABILITY CONTROL

DC01

DISTRACTION TECHNIQUE FOR RELIEVING P.I.P JOINT STIFFNESS/ CONTRACTURE

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The intrinsic minus deformity following ulnar nerve involvement in leprosy is commonly known as claw hand deformity. With passage of time, uncorrected & unattended claw fingers develop soft tissue contractures and stiffness at the proximal interphalangeal joints. Reconstructive surgery almost ceases to play a role in such hands. The new dimensions of 'Law of tension stress' principle was originally developed by Ilizarov for limb lengthening. The tissue distraction by gradual tension stress was developed later by Joshi's external stabilisation system. This apparatus for distraction was applied to leprous claw hand. The technique involves insertion of K wires, fixing distraction rod and gradually increasing the tension in required direction. Results in soft tissue release and improvement in range of motion in a study of 15 cases will be presented along with functional benefits. The use of this technique has widened the horizon of reconstructive surgery in leprosy.

DC02

REACHING OUT TO DISABLED PAL'S A DECADE'S EXPERIENCE

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The social dimension of leprosy often surpasses the public health dimension. Therefore, it is necessary to consider an integrated action plan consisting of strategy for elimination, disability prevention, care and rehabilitation. Elimination should be achieved not only at the macro level but also at the micro level. The capacity building of leprosy staff in delivering the qualitative care for their disability and their social integration has been carried out to make reaching out possible. Reaching out to disabled PAL's is not an 'outreach' service but the total involvement in understanding leprosy disability care activity from the perspective of the afflicted and establishment of a 'care' system. The model development by CLCP has a decades experience behind it.

The 'handicap' so far referred to has only been as perceived by the opposite party and not as persons 'participation' in activity of daily living or occupation. Long standing & chronic physical abnormalities seen in leprosy make adoptative changes in PAL's behaviour and social outlook. The efforts at improvement in aiding the PAL's to enhance their standing in their own eyes, in family and society require provision of learning, aids and appliances and rehabilitative services. The

evolution over a decade demonstrate the feasibility of the integrated services and rehabilitation activities by which more than 8000 PAL's have benefited thereby enhancing the value of the health care delivery. Our experiences will be presented.

DC03

RETROSPECTIVE STUDY COMPARING RECOVERY OF MOTOR NERVE FUNCTION DEFICIT WITH AN ALTERNATE DAY REGIMEN OF STEROIDS AND A ONCE DAILY REGIMEN.

Noela - Marie Prasad and B.P.Ravikumar

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There is no consensus on the regimen of treatment of reactions and neuritis.

This study involved use of the data available from in-patient records, consisting of patients who were treated with 60 milligrams of prednisolone on alternate days for 6 months with those patients and patients who had received the daily regimen.

48 nerves were studied under the OD regimen, and 39 under the AD regimen. The power of muscles as graded according to the BMRC score (Grades 0 to 5) was used, and the lowest scoring muscle for each nerve was recorded as the power for that nerve. All patients were either on treatment, or had been treated with MDT and the episode being investigated had not been treated with any other drugs.

The variables studied were: type of disease, duration of disease, duration of neuritis, nerve involved, power at diagnosis and after treatment, maximum power regained, duration of steroid therapy and time taken to attain maximum power.

Some of the findings of the study were:

- 61.54% and 43.75% of patients had regained a maximum power of grade 4 and above, with the AD and OD regimen respectively.
- Mean power at diagnosis was 1.974 for the AD and 1.792 for the OD regimen, variance being 2.397 and 2.637 respectively.
- The mean day of maximum recovery of power was 126.974 (AD) and 106.896 (OD).

DC04

IMPACT OF COMMUNITY BASED DISABILITY SERVICES IN AN URBAN SLUM - A QUESTIONNAIRE STUDY

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Bombay Leprosy Project has implemented a Low Cost Disability Management (LCDM) programme in an urban slum in Bombay, where significant reduction in prevalence of leprosy was achieved after successful MDT programme. 25,000 population was covered and disability care was offered at the doorstep of 35 disabled leprosy patients through community volunteers living in the same slum. In order to evaluate the impact of the programme a questionnaire study was initiated focusing on three groups.

The first group consists of deformed leprosy patients who were assessed for their level of disability care measures which they were practising. The second group consisting of family members and neighbours was evaluated for their attitude and involvement in the care of disabled leprosy patients and distant community members formed the third group whose knowledge regarding leprosy related disabilities was also subjected to assessment. Similar questionnaire study for purposes of control was conducted in another area where institutional based disability care was offered by trained professionals.

The study indicates that 65% of the disabled leprosy patients do not regularly practise disability care in spite of receiving constant instructions about self care measures in both these areas. 82% of the family members and neighbours acquired more knowledge about leprosy and actively assisted in disability care of the patients in study area as compared to 66% in control area. The study also revealed that the acceptance and participation by the family members was 78% in study area and 54% in control area. It was anticipated that practising disability care in the community will indirectly contribute to an increased awareness in the slum under study. However the intensive health education campaign practised in control area has resulted in increased knowledge about leprosy among the distant community members.

DC05

LEPROSY CASES PRONE FOR NERVE FUNCTION IMPAIRMENT - A GUIDE FOR IDENTIFICATION

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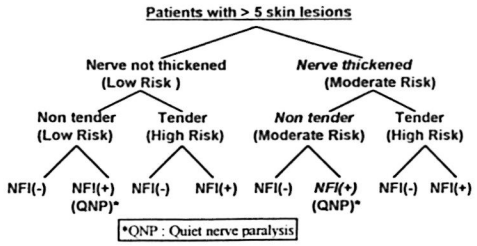
Early identification of nerve function impairment (NFI) which is insidious in onset and prompt treatment are crucial to prevent disabilities in leprosy. Though it may be possible to detect NFI by using sensitive tools, it may be difficult to adopt these in a field situation.

A retrospective analysis of 980 leprosy cases registered in the field clinics of Bombay Leprosy Project revealed that the proportion of nerve trunk involvement increases with an increase in number of skin lesions. Patients with more than 5 skin lesions had more nerve trunk involvement.

We have developed a simple flow chart for the use of field level leprosy staff to identify risk prone cases among patients with more than five skin lesions and also have suggested the method to manage these cases more effectively.



We believe that this flow chart could be used as a guide which will help the field workers to identify and prevent disabilities.

DC06

ANALYSIS OF NERVE FUNCTION EVENTS DURING FOLLOW-UP

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There is much interest in methods which reduce impairment and deformity amongst leprosy patients. While definitions and methods of detecting change in nerve function may be well established, methods of analysing and summarising outcomes remain complex. The multiplicity of disease types, of nerves, of nerve functions and of outcome measures makes this a particularly difficult area in which to produce a meaningful yet accessible statistical analysis and summary.

Based on the data collected in the Bangladesh Acute Nerve Damage Study the present paper is concerned with identifying appropriate methodologies to address hypotheses concerning the effectiveness of steroid treatment in reducing the severity of nerve function events during followup. For 2664 patients studied during a two year follow up period some 2,000 nerve function events were identified. A convenient way to summarise these events is in the form of transition matrices, tables summarising the probabilities of cases moving from one level of impairment to another in successive assessments.

	0,1	2	3,4,5
0,1	0.995	0.001	0.004
2	0.571	0.280	0.149
3,4,5	0.223	0.116	0.661

The Table presents the data for right ulnar impairment based on ball pen sensory testing of five points on the right hand. The row labels represent the number of points down at assessment one, the columns at assessment 2. Thus aggregated over the period of the study the probability of a patient rated at 2 points down by ball pen test at assessment 1 moving to 0 or 1 points down at assessment 2 is found to be 57.1%. The methodology used here is described in detail and in extended form allows comparisons between patient groups of interest, for example, to illustrate differences between steroid and non-steroid groups, the latter summarising spontaneous recovery in the cohort. Related methods are used to explore the importance of other patient and disease characteristics assessed at diagnosis.

DC07

DETERMINATION OF RELIABILITY AND ACCURACY OF COMMERCIALLY AVAILABLE MONOFILAMENTS FOR THE MEASURE OF SENSIBILITY

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Monofilament devices are widely used for the monitoring of neuropathy of the hands and feet. Variance in the production of the nylon filaments used in the monofilament devices can result in a difference in the production of force between each manufacturer's device. Currently, there are seven manufacturers of monofilament devices. Each manufacturer was requested to send ten monofilament kits for testing. The manufacturer's ten kits were placed in a random order and each monofilament was tested by five testers for eighteen trials.

A commercially available force transducer was used to measure the forces of the lighter filaments and a spatula strain gauge was used to measure the heavier monofilaments. The accuracy of force calibration and the reliability of force production was determined. The results will be reported and discussed.

DC08

THE SIGNIFICANCE OF NERVE FUNCTION ALTERATION IN PATIENTS DURING THE SURVEILLANCE OR POST-SURVEILLANCE PERIODS IN LEPROSY

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In leprosy patients released from treatment (RFT), nerve function alteration appearing during the surveillance or post-surveillance periods is generally considered as a sign of relapse or late reaction. Our study, based on histopathological examination of nerve biopsies, is intended to evaluate the significance of this complication of leprosy.

Our retrospective study includes the period from 1st January, 1990 to 31st December, 1997. We examined the clinical data from 110 patients referred for nerve biopsy evaluation in whom a clinical diagnosis of relapse was made, based on recent motor and/or sensory nerve function deterioration.

The histopathological findings in the nerve biopsies were as follows:

No. of patients	%	Histopathological finding
52	47	Mild to dense fibrosis
29	27	Lymphohistiocytic infiltrate
8	7	Reversal Reaction type
13	12	Multibacillary inflammation
8	7	Vacuolized macrophages infiltrate

The histopathological examination has confirmed in only 19% cases the clinical diagnosis of relapse (12%) or reaction (7%). In the remaining 81%, the finding was that of a healing and scarring phenomenon. We assume that the latter phenomenon plays an important role in this complication in bacteriologically cured patients.

DC09

RECURRENCE OF REACTION AND NEURITIS IN LEPROSY AFTER "STANDARD STEROID REGIMEN"

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The use of steroid therapy in the management of reactions and neuritis in leprosy is now gaining more importance in view of the possible nerve function impairment if not managed properly at the appropriate time. Steriod treatment is generally arbitrary and symptom - based. It would be easier for the leprosy workers to manage reactions and neuritis at the field level, if the schedule of steroid therapy is standardised.

We present our observations with the standard steroid regimen schedule devised by us for the management of reaction and neuritis,the maximum initial dose being 60 mgms of prednisolone and maximum duration of 28 weeks for acute neuritis, 40 mgms for cutaneous lesions (24 weeks), 30 mgms for ENL(16 weeks) and 20 mgms for recurrent ENL(8 weeks) with clofazimine (6 months).

Since May 1994, 426 leprosy patients who had reaction were included in the trial and were treated using this standard steroid regimen. All the patients were screened by leprosy workers at the field clinics and given treatment after ruling out the contra-indications with the help of a simple guideline. This group was compared with 350 patients treated with arbitrary regimens. On follow up 109 (26%) patients in standard regimen and 138 (40%) in arbitrary regimen developed recurrence of reaction. They were treated with an alternative schedule of steroid regimen. The commonest side effect seen was 'moon face' in a considerable proportion of patients. None of the patients developed any serious complications and in none the nerve function deteriorated.

We conclude that the use of standard steroid regimen will facilitate the leprosy workers to manage the reaction and neuritis more effectively at the field level.

DC10

REGISTRATION DELAY AND OLD AGE: PRIMARY RISK FACTORS FOR IMPAIRMENTS IN NEW LEPROSY PATIENTS

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2) All Africa Leprosy, Tuberculosis and Rehabilitation Centre (ALERT), Addis Ababa, Ethiopia

Objective: To study risk factors for impairments in new leprosy patients.

Material and methods: This study reports on 592 new leprosy patients enrolled in 1988-1992 in the prospective ALERT MDT Field Evaluation Study in central Ethiopia (AMFES). The main outcome measures are odds ratios on impairment for the risk factors sex, age, registration delay, classification in combination with BI, contact status, and distance to clinic which were calculated using multivariate logistic regression.

Results: 32% of new patients presented with WHO impairment grade 1 and 23% with grade 2. Old age, registration delay and MB classification with BI value 0 were significant risk factors for impairments. With as baseline age group 15-29, odds ratios ranged from 0.46 for the youngest (0-14) to 5.0 for the oldest age group (60+). 35% of new patients had a registration delay of 2 to 3 years, 21% of 4 years and over. Their odds ratios for having any impairment were 4.1 and 8.5 respectively. Compared to PB, the odds ratio for MB with BI value 0 was 2.85.

Conclusion: Registration delay and old age are the main risk factors. The registration delay in central Ethiopia should be reduced. This calls for improvement of accessibility to leprosy treatment, reduction of the stigma of leprosy, promotion of appropriate health seeking behavior and contact tracing.

DC11

KEY MODALITIES OF FIELD-BASED DISABILITY CARE APPROACH

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Prevention of disabilities is the most important and cost effective approach to disability care. Primary prevention is achieved by early case detection and regular treatment with MDT. MDT has reduced the occurrence of disability as compared to DDS monotherapy. Nevertheless, new cases are still detected with disabilities and this has added a substantial number of patients to the overall disability load in the community. If disability care services are provided in time, they not only prevent the deformities but can also limit the worsening of disabilities. The sensory motor recovery by corticosteroid therapy or neurolysis in an early recognised reaction is possible and avoids the development of deformities.

The other key modalities include : patient education on self care, physiotherapy exercises, domicilliary delivered prefabricated standardised splints designed by us for claw hand, ready to strap on foot drop splint, Modulan grip-aids, ulcer care delivered by 'Ulcer Care Kit', combined approach of referrals and camps for reconstructive surgery and economic rehabilitation. CLCP has pioneered the approach and by and large succeeded in standardising the field level disability care delivery system. Our experience and results will be presented.

DC12

PLANNING & ORGANISING DISABILITY PREVENTION, CARE & REHABILITATION SERVICES AS INTEGRATED LEPROSY CONTROL ACTIVITIES.

Atul Shah

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With the decreasing load of patients for providing treatment the existing leprosy infrastructure can be oriented to disability prevention and care services. Disability management is now considered under disease control. Envisaged to achieve this situation almost a decade back, CLCP has pioneered the integration of disability management since 1989. The stepwise approach comprises the data collection, computerisation of data & analysis in the manner which help field based, low cost disability care services. Task oriented training in defined modality of services viz. Self care, Prefabricated splints, Modulan Grip-Aids, Early identification of nerve damage, MCR footwear etc. form the integral part of field based services. The study involves more than 5000 patients cared for and their assessment. The cumulative disability load in community per 10,000 population needs to be taken as the basic indicator for estimation and resource planning. The gradual decrease in this indicator points to prevention of disability. Reporting format and monitoring has demonstrated that high quality of results can be achieved even at the field level. The experiences at various levels in different geographical region, their similarities and feasibility of replication will be presented.

DC13

DISABILITY MANAGEMENT INFORMATION SYSTEM

Atul Shah, Neela Shah, Penny Grewal

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Recent advances in computerised management information system have been applied extensively to the disability management in our projects. The baseline requirements have been standardised. Reporting format for updating the records for service delivery has been designed for field level application. The follow-up of patients, improvement or deficiency in coverage & quality of care can be analysed quickly and appropriate corrective actions can be taken. Midcourse corrections are easy to derive and the ultimate care of the disabled improved. The report generation requires some additional skill in use of computers but can be simplified if proper software is developed. Geographical information right-up to village level can be obtained to the advantage for strategy planning & resource allocation. Graphics and making of presentations is simplified. Our methodology and experience in disability management information system will be demonstrated.

DC14

FOOT CARE - A SYSTEMATIC APPROACH FOR FIELD AREA

Atul Shah, Neela Shah

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The most difficult problem in qualitative care of leprosy affected persons is the management of foot care. We have devised the systematic approach to reach majority of required services like self care education, ulcer prevention and promotion of healing by two way interaction of domicilliary care by affected person and supply of required services like contact cast or walking P.O.P. by trained personnel using 'Ulcer Care Kit'. The approach to foot drop was reorganised with early identification, steroid therapy and prefabricated foot drop splint. The decompression of nerves if required or the surgical correction were the referral services provided. However, the maximum benefit is obtained by providing regular supply of different design of footwear standardised at Leprosy Management Training Centre. Our experiences and results by the systematic approach will be presented.

DC15

SILICONE OIL PREVENTION OF INSENSITIVE FOOT ULCERS

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Loss of fibro-fatty tissue is associated with calluses and painless pressure ulceration. During a 34-year period (1964-1998), silicone fluid (dimethyl-polysiloxane) was studied as an injectable soft tissue substitute for pressure keratoses and insensitive ulcers. Among 1420 cases were 30 with diabetes and 3 with leprosy, median age 59.9 years (range 38-86) with loss of sensory response plantarly. Each in this subgroup had one or multiple episodes of skin breakdown with healing at 36 plantar sites (11 hallux, 22 metatarsal heads, and 3 metatarsal bases). Upon healing, serial 0.10 - 0.20 ml amounts, mean 1.65 ml (range 0.60 - 5.0 ml) were sub-dermally injected beneath points of maximum pressure. Externally placed pressure-reducing devices were not used. In 1-20 year follow-up, mean 6.9, 28 of 36 (77%) did not recur. No serious complications were observed.

Skin specimens gathered from 34 patients postmortem, mean 13.2 years postinjection (range 2-29½) were analysed by light and electron microscopy. Silicone consistently induced a relatively bland fibrosis and histiocytosis without untoward reaction. These favorable clinical and histological findings conclude fluid silicone is a safe and effective biomaterial for the treatment and prevention of some common pressure-related foot disorders, including insensitive pressure ulcers.

DC16

THE TREATMENT OF PLANTAR ULCERS IN LEPROSY PATIENTS WITH FELT CUT-OUTS.

Jessica Kiewied, Tezazu Alemu, Heather Currie, Roland Kazen, Paul Saunderson, Guido Groenen

ALERT, P.O.Box 165, Addis Ababa, Ethiopia

Objective: To assess felt cut-outs as a method of improving the healing of plantar ulcers in leprosy patients.

Subjects: 32 leprosy patients with small to medium size uncomplicated ulcers of the forefoot or midfoot were randomly assigned to one of three groups:

1) Standard ulcer care, 2) Standard care + felt therapy, 3) POP

The patients were seen every 2 weeks for 8 weeks, and the evolution of the ulcer size was monitored.

Results: For the care + felt group, the mean ulcer size reduction was 87% and 1 had healed completely. Continuing felt therapy resulted in complete healing in 4 more patients.

For the care only group, the mean ulcer size reduction was 28%.

In the POP group, 5 refused the treatment, and 2 abandoned within 2 weeks. 3 out of the remaining 4 patients were completely healed at 4 weeks, the fourth one had an ulcer reduction of 89% at 4 weeks but refused further POP treatment.

Conclusion: Although POP clearly works well, it has a very low acceptability. Felt therapy is a useful alternative. It is a very effective addition to standard ulcer care, significantly improving ulcer healing at 8 weeks. It is also very well accepted by the patients. The cost of 4 weeks of felt therapy is, at US$ 7, comparable to one POP application.

Samples of felt cut-outs and diagrams showing their application will be presented. A list of suppliers will be provided.

DC17

ASKASS-A STANDARD MCR FOOTWEAR FOR MANAGEMENT OF FOREFOOT ULCERS.

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Sivananda Rehabilitation Home Hyderabad.

In Leprosy patients with sensory loss in the feet there is a increased risk of injury. In this paper we wish to present our experience with regard to the usage of a standard foot wear 'ASKASS' for this problem when the patient has a forefoot problem/ulcer. ASKASS is a standard design advised and found useful in a majority of patients to manage forefoot ulcer & to prevent. During the last three years about 2000 pairs of ASKASS foot wear were supplied for the needy leprosy patients.
ASKASS - design incorporates the usual rigid shank and anterior roller and support which help to reduce and shift the damaging forces from the ball of the foot (metatarso phalangeal joints). Scooping is done where required.
The cost of the foot wear is $ 4 each (Rs.160/-) Materials used, weight will be mentioned and discussed with regard to other foot wear and patient acceptance. Colour slides will be presented.
We found that like standard MDT for Leprosy, standard steroid regimen for Type I reaction - standard foot wear "ASKASS" will go a long way in encouraging its wider usage usage for the benefits of needy leprosy patients.

DC18

AN IMPORTANT CORRECTION TO THE PROCESS OF MAKING PLASTAZOTE SHOES.

Pitrik Zondervan, Tom Kalkman, Paul Saunderson, Roland Kazen

ALERT, P.O.Box 165, Addis Ababa, Ethiopia

Objective: To compare the distribution of pressure on the sole of the foot while walking in plastazote shoes made from moulds taken with the patient sitting (as advised in currently available shoe-making manuals) or standing (as may be deemed more physiological).

Subjects: Two people with feet deformed by leprosy were examined. Subject 2 had a right-sided drop-foot.

Design: Pressure measurements at three points were made on each foot during periods of walking in a figure-of-eight pattern. Pressure transducers were calibrated and connected to a computer for recording purposes. Each foot and each shoe yielded 120 measurements at all three sites, giving a total of 2880 individual readings.

Main outcome measures: The mean peak pressure at each point for both feet using both shoes was calculated. Units are Newtons/sq.cm.

Results: Change in pressure associated with changing from the sitting mould to the standing mould:

	Subject 1		Subject 2	
	R	L	R	L
Calcaneous	+ 8.2	+ 0.2	+ 1.5	+ 2.1
Base of fifth metatarsal	+ 3.9	+ 6	+ 4	+ 4.4
Head of first metatarsal	- 25.8	- 11.9	+ 0.5	- 21.3

Conclusions: The pressure on the back of the foot is increased by a small amount when the mould is made in the standing position. The pressure over the head of the first metatarsal, on the other hand, is decreased by a large amount, except in the case of the drop-foot. As over 70% of leprosy-related ulcers occur in the forefoot, reducing the peak pressures in the forefoot is a major objective. Moulds made in the standing position are therefore more likely to reduce the risk of plantar ulceration.

DC19

LEPROSY FOOTWEAR

Antia N. H.

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The most intractable problem in the rehabilitation of leprosy patients is the anesthetic foot and subsequent ulceration.

Contrary to common belief it is rigidity of the sole, and not a paded paded insole, which redistributes pressures. The Foundation for Research in Community Health has developed in conjunction with the Indian Institute of Technology, Bombay a controlled rigidity fibre glass shank to fit into any off the shelf normal footwear. This is superior to the traditional leprosy footwear without the associated stigma.

DC20

SECONDARY INFECTIONS OF LEPROSY FOOT ULCERS

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Plantar foot ulcers are an important continuing problem in leprosy care after MDT, accounting for more than half of all admissions to Anandaban Hospital. We have investigated the bacteria infecting simple and complicated ulcers at the surface, in underlying tissues, joints and bones. We have speciated and tested for antibiotic sensitivity. The relationship between tissue type, ulcer type and past history of ulcers and the species isolated will be presented. We have also investigated the involvement of joints underlying deep ulcers on the first metatarsal head to quantitate the proportion of deep ulcers which result in septic arthritis. The efficacy of current practices in the management of ulcers will also be discussed.

DC21

CAN SELF CARE AT HOME BRING DOWN THE PREVALENCE OF PLANTAR ULCERS ?

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The objective of the study was to make patients self reliant in the care of their plantar ulcers in their own homes.

Paramedical workers of 8 DFIT projects were trained (3 days), in imparting training to patients on self-care and also in monitoring progress. About 588 patients in these projects were trained in self-care of their ulcers, using tools found in their homes and own surrounding and teaching them to become responsible for themselves for the care of their limbs. The follow-up period was about 1year.

At the end of the study period, there was a reduction in ulcer prevalence by about 60%. Various factors related to personal and family characteristics of patient and provider characteristics bearing an influenceon self-care practice and outcome will be discussed.

DC22

PREVENTION OF PLANTAR ULCERS IN HANSEN'S DISEASE

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Norberto Mercado Colina - Health worker
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This study of Prevention and Treatment of Plantar Ulcers took place at Out-Patients Service of the Health Department of Piraquara - PR - Brazil. This area is a satellite village settled by patients who left the colony, after the compulsory isolation, whem the treatment at public health centers had its start in the late forties. All patients of this study are cured and we have followed them up during two years and a half, in order to observe the effect of Prevention and Treatment of Disabilities by Application of Simple Techniques.

DC23

UTILIZATION OF SEMMES-WIENSTEIN MONOFILAMENTES FOR CONTROL OF THE POTENTIAL IMPAIRMENT IN HANSEN'S DISEASE

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The Monofilaments of Semmes-Weinstein are useful for Disabilities Prevention and Treatment by Simple Tecniques of Hansen's Disease at Out-Patients level, beside specific treatment. This sensory testing requires the use of Semmes-Weinstein style nylon filaments which produce the range of forces: 0,05 g, 0,200 g, 2,0 g and 4,0 g. This valuation of sensibility shows different levels of impairments and points out potential injuries (plantar ulcers, traumatic lesions, burns). The use of Semmes-Weinstein filaments tests may be used to follow the development and treatment of neuritis.

DC24

Thalidomide Neuropathy

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Last September, the Food and Drug Administration (FDA) licensed thalidomide for the management of erythema nodosum leprosum (ENL). No evidence was produced both at the FDA hearings, and the subsequent workshop, that ENL leads to renal amyloidosis, or is associated with nerve damage, uveitis, orchitis or arthritis. Thalidomide has thus been used in leprosy patients for 30 years to manage a complication which is not serious or life-threatening. Thalidomide neuropathy is a very serious complication and sensory loss is permanent in half the patients even years after stopping the drug. A symmetrical loss of sensation only occurs in the late stage of lepromatous leprosy.and in a personal series was present in 4 out of 14 patients with ENL. Thus the use of thalidomide may inflict intractable sensory loss on a leprosy patient which would not have developed as a result of the disease. Yet thalidomide neuropathy has not been recorded in any leprosy patient, although when the drug is used in non-leprosy disorders, 21% of patients have developed a neuropathy. Because other drugs such as pentoxifylline are available, and because of the recent teratogenic disaster in Brazil reported by the media, thalidomide should no longer be used to manage ENL.

DC25

A REVIEW OF THE ASSOCIATED OCULAR LESIONS AMONGST THE LEPROSY SUFFERERS WITH LAGOPH THALMOS.

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300 leprosy sufferers with lagopthalmos in Eastern India are reviewed on a retrospective way. 1/4th of them were on active treatment and the rest completed MDT/sulphone monotherapy. There were sponteneous on set of lagopthalmos in 80% of the study groups without any specificity of affection of either side. 80% had corneal hyposthesia with corneal opacity amongst half of them. 39% were blind in one eye (corrected vision less than 3/60) and 20% were socially blind (corrected vision less than 3/60 in the better eye). Cataract, corneal scar & chronic iridocyclitis were the causes of blindness. Chronic Dacryocystitis, Ulcerated extremeties, Osteomyelitis etc. were associated with 75% of the cases to make the eye under'**High risk group**'. Only 3% of the study group had tarsorraphy and the rest were totally neglected without any surgical or regular medical supervision. No such intregrated arrangement was observed in most of the centres to render proper eye health care to this community. An urgent measure is suggested to deploy a mobile eye care unit to look after these leprosy sufferers with lagophthalmos.

DC26

OCULAR MORBIDITY IN LEPROSY

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Leprosy patients with visual impairment are in double jeopardy: while a quarter million leprosy patients are estimated to be blind, the extent of ocular morbidity is unknown, since data available are often inaccurate and based on hospital patients. The pathways to blindness could be several, both due to leprosy as well as associated physical and socioeconomic problems. These

aspects are best studied through population-based cohort studies. Such a study on Ocular leprosy (LOSOL) was initiated by WHO among newly diagnosed MB patients registered at Addis Ababa, Cebu and Karigiri (India) in 1989, using standardized methods.

The findings from Karigiri centre (supported by LEPRA) are presented based on 280 MB patients enrolled so far. At registration, one-fifth of eyes already had cataract: and another significant number have corneal or other morbidity.

Incidence of ocular morbidity during multidrug therapy, revealed that nearly half the patients had various eye complications. Such high ocular morbidity needs careful study to identify possible risk factors to formulate appropriate strategies to prevent such problems.

DC27

PREVALENCE OF DISABILITY IN AN URBAN SLUM - AN ASSESSMENT WITH REFERENCE TO REHABILITATION

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Assessment of the real magnitude of the problem of rehabilitation of those handicapped due to a variety of disabling illnesses including leprosy needs an epidemiological approach. It is estimated that 7 - 10% of the population in developing countries are physically disabled.

We have earlier demonstrated that the involvement of community volunteers to offer disability care to the leprosy disabled at the door step in an urban slum in Bombay was successful and cost effective. We initiated a comprehensive disability survey of 4937 residents of a small part of a large slum through the community volunteers covering a part of the slum, as a first stage before launching a community based rehabilitation programme. The outcome of this population based survey indicates the prevalence and distribution of different categories of disabled persons in an urban slum are as follows.

Prevalence of disability:

No. of houses surveyed	Population enumerated	No. of disabled persons	Disability PR/1000
1041	4937	29	5.8

Type of disability :

Polio	Blind	Deaf & dumb	Accident	Leprosy	Total
15	1	6	2	5	29

It is seen that those disabled due to leprosy form only about 17% of the total. 90% of these disabled persons were able to secure rehabilitation services from the institutions in Bombay. It is interesting to note that the disability rate is maximum in the adult age group and most of them required vocational and economic rehabilitation. We conclude that the resources and manpower used for offering community based disability care to the leprosy disabled can be integrated with the rehabilitation services for the general handicapped. We believe that such activity carried out in the community can replace the present patchy institution - based approach for the rehabilitation of the disabled in urban areas.

DC28

DOES ACTIVE SURVEILLANCE AFTER RFT PREVENT FURTHER DISABILITY?

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Objective: To compare the impairment status of leprosy patients, 5 years after RFT, in those with and without active surveillance.

Subjects: All patients released from treatment in an area of central Ethiopia (where no active surveillance was being done) during the period 1990-1992 were eligible for inclusion. 116 of 184 eligible patients were traced and their impairment status was ascertained. A similar group of patients has been actively followed up as part of the ALERT MDT Field Evaluation Study (AMFES). Of these, 144 have complete information available and were included in the study.

Main outcome measures: Patients were assessed by means of the EHF Score; deterioration or improvement was noted by comparison with the same indicator measured at RFT.

Results: There was no difference between the groups in their impairment status at the start of treatment nor in the change in status before RFT. Outcome after RFT:

	Deteriorated	Same or better
No active surveillance (n = 116)	43 (37%)	73 (63%)
Active surveillance (n = 144)	30 (21%)	114 (79%)

Odds ratio (adjusted for age, sex and classification, by multiple logistic reression analysis): 2.1 (95% CI: 1.2 - 3.8)

Conclusion: Active surveillance could make a contribution to the prevention of further disability, but as a relatively expensive activity, may justifiably be replaced by more cost-effective measures.

DC29

CARE AFTER CURE: ALTERNATIVES BASED ON A SOUTH AMERICAN MODEL

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We know that most of the suffering of Hansens Disease patients is a result of the stigma that this disease carries. This stigma is directly related to physical and social impairments, disabilities and handicaps. We can not ignore the physical disabilities because they are part of the disease called Leprosy or Hansens Disease. We would like to show, based on several models functioning in South America, that we can offer Rehabilitation at a low cost and with a great impact on destigmatizing the disease. A course on Rehabilitation for Leprosy is offered at the Instituto Lauro de Souza Lima in Bauru, Sao Paulo, Brazil, four times a year. All aspects of clinical, physical, psychological and social disabilities is taught and possible solutions for these problems. The course is open to all possible members of the Rehabilitation Team and not only for surgeons. The course is mostly to motivate people. When somebody really wants to start a Rehabilitation Program at home, we assist with local in-training and local courses to implement this program. Periodic visits follow this initial in-training to encourage and supplement the teaching of the surgeon and the team. As a result of this program we have independently working Rehabilitation Programs in Paraguay, Venezuela and in 14 different cities in Brazil. Most programs are integrated in the control program in a Teaching Hospital or in a major Health Centre.

DC30

PREVENTION OF DISABILITY IN CHINA

Zhang Guocheng, J Watson, A Piefer, R Winslow, WCS Smith, P D Samson. Ministry of Health, Peoples Republic of China, The Leprosy Mission International, 08-06 Golden Mile Tower, 6001 Beach Road, Singapore 199589.

The People's Republic of China has long since reached the WHO leprosy elimination goal. However, disabilities have been the major cause of social stigma in leprosy patients in China and present major hurdles in their rehabilitation.

We have implemented the Prevention of Disability (POD) programme of leprosy patients in 15 provinces in China. Our objectives were: 1) to prevent or control the occurrence of new deformity, 2) to prevent further loss of sensation or strength diagnosed by early detection and treatment of neuritis, 3) to reduce the prevalence of wounds and open cracks by 20%-30%, 4) to prevent any increase in vision loss, joint stiffness and bone loss following nerve dysfunction, 5) distribution of footwear for insensitive feet up to 50% in the first year, 6) 50% of disabled cases should be trained in self-care and the state of amputees improved by supplying artificial limbs.

Training to the health staff i e doctors, supervisors and basic health workers was the key to the programme's success. A total of 325 training courses were conducted and a total of 11,891 participants were present. 2,078 supervisors were also trained in this programme. This training took place at the central, provincial, prefecture and county levels. The programme involved the process of transferring POD technology from experts to basic health workers to leprosy patients.

A total of 381 neuritis cases were detected and treated with prednisolone. Self-care training of eyes, hands and feet were conducted for 11,215 people and 70% were able

to practise self-care on their own. A total of 25,880 pairs of protective footwear were distributed to 14,378 people having insensitive feet. Surgical treatment was given to 1,917 and 726 have shown good progress. Out of 706 prostheses, 612 were given to patients with satisfactory results.

We have implemented POD programme using the existing health system and grassroots level workers who are the backbone of the programme. Basic health workers have successfully transferred the POD technology to needy leprosy affected people. Community participation helped patients to care for their disability.

DC31

HANSEN'S DISEASE DISABILITIES-FROM CURING TO CARING

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As the year 2000 approaches, and the global MDT treatment objective is perceived as a goal soon to be accomplished, it is time to focus on the next challenge in Hansen's disease care: the chronicity of its disability, including the effects of aging; to make the transition from curing to caring. This is vitally important for facilitating a person's social and economic reintegration into the culture/society, since the stigma of HD is associated with its physical effects.

A person diagnosed with HD, who may have only minimal loss of sensation or peripheral nerve damage, and has managed well without further decompensation, is at risk for significant disability due to aging factors alone or because of other chronic diseases.

In the United States (U.S.), the majority of persons diagnosed with HD ranges from 24-80 years of age at time of diagnosis, with the largest number of persons between 24-60 years of age. Disability problems account for at least 50% of the readmissions at the Gillis W. Long Hansen's Disease Center in Carville, Louisiana. The two largest outpatient HD clinics in the U.S. referred 25-50% of their patients for specialty consults such as occupational or physical therapy, orthotics, orthopedics, or podiatry in 1997.

In the U.S., the cost of chronic care is twice that for an acute condition. This fact, along with an increased life expectancy, and the chronicity of HD disability, underscore the need for a change ion the focus now for program planning the field of HD care.

Programs will need incrementally more, not less, funding to assist those with the disabilities of HD to achieve independence and an optimum level of functioning.

DC32

PREVENTION OF DISBILITIES AND REHABILITATION INTO A LEPROSY CONTROL PROGRAM

The Leprosy Control Program of Santa Fe Province has, for 30 years, carring out different activities trying to reduce the prevalence rate reaching the present: 1.2 per 10.000 inhabitants.

Till now the basic activities have been MID impementation, training of personnel, detecting new cases, retrieval defaulters.

But, taking into account the fact that patients may continue generating different kinds of disabilities, our Program has been working for 3 year on a specific plan for Prevention of Disabilities and Rehabilitation under what is called "Integral Attention of Leprosy Patient", forgotten by health staff and the sanitary policy.

A certain number of patients have been taken as samples in order to have a clear idea of the existing situation.

Material: 78 patients (62 MB, 16 PB)

Methods: Training patients of self care
- Recognition of early symptons
- Recognition of risk factors
- Testing motor and sensory functions (Semmes-Weistein test)

Results: Degree 0, 1 and 3: no evidence of deterioration of disability
Degree 2: 81% passed from degree 2 to degree 1

It is considered that the results obtained are good enough to justify the implementation of this plan as a specific strategy for Leprosy Control Program in our Province, taking into account that at this moment we had not this kind of plan before.

DC33

EXPERIENCE OF POD PROGRAMME IN AN URBAN LEPROSY PROJECT INVOLVING PARAMEDICAL WORKERS.

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Ranganadha Rao P.V., Pratap Reddy.B., Tilak S Chauhan, Dinkar D Palande.

Prevention of disabilities programme was incorporated in an urban leprosy project. 5 years of experience in preventing disabilities by involving PMWs and NMSs is presented.

Assigning risk grades of developing disability to all registered patients and follow-up of high risk patients by regular monitoring of nerve function at DDPs was the methodology of POD activity. Patients with signs of nerve impairment were treated with prednisolone and physiotherapy.

1729 patients (63%) of new patients were found to be at high risk, of them 280 developed nerve impairment. The effects of nerve impairment were regularly followed-up by recording improvement or deterioration of sensory perception and muscle power/ movement. 168 hands (69.4%) and 291 feet (56.1%) have shown improvement in sensory perception. With regard to muscle paralysis/weakness, 196 (48%) have shown improvement in muscle power/movement.

Regular assessment of nerve function and providing proper treatment prevents disabilities. Stratifying patients according to their risk - improves attention to high risk groups.

DC34

RESULTS OF THE NEUROLOGICAL STATUS AND THE DISABILITY GRADE OF 358 HD PATIENTS FOLLOWED IN 6 BRAZILIAN OUTPATIENT FACILITIES FOR 1½ YEARS

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Damage to peripheral nerves is the primary cause of deformity and disability in Hansen's disease (HD). The WHO disability grade is helpful for determining early diagnosis of disease and quality of treatment. One of the purposes of this study was to demonstrate nerve function and impairments. Hand and foot data were included in all centers, whereas ocular impairments were included in fewer centers.

Six centers were selected because of their greater than 2 years of experiece of quality work in nerve function testing, disability grading, and interest in neuritis and reaction. A minimum of 2 persons from each center were trained in the study protocol, in standardized evaluation technique, and in documentation of results. Testing was repeated a minimum of every 6 months for 1½ years from 1992 to 1995. Documentation and testing was periodically supervised in all centers.

This presentation will focus on the following results: The nerve function assessment including sensory, motor and nerve palpation results; the WHO Disability Grades of 0, I, II, and III; and the most frequent ocular impairments observed over 1½ years. In addition, the results of what study participants learned from participating in this study, their observations and recommendations will be presented.

DC35

A FOLLOW-UP ON SELF-CARE FOR EYES, HANDS AND FEET AMONG 9995 LEPROSY CASES

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Self-care for eyes, hands and feet in leprosy patients is one part of the collaboration project between MOH, China and TLMI. The aim of self-care is to prevent and control

disabilities and deformities. In this activity, regular follow-up was taken in every six months. The PALs selected for self-care were taught in skin care, exercise, prevention of injuries/uclers, wound care and the use of protective devices for eyes, hands and feet. Necessary materials, e.g. eye drops, glasses, eye covers, gloves, foot-drop suspensions and arch support are given out to PALs.

9995 self-care cases who were available for follow-up between May 1995 and May 1997 were analysed. The mean follow-up period was 23 months. Out of 9995 cases, 77.5% were males, 22.5% were females; 86.2% were WHO disablity grade II, 13.8% were WHO disability grade I.

After two years practice of self-care in 9995 cases, the number of red eyes, hand cracks, hand wounds, foot cracks and foot wounds were decreased by 56.6%, 85.9%, 81.3%, 76.7% and 30.8%, respectively.

The results in details are presented and discussed.

DC36

NEED BASED ANALYSIS OF LEPROSY PATIENTS

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A study was carried to find the leprosy patients with disabilities in the leprosy control area of The Leprosy Mission Shantipur. Out of 4839 patients registered in the control area 2518 were still found to be living in the control area which included those under treatment and completed treatment. It is found that 606 patients have WHO G-I and G-II disabilities.

Further analysis of their Socio Economic status revealed that 170 patients required community based rehabilitation.

Verification of known cases in a given area will be helpful in carrying out disability care activities and rehabilitation requirements.

DC37

TREATMENT OF NERVE FUNCTION DEFICIT USING AN AMBULATORY ALTERNATE - DAY REGIMEN OF PREDNISOLONE - A RETROSPECTIVE STUDY

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Recovery of nerve function deficits in 24 nerves of leprosy patients suffering from neuritis and the occurrence of side effects of steroids was studied. The patients received a constant dose of 40-60 milligrams of predisolone on alternate days for 6 months, while MDT was continued. The drug was not tapered before it was discontinued. Hospital records were used for collection of data.

The average BMRC grade for muscles supplied by the affected nerve was used to assess motor power, and 10 points on each palm or sole were tested for sensation, and the number of anaesthetic points were noted.

The inclusion criteria were:

- All patients treated for nerve function deficit between July, 1995 and July, 1997
- Deficit (motor/sensory/both) for less than 6 months duration.
- Regular treatment taken (steroids and MDT) through the entire course.

Only one patient reported a possible side effect of steroids, and 14 nerves showed recovery of motor function to more than grade 4 on the BMRC scale 39% of nerves with motor deficits recovered full (grade 5) function.

Due to ethical constraints, it was not possible to conduct one, but the authors recommend a prospective case - control study on the efficacy of this regimen.given the optimistic findings from this study.

DC38

TEACHING PATIENTS ABOUT SELF CARE: AN EVALUATION OF A HEALTH EDUCATION PROGRAM FOR LEPROSY PATIENTS WITH ESTABLISHED NERVE FUNCTION LOSS.

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Guéra Leprosy and Disability Control Project, Mongo, Chad

Patient education in self care is a key strategy for the prevention of further disability in leprosy patients with established nerve function loss.

A health education (HE) program for patients with sensory loss was designed and tested on a cohort of 209 patients from 4 rural leprosy clinics of the Guéra Leprosy and Disability Control Project, Chad. A set of standardised messages and instructions was formulated covering the topics of skin care, regular inspection, rest for ulcers, self care for small wounds and danger signs. For each topic an indicator was defined to monitor whether the methods were actually being put into practice. Health educators were specifically trained for the task, emphasis was put on communication skills and on making the messages culturally appropriate. Patients were followed up both at the MDT-clinics and through home visits using a checklist. The patients progress was recorded. Patients were graded A once education had been given, B when they could repeat the instructions given and demonstrate the procedures taught, and C when there was evidence that the knowledge was actually applied.

Of the 209 patients, only 107 (51%) had 3 or more health education sessions. Of these, less than one third progressed to C. Depending on the topic, 30-50% of the patients never progressed beyond the level of having received education. The concept of danger signs was poorly understood both by the health educators and the patients, and many patients felt that rest for small wounds was not a realistic proposition. The best results were obtained in those patients that had 9 to 12 HE sessions, in this group approx. 2/3 of the patients progressed to level C in skin care. Increasing the number of HE sessions beyond 12 gave no appreciable advantage.

We conclude that the quality of patient education in self care needs to be improved. Some possible reasons for the poor results are: finding a teaching style appropriate to the patients background, the fact that HE topics did not correspond to the patients perceived needs, and the difficulties in the follow-up of patients living in remote areas.

DC39

HOME-BASED SELF-CARE IN THE ALERT LEPROSY CONTROL AREA, ETHIOPIA

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Introduction: For many years, patients with disability have had to rely on leprosy clinics for wound care and prevention of further disability. This home-based self-care group programme, in which we are trying to decrease dependency and promote self-reliance, started very recently in the ALERT leprosy control programme.

Objective: To find out how far the disabled ex-leprosy patients help each other in a group without external help. The level of improvement in physical condition was also assessed.

Method: Groups of people involved in the home-based self-care were interviewed about the programme; the physical condition of individuals was assessed at entry, and then every month for 6 months.

Results: 54 people were assessed on their physical and attitudinal status. 19 people who had cracks initially and 14 people out of 16 who had ulcers, had healed these wounds within the 6 month period.

As regards physical status, 26 had improved, 26 stayed the same and 2 had slight deterioration. 41 (76%) showed improvement in attitudinal status, while 13 (24%) stayed the same.

Conclusion: A lot of money and effort has been spent on patient care at leprosy clinics and patients have to walk for hours to reach them. Although the prevalence of leprosy has drastically reduced, we are left with many patients with irreversible disability who need sustainable solutions, with the involvement of the patients themselves, and the use of locally available resources. This study shows that the current programme is a worthwhile start and needs expansion.

DC40

DISABILITY CARE NEEDS OF LEPROSY PATIENTS A FIELD MODEL

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The Present study deals with 2950 Disability Patients at Visakhapatnam District of Andhra Pradesh, South India.

The study showed that the Disability rate is 11.4% and the Disability Prevalence is 7.96/ 10,000 population. Grade-I (WHO) Disability is 26.30% and Grade-II (WHO) Disability is 73.70%.

The Disability in individual organs of Hand, Foot, Eye and combined organs involved is presented. The aim is to plan the model care of Disabled patients in field for better compliance of the patients without dislocating the patients as 60%- 75% of the care procedures can be taught to patients (transfer knowledge) in field reducing the dependence on workers for life long.

DC41

THE EHF SCORE: HOW GOOD IS IT AS AN INDICATOR FOR POD PROGRAMME MANAGEMENT?

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Objective: To investigate the correlation between the EHF Score and more detailed assessments of impairment; and to assess its ability to measure change in impairment over time.

Design: Retrospective study of patient records.

Subjects: 842 patients from central Ethiopia, starting treatment between 1993 and 1995. Changes in impairment status could be assessed for 511 of the 842 patients.

Main outcome measures: The EHF Score was compared with scores for primary impairments (measured by standard sensory tests and voluntary muscle tests) and secondary impairments (ulcers and bone loss) and the sum of those scores. Changes in the scores over time were also compared. As the data are non-parametric, the Spearman Rank Correlation Coefficient (r_s) was used.

Results: Correlating EHF Score versus the sum of primary and secondary impairments gave $r_s = 0.91$ (95% cl 0.90 - 0.92). Similarly, the change in EHF score versus the change in the sum of impairments gave $r_s = 0.60$ (0.54 - 0.66).

Conclusions:
The EHF Score is a sensitive indicator of the impairment status of leprosy patients. Change in impairment status is quite well reflected in change in the EHF Score. It is concluded that the EHF Score is a reasonable indicator for monitoring POD activities in a field programme.

DC42

THE MANAGEMENT OF CHRONIC NEURITIS AT ALERT

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ALERT, P.O.Box 165, Addis Ababa, Ethiopia

Objective: To evaluate the management of chronic neuritis in the multidisciplinary neuritis clinic and compare it with that of treatment under fixed guidelines.

Design: A retrospective analysis of patient record cards.

Subject: 32 patients treated at a specialist neuritis clinic (run by a leprologist, a surgeon and a nurse trained in nerve assessment) and 31 patients treated with steroids according to fixed guidelines in the general OPD. Results for additional patients will be presented in the poster.

Results: 29 of the patients treated at the neuritis clinic and 15 of the routinely treated patients, had chronic neuritis, with two or more previous episodes of steroid treatment. At the neuritis clinic, variable doses of steroids were given and surgical nerve release was undertaken, if indicated; 28 of the 29 patients showed some improvement in impairment status. 11 of the 15 patients given routine treatment showed some improvement in impairment status. The difference in this small study is not statistically significant.

Conclusion: These preliminary results indicate that combined nerve release and steroid treatment could be more beneficial than steroids alone in some patients with chronic neuritis. A prospective, randomised, controlled study is required to define clear guidelines for the management of chronic neuritis.

DC43

OPTIMISATION OF A MONOFILAMENT TEST FOR SENSIBILITY FOR USE IN A FIELD PROGRAMME OF PREVENTION OF IMPAIRMENT.

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Monofilament testing for reduced sensibility in hand palms and foot soles of leprosy patients can provide information for diagnosis and monitoring of sensory nerve function impairment.

To provide useful information for clinical decision making, diagnostic tests should be subjected to assessment of reliability(inter-tester agreement). The diagnostic cutoffs used should be relevant for the population under test and the availability and type of possible treatment. To be useful under field conditions, a test should be simple and quick enough to ensure that testing of patients is likely to be done by field staff.

Monofilament testing with a set of five 'pocket filaments' was subjected to inter and intra tester reliability testing in groups of staff of differing ability and experience. Databases from reliability testing using leprosy patients, testing of normal subjects and a longitudinal study of neuritis patients were used to explore empirically the interaction of theoretical probability considerations, reliability, number of sites tested per nerve and diagnostic cutoff, within the test.

A monofilament test using a maximum of five sites on each hand palm and foot sole was found to detect at least 95% of patients whose loss of sensation had been detected by a longer test using up to twelve sites. A cutoff set at a score of 'minus three points per nerve' (three sites one level above normal, or one site two levels above normal and one site one level above normal etc.) gave a test with a acceptable rate of expected false results, when the reliability of the test was taken into consideration. Using a composite test of this type appeared to give substantial savings in time, and reductions in complexity, with minimal loss of performance compared with the larger test.

A prospective trial of the reduced test is recommended.

DC44

AGE SPECIFIC NORMAL THRESHOLDS FOR SENSIBILITY TESTING WITH MONOFILAMENTS IN A NEPALI POPULATION

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INF RELEASE Project, PO Box 5, Pokhara, Nepal

Semmes-Weinstein monofilaments can be used to provide a graded (quasi-quantitative) measure of sensibility. The test can be used for diagnosis and monitoring of sensory nerve function impairment in leprosy. For diagnostic use, if treatment is provided because of subnormal test results, appropriate normal thresholds must be derived. Previous work has suggested that factors such as age, gender and occupation must be taken into consideration in deriving thresholds.

A cross sectional survey of more than 600 apparently healthy Nepalis was undertaken. The study was designed (in terms of size and stratification) to provide sufficient subjects in each age decade to allow exploration of differences due to age, gender, occupation, shoe wearing habits, hand dominance and terrain in which the subjects lived. The size was sufficient to allow calculation of normal thresholds by age and gender, if the differences noted were statistically and clinically significant.

Six sites were tested on each hand palm and foot sole. Pilot studies were used to choose two sets (one for hands, one for feet) of ten monofilaments covering the expected range of the normal threshold, from the twenty available.

Non-parametric statistical methods were used and normal thresholds were calculated from the 95th percentile of the observed data.

Testing showed significant differences between age groups. In the decades 20-29, 30-39 and 40-49 years the 95th percentile of the data was approximately constant. Outside this age range a statistically and clinically significant change in sensibility was observed.

For diagnostic use in leprosy, most commonly the 'pocket set' of five filaments is used. The results of this study suggested that, from the pocket set, filaments giving forces of 200mg, 2g and 10g are close to the normal thresholds for hands, forefoot and heel respectively, for subjects aged approximately 20-50 years. Younger people have a normal threshold at a lower force, and older people at a higher force, for both hands and feet.

DC45

INTERVENTIONAL STUDY OF A SELF CARE CAMP FOR THE LEPROSY PATIENTS WITH DISABILITY

Pramila Barkataki

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With the introduction of MDT by WHO in 1982 all over the world, the leprosy patients are being cured medically but their personal and social problems continue to exist due to anaesthesia and the stigma attached to the deformities. Self care is taught to the patients with disability, but very few of them practise these skills at home. This two year project was started in March 1997 with an objective to promote participation of community leaders in supervising self care activities of leprosy patients at their respective homes. In order to achieve this a self care camp was organised in the project area where scientific facts about leprosy were displayed through exhibition and puppet show and self care was demonstrated to the patients, their family members and the community. Following the camp, volunteers were selected and given responsibility of 3-4 patients. Now at the end of one year, 13 volunteers are involved in this supervising work. 37 out of 45 disabled patients are doing self care at home regularly. There has been a reduction in the occurrence of sole wounds by 50%. Thus involving the community and family members in self care activities will bring down the incidence of ulcers and will lead to better patient care.

DC46

PREVENTION OF DISABILITY THROUGH MEASUREMENT OF UNDERLYING PERIPHERAL NERVE INVOLVEMENT

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A multicenter project was launched in 1990, "International Project to Measure the Peripheral Nerve Involvement Underlying Disability of the Hand in HD", in order to address objective measurement of peripheral nerve involvement. Measurement of disability alone does not provide direct measurement of nerve involvement sufficient to allow consideration of early treatment and intervention of nerve damage that would prevent disability. Disability is secondary, and varies with injury, deformity, and psychosocial factors.

Included in the formal study are patients treated at the U.S. Public Health Service Hospital at Carville, LA; seven sites in Brazil; and five sites in India. Other sites were additionally included out of interest. An overall prevelance of peripheral nerve involvement will be reported with disability measurement along with significant variables. The nerve involvement as it varies with treatment is analyzed by correlating the change (worsening or improvement) in the period reviewed, with specific chemotherapy received. Both new patients receiving MTD and patients who have received other treatment are included in the study to allow comparison.

Without a doubt the largest result of this project to date has been the transfer of technology to international treatment programs. The introduction and use of Semmes-Weinstein Monofilaments enabled measurement that is 1) sensitive, 2) repeatable, 3) simple, and 4) comprehensive enough to allow monitoring of patient nerve involvement as it varies with disease and treatment. The filaments were found suitable for field situations as well as for hospitals and clinics.

DC47

OCCURRENCE OF LOWER EXTREMITY VENOUS ULCERATION IN HANSEN'S DISEASE - EITIOLOGY AND TREATMENT

Denise Brasseaux , Alicia Hoard

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Lower extremity venous ulceration is a relatively common occurrence in patients seen in the Physical Therapy Department at the GWLHDC . These ulcers may be sensate and painful for some, while insensate for most others. A venous incompetent extremity coupled with neuropathy and the possible presence of plantar foot problems is a twofold problem and a challenge for treatment is created. In the event of trauma, a lower extremity with edema and a loss of sensory feedback can mean instant breakdown of skin integrity and resulting months or years of persistent wounds. Various diseases causing venous insufficiency is well documented. The purpose of this presentation is to discuss the relationship between venous insufficiency ulceration and Hansen's disease, along with other possible contributing factors. Additionally, treatment regimens including various forms of compression therapies and wound care dressings will be presented.

DC48

STUDY OF PRESSURE DISTRIBUTION IN DIFFERENT LEPROSY FOOTWEAR

P. Bourrel, J. Watson, S. Deepak, L. Klenerman, K. Linge

Footwear is recommended in persons with plantar anaesthesia to prevent ulcers. Footwear from 8 different projects in different countries was studied to analyse the distribution of pressure at different sites on the plantar surface of feet. These pressures were compared with pressures on bare-feet. The study showed that irrespective of the model of footwear, materials used for its production, cost, etc. as long as it has an adequate insole, it results in diminuition of pressure at the big toe, 1 MTH and heel.

DC49

SUSTAINABILITY OF FIELD BASED DISABILITY CARE PROGRAM IN LEPROSY OVER 4 YEARS

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Prakasam District in Andhra Pradesh (A.P) with a population of 36 lakhs, harbouring 1722 leprosy disabled cases was adopted for experimenting a unique field based disability care programme in 1991. The methodologies adopted were simple and easy to practise by any leprosy worker. The training provided to the staff of NLEP by the expert trainers from Bombay Leprosy Project was practical and task oriented.

136 field leprosy staff of the NLEP, Govt. of A.P practised disability care after receiving task oriented training in conducting disability survey using a *simple survey proforma* and in applying simple adaptations like *pre-fabricated splints, grip-aids for hand deformities and MCR footwear, mini plaster, 'Foot Care' kit* besides the conventional physiotherapy. Assessment of 454 disabled leprosy patients at the end of 4 years indicated that:

1. the compliance for the services offered to hand deformities was good and improved the disability status in more than 50% of patients.
2. maximum improvement in the patients who had followed the services for less than 3 years when compared more than 3 years.
3. 18% of patients having grade I disability in hands and feet had worsened in spite of services provided.
4. grip-aids for gross hand deformities have helped functionally in 64% of patients
5. 30% patients having simple sole wounds had healed, however 30% of patients having complicated wounds did not heal.
6. there should be total commitment by the district level officer in order to maintain the interest and motivation of the field staff to offer disability care services.

The sustainability of results in spite of withdrawing the surveillance after 2 years demonstrates the possibility of extending disability care along with routine MDT programme in the background of declining endemicity of leprosy.

DC50

DYNAMICS OF IMPAIRMENT DURING AND AFTER TREATMENT

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2) All Africa Leprosy, Tuberculosis and Rehabilitation Centre (ALERT), Addis Ababa, Ethiopia

Objective: To study changes in the impairment status of leprosy patients over time.

Material and methods: This study reports on 284 leprosy patients from the prospective ALERT MDT Field Evaluation Study in central Ethiopia (AMFES). The Eye-Hand-Feet impairment score (EHF Score) is the main outcome measure.

Results: 138 (49%) out of 284 new patients had EHF-scores of 2 or more at start of MDT treatment. At review between 2 and 4 years after release from treatment, this number was 120 (42%). 42 (15%) patients improved and 18 (6%) deteriorated by two EHF-points or more during treatment. These numbers are 21 (7%) and 32 (11%) respectively for the period after release from treatment. Initial improvement was sometimes followed by deterioration and vice versa. Overall, 47 (17%) patients improved and 28 (10%) patients deteriorated by two EHF-points or more.

Conclusion: The preliminary results indicate that the impairment status at intake is the main determinant for the impairment status a few years after release from treatment. The question is whether the risk of deterioration of the impairment status, both during treatment and after release from treatment can be reduced. Answering this question requires further study, in which patients who did not complete treatment or did not present for re-examination after release from treatment are involved as well.

DC51

STOP NERVE INVOLVEMENT IN HANSEN'S DISEASE

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While great strides have been made toward a cure for Hansen's disease, it remains a fact that damage can occur to one or more of the peripheral nerves. If permanent, nerve damage can result in deformity that perpetuates the stigma of the disease. This poster presentation is designed to encourage prevention of disability in the hand and foot. The poster highlights each extremity at the sites commonly involved and depicts visual progression of potential deformity. Early and regular peripheral nerve monitoring is recommended with intervention techniques to stop nerve involvement underlying the progression to disability. A pamphlet with the information contained in this poster is intended for distribution to clinics and hospitals to be utilized as a tool for health care worker and patient awareness and education. This project is made possible, in part, by support of American Leprosy Mission.

DC52

EFFECT OF SOLE ULCERS CONTROL IN 284 CASES: A REPORT OF 6-YEAR SURVEILLANCE

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Provision of protective shoes and training on self-nursing were applied in 284 leprosy patients with simple sole ulcers or soles without sensation. Before implementation of this project, there were 36 chaps and 162 ulcers in these patients. In the first 2 years of a 6-year trail, protective shoes were distributed and supervision of self-nursing was stressed with a consequent disapperance of 91 ulcers (56%) and 12 chaps (23%). The occurrence rate of new ulcer in simple insensitive feet was 2.75%; the rate of recurrence after cure was 8.4%. In the next three years when no shoes were provided, the number of ulcers increased to 144 and chaps to 30. When in the 6th year protective shoes were provided and supervision was stressed again, the number of ulcers and chaps decreased once more. It was believed that provision of protective shoes and supervised self-nursing were helpful in healing existing ulcers and preventing patients from the occurrence of new ulcers. These findings were obviously observed even in the three years when shoes were used and supervision stressed. The effect in the first year was the best, but once no longer had distribution of shoes and supervision, the number of ulcers and chaps increased year by year. This suggested that it would be a long-term and hard job to help patients to form a good self-nursing habit.

DC53

CHANGE OF DISABILITY GRADING IN LEPROSY PATIENTS BEFORE AND AFTER MDT/WHO (A CASE CONTROL STUDY OF 847 RFT CASES IN A URBAN LEPROSY CONTROL PROGRAM IN THE SOUTH WEST OF BANGLADESH)

YUTAKA ISHIDA, SR. LORELLA PICORINI, SR. ELENA GUGIELMELLI AND BIDHAN CHANDRA MONDOL

DHANJURI LEPROSY PROJECT-KHULNA BRANCH(PIME SISTERS)
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A case control study was done to evaluate the effectiveness of prevention of disability of leprosy patients during implementation of MDT/WHO. Disability gradings and some other related indicators of 847 cases who completed MDT/WHO in 1995/1996 at our urban leprosy control project were studied retrospectively. In total the disability grading after completing MDT got a little bit better than that before starting(1.6% in G=1, 1.0% in G=2).

DISABILITY GRADING AT THE START OF TREATMENT

	G=0	G=1	G=2	TOTAL
MB	75	54	44	173
PB	581	68	25	674
TOTAL	656	122	69	847

DISABILITY GRADING AT RFT TIME

	G=0	G=1	G=2	TOTAL
MB	76	56	41	173
PB	603	52	19	674
TOTAL	679	108	60	847

There is no statistical difference between these changes. Disability gradings of BL cases got worse after MDT by 5.3% in G=2, while TT, BT and PN cases got recovered a little bit. 38.7% of MB regimen got steroid therapy during MDT, while only 5.5% of PB cases did.($P<0.01$)

DC54

PROFILES OF NERVE FUNCTION IMPAIRMENT AND PREVENTION OF DISABILITY ACTIVITIES AT THE H.D. CLINIC, LAC+USC MEDICAL CENTER, LOS ANGELES, CALIFORNIA

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The Hansen's Disease clinic at LAC+USC Medical Center in Los Angeles is one of 10 regional clinics of the National Hansen's Disease Program. Over 500 registered patients attend clinic for treatment and monitoring of nerve function impairment. Nearly all these patients reside throughout the greater Los Angeles metro area. The vast majority of these patients are immigrants who have relocated from Mexico, Southeast Asia, the Pacific Islands and other parts of the world.

A primary goal of the National Hansen's Disease program is to prevent disability and deformity through early diagnosis which would eliminate the potential for stigma. However, for those patients who have already been found to have nerve function impairment, disability, or deformity, it is vital that impairments are reversed or prevented from worsening, that disability is addressed to promote patient independence in his/her daily living activities, and that deformity is corrected whenever possible. Prevention of nerve function impairment and prevention of disability activities are integral to a successfully operating program, such as at the LAC+USC H.D. clinic.

This presentation will depict the following:
1. Profile of the clinic with brief historical, epidemiologic, and overall program perspectives.

2. Patient population sample characterized with Ridling-Jopling classification and WHO Disability grade.
3. The same patient population sample elucidating nerve involvement with tables of nerves involved and of nerve function impairments. Treatment strategies and interventions for these impairments.
4. The prevention of disability activities implemented at this clinic, including management of neuritis and reactional states, patient education, skin and wound care, exercise programs, adaptive equipment, orthotic and prosthetic programs, and referrals for surgical and other specialty interventions.

DC55

STEROID THERAPY AND THE MANAGEMENT OF SEVERE SENSORY LOSS IN HANDS AND FEET OF LEPROSY PATIENTS: FINDINGS AND RECOMMENDATIONS.

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Gillis W. Long Hansen's Disease Center, Carville, USA

In testing with Semmes-Weinstein nylon monofilaments, norms of touch pressure thresholds were determined for hands and feet of urban and rural residents of South and Central India, and presented at the previous Congress in Orlando.

One of the above authors, D. Samuel Thomson Sugumaran, previously conducted a recently published study involving the use of prednisolone for the treatment of paralytic deformities of <6 months duration. Significant restoration of nerve function was demonstrated, in both motor and sensory components. The results of this study revealed a higher incidence of motor recovery than sensory recovery.

The current study, funded in part by the American Leprosy Mission, involves a larger patient population sample and includes monitoring of the sensation of the plantar surface of the foot. This study plots the sensory changes of the patients' hands and feet over time and the response to steroid therapy. Sensation is monitored with Semmes-Weinstein nylon monofilaments.

The results of this current study include tables depicting the recovery from severe sensory loss, i.e., those with suspected loss of protective sensation and therefore at risk of injury. Concise tables of the determined Indian norms are also presented for easy reference.

DC56

NERVE FUNCTION IMPAIRMENT IN LEPROSY - A REPORT FROM NATIONAL POD PILOT PROJECT

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As a part of the national pilot project of POD and rehabilitation for leprosy patients, a pilot study including early detection and treatment of recent neuritis (the duration of neuritis within 6 months) was carried out in 9 provinces with different leprosy prevalence. All the new cases, newly relapsed cases, active cases and PALs on the first year of surveillance who were available for follow up were involved. A regular nerve function assessment was conducted by the field staff and supervised by provincial, national and TLMI supervisors. Once a nerve function impairment was confirmed, a standardized regimen of prednisolone was given. The data between May 1995 and September 1997 were analysed.

During follow-up, 902 cases were assessed, in which 69 cases (7.6%) were diagnosed of having recent neuritis. Out of 69 cases, 40.6% of nerve function impairment occured pre-MDT, while 56.5% occured during or post-MDT. The prevalence of each nerve fuction impairment is as follows: facial 6 cases, ulnar 28 (3.1%) cases, median 17 (1.9%) cases, radial 5 cases, lat. popliteal 17 (1.9%) cases, posterior tibial 34 (3.8%) cases. For each nerve, the prevalence and the response to prednisolone of sensory and motor impairment are analysed seperately. The factors affecting the early detection of neuritis and recovery of nerve function are discussed.

DC57

LOW COST DISABILITY MANAGEMENT IN LEPROSY - AN EXPERIMENT IN AN URBAN SLUM

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WHO has recommended that the "Prevention of disability activities should be incorporated with MDT programmes to the extent possible keeping in view the cost effectiveness". Disability care is generally considered to be expensive by experts who have looked into the problem from an institutional base, leading to a belief among donors that highly trained salaried are to be employed. We believe that innovative low cost technology for offering disability care at the doorstep of the leprosy disabled is possible. We report our experience in an urban slum in Mumbai, housing 25,000 population using donor friendly low cost strategies for disability management.

An ongoing MDT programme in the slum had identified 35 disabled leprosy patients who were offered disability services through volunteers living in the slum, working under the supervision of a trained para-medical worker. A weekly clinic situated in the same slum acted as a referral centre to manage complications. It was observed that the disability care techniques developed by Bombay Leprosy Project could be easily practised at the field by the volunteers following a task specific training in a cost effective manner. The cost of offering regular disability services at the door step of disabled leprosy patients for one year was US $ 1000.

Considering that donor funds are scarce and even declining, cost effectiveness will be the major component of any disability care strategy that may be adopted by the voluntary agencies working for leprosy. This study has not only revealed how cost for the donor can be saved, but also indicated the future possibility of reaching the goal of "Community Based Rehabilitation" provided non-leprosy handicapped in the community can be involved in a similar fashion.

DC58

PROFILE OF LEPROSY IMPAIRMENT AND DEFORMITY IN VIZIANAGARAM DISTRICT

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This cross sectional study is undertaken to quantify the impairment and deformity in a given population to help us in understanding the pattern of impairment and deformity and to plan customised home based selfcare.

All the living disabled leprosy patients of 3 TLM leprosy control units covering a population of 8,10,539 (91 census) were assessed by a qualified Physiotherapist and Para medical worker after a standardisation workshop at Salur.

The data was recorded on special individual records. The total number of disabled assessed are 2,855 inclusive of Grade-I deformity.

This study demonstrated :

1. 65% of the impairments and deformity were contributed by males.
2. Patients of more than 36 years contributed 90.4% of all impairments and deformity.
3. Patients with single impairment and deformity accounted for 46.9%.
4. Plantar anaesthesia was found in 65% of all the impaired and deformed patients.
5. 22.56% of patients with plantar anaesthesia have ulcer.
6. Impairments and deformity density is higher in Males.

DC59

MULTIDISCIPLINARY APPROACH FOR PREVENTION OF DISABILITY IN NEPAL LEPROSY REFERRAL CENTRE

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Cost-effective programmes for the prevention of disabilities in leprosy require active involvement of the patients and their families as well as all the centre staff approach. This paper presents the specific objectives and strategies that the referral centre used for the prevention of disability programme from 1996 to 1998. Implementation of this programme involves more than one aspect and more than one professional, The four aspects are detection and treatment of neuritis; self care of eyes, hands and feet; footwear programme; and health education in the community. Two small retrospective studies were done on the patients who were involved in this programme for two years. The team approach is needed, the success of the programme depends mostly on the patient who should be participatory with other workers for preventing disability.

DC60

IMPROVING COMPLIANCE OF LEPROSY PATIENTS FOR DISABILITY CARE

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As a result of effective MDT campaign in Thane district since 1988, the registered prevalence rate of leprosy declined from 76 to 11 per 10,000 population in 1993. Though the MDT has minimized the risk of development of new disability, a field solution to the problem of disabilities is still not understood. An operationally feasible disability care programme using the existing infrastructure and manpower is called for.

In order to improve the compliance rate for disability care, an interventional study was initiated, using the existing leprosy staff in Ulhasnagar block of Thane district, Maharashtra, where the prevalence was 11 per 10,000 population. Baseline survey of the existing disability services indicated that, out of 419 deformed leprosy patients, only 25% were able to secure the disability services, The compliance for disability care was less than 50%. Lack of training to the leprosy staff, non-availability of aids and materials and lack of motivation on the part of patients and families were the reasons for poor compliance. Following a task oriented training to leprosy staff, a well planned disability care programme was implemented at the field level. 100% service coverage was achieved in six months and compliance rate improved from 50% to 90% in post-interventional phase.

An evaluation on the impact of training to leprosy staff showed statistically significant improvement in upgrading their knowledge and skills to deal with the disabled leprosy patients. A questionnaire study of 116 patients randomly selected, revealed that this intervention improved the physical (88%), functional (54%) and social (30%) status.

The short term results were very encouraging; however long-term follow up is necessary to determine the sustainability of the outcome of this study.

DC61

A COMPARATIVE STUDY OF OCULAR MORBIDITY AMONGST THE LEPROSY AFFECTED HOSPITAL INDOOR PATIENTS & THE RESIDENTS OF AFTER CARE LEPROSY COLONIES.

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Now-a-days most of the Leprosy affected patients got admitted in the Leprosy Hospital with any one or more of the disease related complications like reaction relapse, ulcer on the extremeties, abscess or blinding eye diseases. On the other hand, being out casted from the society due to social stigma, many 'RFT' leprosy sufferers with deformities are still staying in the after care leprosy colonies. Both these group of sufferers have got potentially sight threatening lesions. Amongst hospital indoor leprosy patients the prevalence of ocular lesions varies from 55% to 65% whereas in the after care leprosy colony it is around 30%. The common ocular lesion are corneal hyposthesia, lagophthalmos cataract, exposure Keratitis and Uvietis. Blindness (corrected vision less than 3/60 in the better eye) is 15% amongst the first group and 7% in the second group. In the hospital all the patients are under ophthalmic supervision & in the after care colonies the affected population is totally unsupervised and many of them being unaware of the blinding factors turn blind due to neglect and improper management.

DC62

ASSESSMENT OF DISABILITY DUE TO LEPROSY IN RELATION TO EHF SCORE

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Objective: To measure the degree of disability (as defined in the ICIDH: WHO, 1980) in previously-treated leprosy patients from a rural population, and establish any association with the EHF Score.

Subjects: 329 previously-treated patients in one supervisory area in central Ethiopia with a total population of appr. 500,000.

Design: The disability status was assessed using a structured questionnaire, which addressed ability to carry out activities of daily living, eg. eating, counting money, walking.

Outcome measures: Disability was said to be moderate if any of the basic activities of daily living could only be performed with difficulty, and severe when any basic activity could not be performed.

Results:

Reg. prev. of leprosy in area:	2.8 per 10,000
Prev. of EHF Score of 8 or more:	1.8 per 10,000
Prev. of moderate disability:	2.9 per 10,000
Prev. of severe disability:	0.9 per 10,000

145 subjects had moderate disability, (EHF Scores: less than 8 in 92 (63%); 8 or more in 53 (37%). 43 subjects had severe disability, (EHF Scores: less than 8 in 5 (12%); 8 or more in 38 (88%). Of the 141 without disability (as defined above), none had an EHF score of more than 6, while 86 (61%) had a score of less than 4.

Conclusion: The remaining lifelong disability in some people who have completed their treatment is a major health problem. This study indicates the range of disability experienced by people affected by leprosy and the prevalence in the general population in central Ethiopia. It has also shown that the EHF Score gives a fair indication of the disability experienced by any individual person and that a knowledge of these scores for all previously treated patients in a community would give valuable information as to the burden of disability faced by that community.

DC63

INTRA- AND INTER-OBSERVER VARIATION IN ASSESSING THE EHF SCORE

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ALERT P.O.Box 165, Addis Ababa, Ethiopia

Objective: To measure the intra- and inter-observer variation in the assessment of the EHF Score.

Subjects: Eight leprosy supervisors examined 50 leprosy patients with a wide range of impairment, including eye damage, over a 2-day period. On the 3rd day, 15 patients were examined a second time.

Results:

	0 - 8 score:	0 - 12 score: (EHF Score)
Intra - observer variation:		
Exact agreement	67%	62%
Agreement to within one point	91%	88%
Inter-observer variation:		
Exact agreement	53%	50%
Agreement to within one point	81%	78%

All observers performed similarly and agreed with the consensus in 74 - 85% observations. Kappa statistics were calculated for each pair of EHF Scores; the weighted kappa was also calculated (this takes more account of widely differing results):

Unweighted kappa (mean)	0.44	(range 0.28 - 0.62)
Weighted kappa (mean)	0.73	(range 0.61 - 0.82)

Conclusions:

The relative unreliability of sensory testing is described in the literature and appears to account for most of the variation in the EHF Score described here. The degree of inter- and intra-observer variation is shown to be within acceptable limits. The inclusion of the eyes in the score does not change the reliability significantly in the Ethiopian context, because eye damage is rare.

DC64

THE EHF SCORE: WHAT IS IT?

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The EHF (Eyes, Hands and Feet) Score measures severity of impairment in persons affected by leprosy. It can be used to monitor prevention of impairment and disability activities, at programme, region or country level.

This poster discusses the basic characteristics of the "EHF Score" and the reasons for using the 0-12 scale rather than the 0-8 scale. The latter has been used in the past, but excludes the eyes from the assessment. The major reason for including the eyes is to emphasise that eye damage is an important, treatable complication of leprosy, which should be watched for.

The EHF Score is calculated by adding together the WHO Disability Grades (more correctly called Impairment Grades, which may be 0, 1 or 2) for each of six sites, namely, right and left eye, right and left hand, right and left foot. The maximum score is therefore 12, which indicates severe impairment. The resulting 0-12 scale is not linear and, when looking at populations, is usually not normally distributed. In statistical computations non-parametric methods should therefore be used. The EHF score can either be used for cross-sectional comparisons between affected people or patients groups, or cohort-based calculations.

Although the idea of the EHF Score is not new, it has not been tested for its biometric properties, such as validity and repeatability. In the accompanying posters, we report studies of intra- and inter-observer variation and validation of the EHF Score against a more complete assessment of impairment. The relationship with the International Classification of Impairments, Disabilities and Handicaps (WHO, 1980) is also explored.

DC65

TECHNIQUES FOR ASSESSMENT OF IMPROVEMENT IN CLAW HAND AND ITS RELEVANCE TO DISABILITY MANAGEMENT

Neela Shah, Atul Shah

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The major problem in disability management is the difficulty in assessment of results in improvement of claw deformity. For long term substantiation of lasting improvement it is necessary that simple field level techniques combined with necessary functional results is adopted. The extensive follow-up in field areas demonstrates the versatility of Shah's Ink-Impression Technique. Drawing of the deformity on a paper is another technique but is difficult to manage in long run. Another method for surgical cases would be the angle measurement which has limitations and is preferred only by the qualified physiotherapists. The photographic documentation in standard positions is excellent but expensive and need training. The usefulness and pitfalls of these various techniques will be presented for standardisation of disability data management.

DC66

EFFECTS OF EYES, HANDS AND FEET SELF-CARE IN LEPROSY DISABLED PATIENTS FOR SIX YEARS

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Three hundred and thirty seven leprosy disabled patients have been trained in doing self-care and have put it into practice for 6 years. It has been found that the self-care skill mastering rate of patients ranged from 48.1% to 95.57% and regularity rate of self-care ranged from 28.27% to 99.37%. The numbers of red eyes declined from 66 to 15, hand cracks from 126 to 28, hand wounds from 4 to 0, foot cracks from 93 to 3 and sole ulcers from 67 to 28. The authors considered that the frequency of supervision and provision of self-care facilties dominateed the regularity and effect of long term self-care, which, of course, also related to disability and economic conditions of patients, the consciousness of self-care of patients and their family members, busy season, the method of training, etc. In this paper disability worsening cases were discussed and some advices such as making a practicable disability prevention project, changing the focus of training, intensifying the intervention in busy season, providing economic support etc., were recommended.

DC67

A CLINICAL STUDY ON ORBICULARIS OCULI MUSCLE LESION IN LEPROSY

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To further investigate the orbicularis oculi muscle lesions in leprosy and the relationship between it and keratopathy or vision reduction, thus more rationally select priority cases for blindness prevention, a study of orbicularis oculi muscle, cornea and visual acuity was carried out in a sample of 187 lagophthalmoses caused by leprosy. The results showed that the orbicularis oculi muscle lesion in lagophthamoses were incompletely paralysed, frequently with a lid gap width of 4mm, 8mm and 6mm in gentle close. The keratopathy rate was 44.39% (83/187) and the vision reduction rate was 27.81% (52/187) which were positively related to the extent of motor loss of orbicularis oculi muscle and corneal exposure, especially in lagophothalmoses with normal corneal sensation. The lagophthalmoses with impaired corneal sensation accounted for 31.55% (59/187). Its keratopathy rate and vision reduction rate were significantly higher than those with normal corneal sensation; The orbital section of orbicularis oculi muscle less frequently involved in lagophthalmoses, amounting to 17.65% (33/187) with a keratopathy rate and a vision reduction rate of 66.67% and 45.45% respectively, more significantly different from in those without involvement of the orbital section. Lagophthalmoses with paralytic ectropion reached 24.06% (45/187) with a keratopathy rate and a vision reduction rate of 88.89%(40/45) and 73.33% (33/45) respectively, significantly higher than those without ectropion. The authors suggested that the lagophthalmoses with corneal exposure in gentle close, those with impaired corneal sensation, those with orbital section muscle failure and those with paralytic ectropion must be given priority in order to use the limited resources for blindness prevention more reasonably and effectively.

DC68

BENEFITS OF SELF CARE/OCUPATIONAL THERAPY

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During the past three years we have approached the self care and ocupational therapy with more emphasis. With systematic education by new and old leprosy patients, a new classification was developed to identify and apply ocupational therapy, and a strict system to convince staff and patients for self care
The admissions for patients with ulcers dropped 45%.
The average admitted time for these patients dropped 9%.
The global admitted days/year due to ulcers dropped from 11,815 (1993) to 5,973 (1997l) = 50% less.

DC69

DIABETIC FOOT REHABILITATION IN ISTANBUL LEPROSY HOSPITAL

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Foot ulceration in patients with Diabetes Mellitus is a major public health problem. The minister of health estimates there are 3 million people in Turkey affected by diabetes. 107 male, 77 female total 184 diabetic cases were investigated whom were evaluated in Istanbul Leprosy Hospital. The average age was 61.2, and the average duration of disease was 18 years. 98% of them were seen to have loss of sensation, 17% to have weakness of muscles. 10% have had peripheral vascular disease. 67% of them have ulcers on their feet due to neuropathy, 30% to have local amputation and 2% to have below knee amputation. 5% of the patients have Charcot joint.

We have given them health education about neuropathic foot care and protective shoe.

The poster will show experiences from Istanbul Leprosy Hospital where diabetics can get foot care and rehabilitation.

DC70

EFFECTIVENESS OF PROTECTIVE ORTHOPAEDIC SHOES IN NEUROPATHIC AND DEFORMED FEET IN LEPROSY

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The orthopaedic shoe workshop was initiated in our hospital in Bakırköy, Istanbul in 1980. The objective of this workshop is to help prevent foot injuries as a result of loss of protective sensation, also to provide protective and corrective footwear and orthoses to patients with deformities.

681 leprosy patients were studied in this survey and they were evaluated according to their age, sex, level of education the regions they live, as well as the condition of their feet and the type of shoes they required. 74% of these patients were male and 26% were female, the average age was 55.10%. 86% of these cases came from rural areas, 62% were illiterate, 67% of them were unemployed. 30% of them were seen to have loss of sensation, 53% to have claw toes, healed ulcer, drop-foot, 27% to suffer severe disability.

33% of them have had two pairs slippers and protective shoes in a year, 40% have had orthopaedic shoe when they need it. 21% of them wears commercial shoes and we follow them. 2% refuse to use special shoe for them. 4% of them are very old and we give them only orthopaedic slippers for home.

All the other results will be analyzed and the advantages of orthopaedic shoes will be discussed at the congress.

DC71

THREE-YEAR RESULTS OF SELF-CARE AMONG 856 DISABLED PEOPLE AFFECTED BY LEPROSY

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The final evaluation results of eyes, hands and feet in the Stage 1 Collaboration Project between MOH and TLMI were summarized. Among 856 people with eye, hand and foot disability,70% of eye infection (red eye) disappeared, 80% of cracks on hand and foot disappeared, 40% of plantar ulcers healed, 18 wounds on 15 patients' hands healed, and 80% of people affected by leprosy (PAL) formed self-care habits showing that self care was acceptable for PALs and disability could be prevented only if health care and supervision were carried out well and intensively.

DC72

USING NATURAL RESSOURCES

Jean Felly Mukalayi N

The Leprosy Mission - Sankuru Leprosy Control program, Democratic Republic of Congo

Sankuru (Democratic Republic of Congo), is located in the dense tropical rain forest, where people are usually practising traditional medicine.

This is a story of Mr. Dienena, a sixty years old man, known previously as a leprosy healer, and who finally got leprosy.

Many years ago he treated leprosy patients by applying local medicine on the skin, in order to regain normal skin condition. When he found that he was not able to treat propely himself, he came to our clinic where he received proper treatment.

Today he is helping us in finding new cases as a health worker, and is bringing to health units his previous patients for right treatment (MDT) and health education.

In the other hand, we are experiencing the use of a tree resin for the treatment of leprosy ulcers. One of our patients was applying that resin, locally called "TSHO". It's orginal name is "Austranella", which is as well used by the Catholic church as incense. The substance is known to have a medical effect on wounds. We still need to produce a pharmaceutical ointment, taking in account the guidelines of Dr. Hans Martin Hirt's "Topical Medicine". The results obtained by applying the ointment after having soaked and trimed the ulcer, are encouraging.

Success in healing ulcers requires all the attention of the health worker, to train patients in self-care, changing behaviours in getting family support.

EPIDEMIOLOGY

EP01

SPATIAL DISTRIBUTION OF M.LEPRAE PCR POSITIVE INDIVIDUALS IN AN INDIA COMMUNITY

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The problems of identifying sub-clinical infection and those of in vitro cultivation of M.leprae have limited study of the transmission of leprosy infection in endemic communities. Early studies have demonstrated the high rate of discharge of M.leprae from the nose in bacilliferous leprosy patients and the presence of early lesions in the nasal mucosa. The ability to use polymerase chain reaction (PCR) techniques to identify small numbers of M.leprae now gives potential to study transmission in endemic communities.

A leprosy endemic village (population : 1442) in South-West India where leprosy control activities have been underway for more than 20 years was selected for study. A survey of residents was conducted in 1997 where individuals were examined and nasal swabs taken from 1298 subjects to test for the presence of M.leprae using PCR methods. The house location of old and current patients in the village is known from the leprosy control records. The leprosy cases (old and current) have been plotted on the map of the village along with the location of those identified as having PCR positive nasal swabs. The spatial distribution of cases and PCR positive individuals is presented in this analysis and hypotheses of the transmission discussed based on these findings. Two more villages will be surveyed as part of this ongoing study.