PREFACE

It gives me great pleasure to present the Annual Report for this year 2005 – 2006. India achieved Elimination of Leprosy successfully by the end of 2005 and me and my staff take immense pride in the fact that as the Central Leprosy Teaching and Research Institute we have the years played a significant role in achieving this target. We intend to continue maintaining this same tempo with Elimination as our next target.

MDT continues to play a major role in bringing down the new case load with only 49 new cases having been reported at our institute during the year. The same is true with regards to deformity with a significant drop in the figures for RCS as reflected at our institute.

In the context of Integration with General Health Care Services C.L.T.R.I. continued to play a significant role in Training both Medical and Para-Medical personnel both in the institute as also by rendering Consultancy Services in different states.

Action has been initiated to reorganize our Institute in taking up major communicable diseases like Tuberculosis as also to use our facilities in the field of Reconstructive Surgery to extend Rehabilitative Surgery for people in the surrounding areas.

Bed occupancy figures do not show much change. Patients are referred to C.L.T.RI for management of complications of leprosy from all over the country.

The staff of the various divisions in C.LT.R.I. has without hesitation put forth their best in providing the best of services in the institute as also elsewhere when called for. My due appreciation to all the staff for extending their wholehearted cooperation with sincerity and dedication.

Continued encouragement and support by the Ministry of Health and Family Welfare, Government of India, Director General of Health Services and especially Deputy Director General of Health Services (Leprosy) is gratefully acknowledged.

My special thanks to Dr.B.Sekar, Joint Director (Microbiology) for compiling this Annual Report and staff of Training and Computer Sections of this institute for assistance rendered in the printing and production of this report.

Dr.P.K.OOMMEN, M.S.(Ortho)
DIRECTOR
Central Leprosy Teaching and Research
Institute, Chengalpattu, Tamil Nadu.

I. Routine performance for the year 2005-06:-

CLINICAL DIVISION

Clinical Division comprises of FIVE inpatients wards and OPD, Nursing Section, Sanitary Section and Central Kitchen. About 100-200 patients from the sanatorium are under the care of Clinical Division. Total sanctioned bed strength of the Clinical Division is 124. This has been divided into five wards, namely Investigation ward, Surgical ward, Main hospital, Sick room and Women hospital. The Investigation ward has 24 beds and it is mainly used for expertised management of lepra-reactions, investigation for relapses/drug resistance and for other general medical conditions, acute or chronic nature.

Patient care facilities provided in the Clinical Division are:-

- Out patient care – General/MDT services
- In-patient treatment – General/MDT services
- Expert management of reactions, relapses/drug resistance etc.
- Teaching activities in leprosy.
- Research studies in clinical leprosy.
- Collaborative research projects with other divisions.

Statistics for in-patients and outpatients.

HOSPITAL STATISTICS AS PER MEDICAL RECORDS SECTION:

1.4.2005 TO 31.3.2006

A) IN-PATIENTS (Wards):

1. Patients remaining on 31-3-2006	=	75
2. Patients admitted in the Hospital (wards) during 2005-2006	=	713
3. Total patients treated in the hospital(wards) during 2005-2006	=	788
4. Total Discharges during 2005-2006	=	734
5. Total Deaths during 2005-2006	=	4
6. G.L.C block Admission during 2005-2006	=	191
7. G.L.C. block Discharges during 2005-2006	=	151

B)OUT-PATIENT SERVICE (2005-2006)

Particulars	New Cases	Old Cases	No. of patients attended from GLC (Block cases)	Other Cases
Men	33	6114	3253	3079
Women	12	2195		
Boys	1	19		
Girls	3	34		
TOTAL	49	8362	3253	3079

Overall patients attendance in the OPD:-

- New = 49
- Old = 8362
- GLC Block Cases = 3253
- Other cases = 3079

Total No. of cases seen in OPD = 14743

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* NEW CASE (PB (A) MDT) : 21
* NEW CASE (MB (A) MDT) : 32
* REOCCURANCE / RELAPSE CASE (MB-MDT): 34

SURGICAL DIVISION

The Surgical Division comprises the Surgical Unit, Physiotherapy Section, Artificial Limbs and Footwear Section, X-ray Section and Micro-cellular Rubber Sheets manufacturing Unit.

Attached to the Surgical Unit is a well-equipped Operation Theatre. There is a male Surgical ward comprising 24 beds, where male patients undergoing elective surgical procedures like tendon transfers are admitted. Female patients undergoing elective surgical procedures and those with ulcers are admitted to the Women Hospital where 12 of the 18 beds are allotted to the Surgical Unit. Besides the above male patients with ulcers are admitted to Main Hospital comprising 25 beds and Sick Room comprising 27 beds. Investigation Ward comprising 24 beds is also used for admitting surgical patients with neuritis and for elective surgical procedures. On an average of the total of 124 beds approximately 100-110 beds are occupied by patients under the direct care of the surgical team.

The functions of the Surgical Division can be grouped as shown viz.:

I) Patient care activities.
II) Teaching and Training Programs.
III) Research.

(I). PATIENT CARE ACTIVITIES:

The Surgical Division provides both Out-Patients and In-Patients services for leprosy patients who come from different parts of the country besides surrounding regions. Treatment in the areas of deformities and deformity prone conditions are extended. Both surgical and non-surgical methods are applied for treating patients so that permanent disabilities and handicaps are prevented. The surgical out-patient service is provided daily and on an average 40 to 50 patients attend daily. During the period 1-4-2005 to 31-3-2006 there were 76 admissions to the Surgical Ward and 65 discharges, with no death occurring. The average period of stay per patient was for 45 days.

During the period 1-4-2005 to 31-3-2006, 219 surgical procedures were carried out. The various surgical procedures performed are listed below:

I. RECONSTRUCTIVE SURGERY:

Claw finger correction	:	11
Claw thumb correction	:	2
Drop Foot Correction	:	4

II. SURGICAL DECOMPRESSION OF NERVES:

Ulnar Nerve	:	2
Median Nerve	:	1
Posterior Tibial Nerve	:	2

III. AMPUTATIONS:

B.K.Amputation	16
B.E.Amputation	1

IV. ULCER SURGERY : 126

V. MISCELLANEOUS:

Miscellaneous like ear lobe repair, Biopsy, SSG Knee disorganization, MTH resection, Calcaneal shaving etc.	54
Total	219

PHYSIOTHERAPY SECTION:

The Physiotherapy Section has continued to play an active and very important role in providing Physiotherapy services to both Out-Patients and In-Patients. Besides patient care activities, the staff of this section has also been involved in the various research projects conducted by the Surgical Division by way of evaluation of deformities, assessment of motor and sensory status and functional assessments. The staff of the section were also involved in the various teaching and training programs conducted by the institute particularly so for the nine months Leprosy Physiotherapy Technicians Course. The staff of Physiotherapy Section were also actively involved in counselling of patients by imparting health education in the care of insensitive hands and feet, an important and

decisive factor in the prevention of deformities and disabilities in patients.

During the 12 months period of 1-4-2005 to 31-3-2006, 54 new patients were seen, examined and treated. On an average about 25 patients were attended to daily in Physiotherapy Section.

The treatment modalities employed are hand and foot exercises, wax therapy, oil massage, short wave diathermy, ultra-sound therapy, transcutaneous nerve stimulation, infra-red treatment, interferential therapy and electrical stimulation of muscles and nerves. Various modalities of treatment given as number of sessions for each, are given below.

1	New Case Registration	:	54
2	Hand Exercise	:	3550
3	Foot Exercise	:	1366
4	Wax Bath	:	3007
5	Electrical Stimulation	:	985
6	Short-wave Diathermy	:	439
7.	Infra Red Radiation(I.R.R.)	:	52
8.	Interferential Therapy	:	60
9.	Ultrasonic Therapy	:	126
10.	Cylindrical /Lumbar Traction	:	161
11.	Cylinderical Splinting		231
12.	MCP Blocks	:	27
13.	Thumb-Web Splint	:	20
14.	Cock-up Splint	:	6
15.	Functional Position Splint	:	33
16.	Hand Slabs	:	29
17.	Foot Slabs	:	49

18.	Below Knee Plaster casts (B.K.P.)	:	43
19.	Spiral Splint	:	137
20.	Thumb /Eye/Facial Slings	:	41
21.	Hand Assessment	:	627
22.	Foot Assessment	:	593
23.	General Cases	:	187

RADIOGRAPHY SECTION:

The X-ray Unit attached to the Surgical Section caters to the needs of all clinical units in the institute. A SIEMEN'S 500 m.A. X-ray machine with micro-processor controls, which can be used besides taking routine X-rays for tomography work is functioning, in addition there is also a Portable X-ray Plant (Siemen's 30 m.A).

During the period 1-4-2005 to 31-3-2006, 580 X-rays were taken for 500 patients. They are as follows:-

Lower Extremities	:	375
Upper Extremities	:	77
Chest	:	55
Various spines	:	53
Skull	:	6
Pelvis	:	12
Abdomen and KUB area	:	2

MICRO-CELLULAR RUBBER MILL:

The Micro-Cellular Rubber Mill is a small production unit manufacturing micro-cellular rubber sheets of the quality needed for use in the manufacturing of footwear for

leprosy patients. During the period 1-4-2005 to 31-3-2006, this unit has processed 1500 nos. of black coloured Micro-cellular rubber sheets to our specifications of 15º Shore hardness. Out of this 764 sheets were used in Footwear Unit of CLTRI and 759 sheets were supplied on demand to other organisations involved in leprosy work under NLEP. At the end of March,2005 there were a balance of 138 sheets and at the end of March,2006 there was a balance of 115 Sheets.

Balance on 31-3-2005	Total number of sheets produced 1-4-2005 to 31-3-2006	No. of sheets issued to FW Section, CLTRI	No. of sheets issued to other organisati-ons	Balance as on 31-3-2006
138	1500	764	759	115

The demands from other organisations under NLEP for supply of MCR Sheets are on the increase. However, since our production capacity was limited we were not able to meet all the demand.

The MCR mill machinery donated by British Council Department for International Development is still to become operational.

ARTIFICIAL LIMB AND FOOTWEAR CENTRE:

The Artificial Limb and Footwear Centre supplied 1273 items of footwear and prosthesis. In addition about 10 to 15 minor repair works on footwear is attended to daily. Details of different types of footwear supplied to patients is listed below:-

Different types of Microcellular Rubber Sandals	:	1240
Different types of Orthosis and Prosthesis	:	33
Arch support and Metatarsal bars	:	236
Major repairs of the Prosthesis and Orthosis	:	5
		1514

Since mid 1992, one of the Cobblers have been deputed to go with the field clinic teams to the villages. This is continuing with at least one visit every month ensuring that during the course of the year all the clinics in the field area are covered. During these visits measurements for footwear for patients is taken and the footwear is supplied during the subsequent visit.

Due to staff shortage footwear and prosthesis are supplied late. On an average a patient has to wait for 3 weeks after measurements are taken before he receives regular footwear. For patients needing P.T.B. prosthesis the waiting period is as long as 1 year. It is hoped that posts requested for, will be filled up so as to reduce the waiting period for patients to collect their footwear and prosthesis.

All trainees attending different training programmes in the institute are assigned time in the footwear section where the orthotic-prosthetic technician demonstrates the use of different types of footwear and prosthesis and how to make them.

DIVISION OF LABORATORIES

Laboratory division is basically involved in the investigations of cases from out and inpatient departments of CLTRI for leprosy related and other routine investigations and also involved in the basic and applied research activities in leprosy. This division has sections like Microbiology, Mycobacteriology, Serology, Clinical pathology, Skin Smear, Histopathology, Molecular-biology Haematology Biochemistry, Immunology and Animal House.

The Lab. Division is well equipped. Facilities for different kinds of microscopic studies like Light, Dark-field, Phase contrast, Fluorescent microscopies are available. Facilities for different immunological studies involving immno-flourescence tests, different types of electrophoresis, etc. are available. Sophisticated instruments like HPLC, Atomic absorption Unit, Ultra centrifuge, Phast gel system etc. are available. Facilities for isolation, characterization and drug sensitivity tests for cultivable Mycobacteria also exist.

The Molecular Biology section of the Division has been upgraded with the basic facilities for the isolation of DNA, PCR amplification and Gel documentation. These facilities are being utilized for various institutional projects and also in the collaborative and Post Graduate Course projects.

A separate Animal House with different animal colonies with provisions for animal experimental

investigations including Mouse Foot Pad inoculation for the viability and drug susceptibility tests for M.leprae is also available. This section carried out WHO sponsored multi centric drug trials involving Mouse Foot Pad inoculation.

The Lab. Division has a separate, isolated and furnished Radioisotope room with facilities for radio isotopic studies. Facility for frozen sectioning of biopsy material also exists, in addition to routine histo-pathological service.

Laboratory Division is also involved in teaching activities. One year Medical Laboratory Technician training course and short-term orientation training course in skin smear technique are offered. In addition to that the teaching / training in laboratory aspects of leprosy is conducted for Medical Officers, Non Medical Supervisors, District Leprosy Officers, CRRI trainees, etc.

In reporting year, the on-going research projects proposed from Lab. Division and got approved by the Scientific Committee, have been continued. Further new and Collaborative Projects and Post Graduate Course have been carried out with the due permission of Director, CLT&RI. The observations of these research projects have been presented in National conferences.

I (a) ROUTINE PERFORMANCE 1-4-2005 TO 31-3-2006

Sl.No.	DEPARTMENTS / SECTIONS WITH NO. OF INVESTIGATIONS ITEM-WISE	TOTAL NO. OF INVESTIGATIONS
A	CLINICAL PATHOLOGY	926
B	SKIN SMEAR	316
C	HAEMATOLOGY & SEROLOGY	3870
D	MICROBIOLOGY	222
E	HISTOPATHOLOGY	63
F	MOLECULARBIOLOGY	1402 (Routine & Research activities)

I (b) Performance:

A proposal on the facilities available and upgradation requirements with budget required for taking up the activities of State TB Training and Demonstration Centre (STDC) at CLTRI, Chengalpattu was prepared by Divisions of Laboratories, Epidemiology & Clinical Divisions and the same was submitted to the Central TB Division, Nirman Bhavan, New Delhi-11 on 5-8-2005.

BIOCHEMISTRY

I (a) ROUTINE PERFORMANCE 1.4.2005 TO 31.3.2006

Sl.No.	DEPARTMENTS / SECTIONS WITH NO. OF INVESTIGATIONS ITEM-WISE	TOTAL NO. OF INVESTIGATIONS
A	BIOPSY CASES UNDERTAKEN	7
B	NO. OF CASES UNDERTAKEN FOR DRUG RESISTANCE AND BACTERIAL VIABILITY	18
C	OTHER INVESTIGATIONS 1. BIOCHEMISTRY 2. IMMUNOLOGY	 1923 -

ANIMAL HOUSE STOCK POSITION AS ON 31-3-2006

ANIMAL HOUSE (Animal Stock position)

BALB/C Mice inbred strain		**893**
A. Litters		333
B. Young Male		124
C. Young Female		177
D. Mating Male		80
E. Mating Female		159
Swiss Albino Mice inbred strain		**909**
A. Litters		356
B. Young Male		114
C. Young Female		261
D. Mating Male		64
E. Mating Female		114
INNOCULATED MICE		**421**
Control	(A)	56
Dapsone – 0.01%	(B)	50
Dapsone – 0.001%	(C)	49
Dapsone - 0.0001%	(D)	50
Rifampicin – 0.03 %	(R I)	53
Rifampicin - 0.003%	(R II)	55
Lamprene - 0.01%	(L I)	56
Lamprene - 0.001%	(L II)	52
RABBIT		**2**
SHEEP		2

DIVISION OF EPIDEMIOLOGY AND STATISTICS

There are 3 sections functioning in this division. They are

1. Monitoring and Evaluation Unit
2. Rural Field Operational Area
3. Training Section

1. MONITORING AND EVALUATION

Monitoring and Evaluation section was established in the year 1986. This unit is having qualified statistical and IT manpower to analyse and computerize any study / activity. This unit is involved in the following activities.

1. Entering data, statistical analysis and preparation of reports of research projects.

2. Imparting Training for Medical Officers, Non-Medical Supervisors and House Surgeons.

3. Providing technical assistance to other divisions including administration for computerization and database maintenanace.

4. Maintaining and updating Salary, Inventory of Stores Management etc.

2. RURAL FIELD OPERATIONAL AREA

The RFOA covers a population of 1.5 Lakhs in and around 'KUNRATHR', located in the outskirts of Chennai, divided into 10 sectors, each sector covering around 15 thousands population. The CLTRI Field Office is functioning at TAMBRAM, the Head Quarters of the RFOA.

The DGHS (Leprosy Division), New Delhi, vide their letter No.Z.16025/6/2002-Lep. Dt. 18.03.2003, conveyed their decision that the CLTRI would continue to use field operation area (ie. RFOA around KUNRATHUR) for various training and research activities.

3. TRAINING SECTION

This section maintains trainee's hostel, scientist hostel and teaching tools for conducting various training programes. There are 24 rooms in trainee's hostel and 16rooms in scientist hostel. This section co-ordinates with various Divisions / faculty for keeping the training schedules. All applications for training will be screened and selection will be intimated by this section.

SURGICAL DIVISION

RESEARCH WORK:

i) Neurophysiological assessment of loss of different sensory modalities in the hands of leprosy patients..

ii) Nerve conduction velocity studies to diagnose early change in nerves of leprosy patients.

iii) Posterior tibial neurovascular decompression to prevent recurrent plantar ulceration.

iv) Neuritis in leprosy – Comparison of medical and Surgical decompression to effect recovery of nerve damage..

v) Nerve grafting for recovery of sensation.

PROPOSED RESEARCH PROJECTS:

i. Microsurgical transfer of free nerve grafts to aid recovery of sensation.
ii. Microsurgical, free sensory flap transfer for prevention of recurrent plantar ulcers.
iii. Use of Autogenus muscle grafts to aid sensory recovery.
iv. Use of Collo Dermis in the management of Stasis Ulcers in leprosy.

The proposed research projects are not being done since though we have an operating microscope necessary funding for micro-sutures etc is not being provided. Budget allocation if made available there is scope for bit of research which would benefit patients.

LABORATORIES DIVISION

II(A) ON-GOING RESEARCH PROJECTS

1. STUDY ON SURVEILLANCE OF RIFAMPICIN RESISTANCE, AMONG SMEAR POSITIVE MULTI-BACILLARY LEPROSY CASES OF RELAPSE AND OTHER HIGH-RISK GROUPS.

This project was taken up after presentation in the Scientific Advisory Committee meetings.

AIM AND OBJECTIVE

General:

- To examine the magnitude of rifampicin resistance among the reported cases of MB relapse/ treatment failure/ non-responders/ MB cases with high initial B.I.

Specific:

- To study rifampicin resistance, using the PCR based rapid molecular-biological techniques.

Work carried out

In the previous years

Standardization of PCR for M. leprae rpoB gene was carried out using Brpo22 and rpo 32 primers, with skin biopsy samples. Initially, Seven skin biopsy samples were processed from suspected cases of relapse. M. leprae DNA from the samples were extracted by enzymatic procedure.. PCR for rpoB gene was carried out. The PCR products of

390 bp were run on agarose gel with ethidium bromide along with the molecular weight marker and visualized using UV transilluminatior. Single Stranded Confirmation Polymorphism (SSCP) a screening test for rifampicin resistance was standardized. Till last reporting year 19 samples were processed.

In the reporting year. We have standardized rpoB PCR with a newer set of MLrpo1(forward) and Mlrpo2 (reverse) primers and by employing a suitable PCR conditions. This has yielded 305 bp product. We have received 13 skin biopsy samples from suspected cases of relapse, in this reporting year. Out of the 11 samples processed all of them yielded PCR products. Other samples are under process for PCR amplification.

Future plan

We plan to sequence all the PCR products to detect mutations in the rpoB gene and to correlate the finding with that of SSCP.

(Investigator: Dr. B. Sekar, Co-investigators: Dr. B. Nirmal Kumar, Mr. K. Arunagiri, K. Menaga)

2. APPLICATION OF POLYMERASE CHAIN REACTION (PCR) BASED MOLECULAR BIOLOGICAL TECHNIQUES IN THE DIAGNOSIS OF LEPROSY.

This project was taken up after presentation in the Scientific Advisory Committee meetings.

AIM AND OBJECTIVE

General

To establish the PCR based molecular biological techniques in detection of M. leprae specific DNA in the clinical samples of different types of leprosy cases.

Specific

To study the significance of PCR based molecular biological laboratory technique in supplementing the clinical diagnosis.

Work carried out

In the previous year:

Standardization of PCR for M. leprae specific repetitive sequence was carried out using skin biopsy samples. Initially we processed 8 skin biopsy samples, M. leprae DNA from the samples were extracted by enzymatic procedure and from some samples by Freeze-boil method also. A 372 bp PCR product of M. leprae-specific

repetitive sequence was amplified using ML1 (forward) and ML2 (reverse) primers. The PCR products were run on agarose gel with ethidium bromide along with the molecular weight marker and visualized using UV transilluminatior. All of them yielded PCR products for M. leprae-specific repetitive sequence. Till last reporting year we processed 17 skin samples and 13 nasal samples. All of them yielded PCR products

In the reporting year: we processed 55 nasal samples from different types of MB and PB cases ie:-relapse, cases of RFT/ under treatment/ untreated etc.,. Out of 55 cases studied, 14 (25%) were found positive for M.leprae in the nasal swab. They were - all the 4 (100%) BI positive MB Relapse cases, 6 (50%) out of 12 BI positive untreated / under treatment MB cases, 3 (27%) out of 11 BI positive MB cases after RFT, 1 (10%) out of 10 PB cases under treatment. All 15 (100%) BI negative MB cases after RFT and all 3 (100%) PB cases after RFT were found negative.

Future plan

We plan to continue the project by applying M. leprae specific PCR in other clinical samples and also among PB leprosy and doubtful cases.

(Investigator: Dr. B. Sekar, Co-investigators: , Mr. K. Arunagiri, Mr. D. Anandan)

II. B. COLLABORATIVE PROJECT

This work was taken-up as collaborative project with Stanley Medical College.

COMPARATIVE STUDY OF BACTERIOLOGICAL TECHNIQUES, CYTOLOGY AND MOLECULAR TECHNIQUE (PCR) USING FINE NEEDLE ASPIRATE IN THE DIAGNOSIS OF TUBERCULOUS LYMPHADENITIS

Tuberculous lymphadenitis often presents a diagnostic challenge especially when clinical presentation is suggestive but bacteriological proof is lacking. The culture isolation of tubercle bacilli from lymphnode biopsy specimen remains the gold standard, confirmatory test for the diagnosis of the disease. A study to compare the efficacy of different laboratory techniques in the diagnosis of Tuberculous lymphadenitis was carried out.

AIMS AND OBJECTIVES

- Isolation of Mycobacterium tuberculosis from the fine needle aspirate samples by employing conventional bacteriological methods in patients clinically diagnosed as tuberculous lymphadenitis.
- Performing PCR on FNA sample to detect the M. tuberculosis specific gene.
- Correlation of the conventional techniques, with molecular technique in the laboratory diagnosis of tuberculous lymphadenitis

MATERIALS AND METHODS

One hundred and twenty five Patients who were clinically suspected as tuberculous lymphadenitis cases were included in this study. Among the 125 samples, for 50 samples in which adequate fine needle aspirate could be obtained, a highly sensitive and recent diagnostic molecular method Polymerase Chain Reaction (PCR) targeting the insertion sequence1S6110 fragment of DNA of 123bp was done at CLT&RI, At Stanley medical College the conventional techniques like cytomorphological and bacteriological techniques were carried out.

RESULTS

Results of different tests in samples from clinically suspected cases of tuberculous lymphadenitis.

Method	No. of samples Tested	Results	
		Positive (%)	Negative
Smear Microscopy	125	21 (16. 8)	104
Culture	125	43 (34.4)	78 *
FNAC	125	59 (47.2)	66
PCR	50	28 (56.0)	22

*4 Specimens = Contamination

Of the 125 samples screened by ZN staining microscopy , 21 cases were positive for AFB (16.8%). 43 samples (34.4%) were positive by culture for M.tuberculosis. 2 specimens yielded Non Tuberculous Mycobacteria as

confirmed by biochemical tests. By fine needle aspiration cytology study positive cytomorphological diagnosis of tuberculosis lymphadenitis was for 59 cases (47.2%). Polymerase Chain Reaction (PCR) for amplification of IS6110 target was carried out in 50 cases in which adequate FNA samples could be obtained. 28 out of 50 samples were PCR positive (56%).

Comparison of the bacteriological diagnosis (either culture or direct smear) with molecular diagnostic technique.

PCR	**Either culture or smear ***	
	Positive	**Negative**
Positive	21	6
Negative	5	16

* 1 sample contaminated

Out of 28 samples that were positive by PCR, 21 samples were also either smear or culture positive for M.tuberculosis. The sensitivity of PCR when compared with bacteriological methods was 80% and specificity was 72.7%.

The logistic regression analysis revealed that among FNAC, Direct smear and PCR, PCR ($p \leq 0.001$) was most significantly associated with culture positivity than FNAC and Direct smear. When FNAC ($p \leq 0.001$) and direct smear ($p \leq 0.421$) were compared, FNAC was found to be more significantly associated with culture than Direct smear.

Since PCR has significant association with culture ($p \leq 0.001$), in comparison with other conventional test like FNAC, Direct smear and also it is shown that PCR is a high sensitive tool, PCR may be considered as ideal supplementary test along with culture techniques. Although conventional diagnostic techniques remain the method of choice in regions with low resource settings, PCR may be employed in cases with strong clinical suspicion and equivocal results, especially at an early stage of the disease for better diagnosis, management and treatment.

(Investigators: Dr. B. Sekar, Dr. Anitha Alexis*, K. Arunagiri, K. Menaga)

*- Stanley Medical College, Chennai

II.C UNIVERSITY POST GRADUATE COURSE PROJECT

The following MSc course projects of University of Madras were carried out.

1. IDENTIFICATION OF AMPC β - LACTAMASES, EXTENDED SPECTRUM β - LACTAMASES, METALLO β - LACTAMASES AMONG SECOND, THIRD GENERATION CEPHALOSPORINS AND CARBAPENEM RESISTANT GRAM NEGATIVE CLINICAL ISOLATES

Many Clinical laboratories are not fully aware of the importance of different Beta lactamases. This lack of understanding is responsible for a continuing failure, to prevent the rapid world wide dissemination of pathogens possessing these β-lactamases. In this study Gram negative clinical isolates were subjected to screening for the presence of three major Gram negative β - lactamases.

AIM AND OBJECTIVE

- To screen for Extended Spectrum β - lactamases (ESBL) among the third generation cephalosporin resistant clinical isolates
- To screen for AmpC β - lactamases among the second generation cephalosporin resistant clinical isolates and to confirm the presence of these β - lactamases among the screen positive isolates

- To screen for carbapenem resistant clinical isolates and to screen for Metallo β - lactamases among the carbapenem resistant isolates

MATERIALS AND METHODS

In this study, the tests used for discrimination of ESBLs include the double disk synergy test and Minimal Inhibitory Concentration method (NCCLS M100-S12), both of which are based on the ESBL inhibitor clavulanic acid. The AmpC β-lactamases identification test used in this study included the Modified three-dimensional extract test (Vikas Manchanda and Narendra Singh, 2003). Metallo β-lactamases were identified by the double disk synergy test using EDTA (Lee et al., 2001).

RESULTS AND DISCUSSION

A total of 43 clinical isolates were screened for susceptibility to 3rd generation cephalosporins. Among which 16 (37.2%) resistant isolates were subjected to screening for ESBLs.10 (62.5%) isolates showed positive for ESBL. Among the 10 screening test positive isolates, 8 (80%) were confirmed positive by MIC and 2 (20%) were found to be negative by MIC. But 3 of the 6 screening test negative isolates turned out to be ESBL producer by MIC. This implies that MIC is more reliable than disk diffusion tests (NCCLS M100-S12).

The AmpC β-lactamases identification test showed that among the 17 (39.5%) cefoxitin resistant isolates, 11 (64.71%) were found to be AmpC positive. Out of the 11 isolates, 6 (54.54%) were Klebsiella pneumoniae strains,

which is known to possess only plasmid mediated AmpC and lacks a chromosomal AmpC β-lactamase (Pai et al.,2004) and 5 (45.45%) of the positive isolates were Escherichia coli whose resistance to cefoxitin may be due to both plasmid as well as chromosomally mediated AmpC (Perez-Perez and Hanson, 2002).

In this study 4 (33.33%) of the ESBL positive strains were also found to be AmpC positive . This phenotypic co-existance of both ESBL and AmpC could be because, the plasmid mediated AmpC have been shown to disseminate among Enterobacteriaceae, sometimes in combination with ESBLs (Phillippon et al.,2002).

A total of 22 Pseudomonas isolates were subjected to imipenem susceptibility. Among which 6 (27.27%) were resistant, 4 (66.67%) of the 6 resistant isolates were found to be MBL positive and 2 negative. This imipenem resistance in the MBL negative isolates may be due to other mechanisms of resistance such as porin mutation or by the hyper production of chromosomal AmpC β-lactamases (Livermore, 1995).

The present study has revealed that 30% (12/43) of ESBL, 23% (10/43) of AmpC producers and 9% (4/43) of co-producers of both ESBL and AmpC among the Escherichia coli and Klebsiella pneumoniae. 18% (4/22) of MBL producers were found among Peudomonas aeruginosa isolates.

(Investigators: Dr. B. Sekar, V. Aparna,* K. Arunagiri, K. Menaga, P. Lalitha and S. Sivaraman)

* Prince Shri Venkateshwara Arts & Science College, Chennai

2. MOLECULAR DETECTION OF EXTENDED SPECTRUM BETA - LACTAMASES AND ITS COMPARATIVE STUDY USING PHENOTYPIC METHODS.

The CTX-M β-lactamases are the most wide spread enzymes and their rate of dissemination among bacteria and in most parts of the world has increased dramatically since 1995. [Bonnet.,2004]. If molecular detection assays were available at the time of an outbreak and performed by a reference laboratory early recognition and the possible mechanism (s) by which resistance is spread can be identified in a timely manner. [Johann et al., 2004]. A study was proposed to establish molecular genotypic method for ESBl and to compare with Phenotypic assay.

AIMS AND OBJECTIVES

* To screen for the presence of resistance to third generation cephalosporins among Gram negative isolates.

* To screen for the presence of ESBLs among the resistance organisms using phenotypic tests like Synergy Test and to confirm by MIC test.

* To identify the presence of bla CTX-M type Extended Spectrum Beta Lactamase using specific primer that amplifies all subtypes of CTX-M genes by PCR for genotyping.

MATERIALS AND METHODS

Among 40 isolates screening for ESBL was carried out by Double disk synergy and confirmed by MIC using clavulanic acid. Genotypic assay was carried out by the amplification of CTX-M gene by PCR using – Forward primer CTX- M/F- 5'- TTT GCG ATG TGC AGT ACC AGT AA-3' and Reverse primer CTX- M/R – 5' – CGA TAT CGT TGG TGG TGC ATA-3' in a 35 cycle programme. The PCR product of 544 bp was visualized by agarose gel electrophoresis.

RESULTS AND DISCUSSION

Among 40 isolates, 39 were resistant to 3rd generation cephalosporins. Among them synergism test showed 13(33.3%) and MIC showed 27 (69%) positive for ESBL. PCR showed 14 (35.8%) strains positive for CTX-M gene-out of which 10 were found positive and 4 found negative by MIC, Phenotypic assays. The false negative result in 4 isolates by MIC may be due to presence of Multiple β-lactamases, Transferable multidrug resistance genes, the presence of AmpC β-lactamases which masks the expression of Extended-Spectrum β-lactamases (Bonnet., 2004). etc.,

17 strains found positive by MIC but negative by PCR technique may be due to presence of unknown mutations which might occur in the primer target region or the evolution of gene products which have not yet been identified at the genetic level. It may also be due to production of other type of ESBLs other than CTX-Ms. It

may also be due to the possibility of modified bla CTX-Ms that might be present in the isolates (Johann et al.,2004).

(Investigators: Dr. B. Sekar, R. Shwetha,* K. Arunagiri, K. Menaga,)

* Prince Shri Venkateshwara Arts & Science College, Chennai

3. DETECTION OF AmpC β-LACTAMASES AMONG GRAM – NEGATIVE ISOLATES USING PHENOTYPIC METHODS AND AN ATTEMPT TO ESTABLISH PCR TECHNIQUE FOR IDENTIFYING FOX FAMILY GENES OF AmpC β-LACTAMASES

Despite the discovery of AmpC β-lactamases more than a decade ago, still low level of awareness of their importance exists and many clinical laboratories have problems in detecting AmpC β-lactamases. Failure to detect these enzymes leads to uncontrolled spread and sometimes to therapeutic failures. A study was carried out to screen and confirm for AmpC producers and to amplify the genes for AmpC β-lactamases.

AIMS AND OBJECTIVES

1) To screen for the presence of AmpC producers among Gram-negative isolates.
2) To confirm the presence of AmpC producers from the screened isolates by Three – dimensional extract test and AmpC disk test.
3) Attempt to establish PCR technique to amplify FOX family genes of AmpC β-lactamases.

MATERIAL AND METHODS

The isolates were screened using cefoxitine (30μg) disk apart from third generation cephalosporins and their combination with inhibitor like clavulanic acid. The screened resistant isolates were confirmed by Modified three – dimensional extract test and AmpC disk test. An attempt was made to establish PCR technique to identify FOX family of genes of AmpC β-lactamases.

RESULTS AND DISCUSSION

A total of 53 isolates were screened for susceptibility to 3rd generation cephalosporins – Ceftazidime (30 μg) and Cefpodoxime (10 μg). Forty four were found to be resistant to 3rd generation cephalosporins. Out of these 43 were found to be resistant to Cefoxitin. Modified Three dimensional extract technique confirmed 33 out of the 44 (74%) Cefoxitin resistant isolates or 33 out of the 53 total (61%) of the total isolates as AmpC producers and the same number of isolates was confirmed by AmpC disk test also. In our attempt to establish PCR technique to identify FOX family of genes of AmpC β-lactamases, we could not observe any specific PCR products.

Thus 61% of clinical isolates were confirmed as AmpC producers by both the confirmatory tests. Out of the two methods, AmpC disk test was easier to perform and can be used in the clinical laboratories for AmpC β-lactamases detection. Our attempt to amply FOX family gene by PCR showed no specific PCR products – perhaps our AmpC producers did not belong to FOX family.

(Investigators: Dr. B. Sekar, V. Anusha,* K. Arunagiri, K. Menaga, P. Lalitha and S. Sivaraman)

* Prince Shri Venkateshwara Arts & Science College, Chennai

4. DETECTION OF MEC A GENE AMONG STAPHYLOCOCCUS ISOLATES USING PCR TECHNIQUE

Methicillin resistance is a complex property, in which more than one mechanism involved. Methicilin resistance in Staphylococus aureus equally applies to the coagulase-negative Staphylococci also (Mackie and Mc Cartney., 1996). Methicillin resistance is mediated by a *mec*A gene. A study was proposed to detect the *mec*A gene among Staphylococcal species using PCR technique and to compare with phenotypic methicillin resistance test and also to identify the pre-MRSA strains which carry mecA but are sensitive to methicillin.

AIM & OBJECTIVES

To detect the *mec*A gene among methicillin – resistant Staphylococcus species collected from clinical samples.

1. To differentiate Coagulase positive Staphylococcus aureus from coagulase negative Staphylococcus species.
2. To Screen for Phenotypic Methicillin resistance test
3. To detect the *mec*A gene among clinical isolates of staphylococci using PCR

MATERIAL AND METHODS

In the present study 39 Staphycoccal isolates collected from different clinical samples were divided into two group; the coagulase positive and coagulase negative staphylococci. The identification of antibiotic resistance was carried out by antibiotic disk diffusion technique using standard bacteriological method. The isolates were screened for the presence of the *mec* A gene using PCR.

RESULTS AND DISCUSSION:

Out of the 39 isolates 14 isolates were found to have the mec A gene. 5 out of 11 isolates of MRSA were found to have *mec* A gene, denoted as typical MRSA. Similarly, 5 isolates out of 28 coagulase – negative staphylococci (Co-NS) were found to have the *mec* A gene which correlated with antibiotic susceptibility test.

Two isolates of Staphylococcus aureus which were antibiotic sensitive was found to have the *mec* A gene. Similarly two of the coagulase – negative Staphylococci, which were sensitive to antibiotic, had the *mec* A gene. These strains are the pre-MRSA and pre-MR-CO-NS strains which carry *mec* A but are sensitive to methicillin. As these strains are not inducible for the production of PBP2 i.e the *mec*A is repressed by the mec I gene a powerful repressor of the transcription of *mec*A and that the repression is not removed by the addition of an inducer such as methicillin.

The PCR technique is sensitive and rapid tool which can be used for the discrimination between high – level β-

lactam (methicillin) resistance by the presence of the mec A gene in Staphylococcus isolates and related strains that were β-lactamase producers only.

(Investigators: Dr. B. Sekar, P. Ananthi,* K. Arunagiri, K. Menaga, P. Lalitha and S. Sivaraman)

* Prince Shri Venkateshwara Arts & Science College, Chennai

II. D. ANALYSIS CARRIED OUT WITH THE ON-GOING / POST GRADUATE COURSE PROJECTS

1. FACTORS INFLUENCING THE DEMONSTRATION OF M. LEPRAE IN THE NASAL MUCOSA OF LEPROSY PATIENTS BY POLYMERASE CHAIN REACTION.

B. Sekar, K. Arunagiri, D. Anandan, K. Menaka and PK Oommen
Central Leprosy Teaching and Research Institute, Chengalpattu – 603 001, Tamil Nadu.

In leprosy nose is the port of entry and exit of M.leprae. The presence of M.leprae in nasal cavity may be indicative of infectivity of leprosy patients and also their response to treatment. A study was carried out to demonstrate the presence of M.leprae in the nasal mucosa of different groups of leprosy patients by Polymerase Chain Reaction. Nasal swabs from a total of 55 leprosy patients of CLT&RI were collected. DNA extraction was done by enzymatic method. PCR was carried out targeting M.leprae specific repetitive sequence as per the method of Woods

and Cole. The PCR product of 372 bp was visualized by Agarose gel electrophoresis. Out of 55 cases studied, 14 (25%) were found positive for M.leprae in the nasal swab. They were - all the 4 (100%) BI positive MB Relapse cases, 6 (50%) out of 12 BI positive untreated / under treatment MB cases, 3 (27%) out of 11 BI positive MB cases after RFT, 1 (10%) out of 10 PB cases under treatment. All 15 (100%) BI negative MB cases after RFT and all 3 (100%) PB cases after RFT were found negative. Thus it is observed that Relapse and treatment status in MB patients influence the presence of M.leprae in nasal mucosa. Among the BI positive MB cases on treatment, the BI grades and the duration of the treatment influence the nasal PCR positivity.

(This work was presented in the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Mycobacterial Diseases (ICMR), Agra from 12-11-2005 to 14-11-2005).

2. COMPARATIVE ANALYSIS OF GENOMES OF M.TUBERCULOSIS AND M.LEPRAE WITH SPECIAL REFERENCE TO RIFAPICIN DRUG RESISTANCE ENCODES

K. Arunagiri and B. Sekar
Central Leprosy Teaching and Research Institute,
Chengalpattu – 603 001, Tamil Nadu.

Rifampicin is used in the chemotherapy of both tuberculosis and leprosy; further M.tuberculosis is reported to be multi-drug resistant-including Rifampicin. A

comparative genomic analysis of M.tuberculosis and M.leprae is required with reference to Rifampicin resistance. Hence we attempted to compare genomic sequences of M.tuberculosis & M.leprae at rpoB gene and hot-spot mutations of rpoB gene of M.tuberculosis & M.leprae by using bio-informatics tools. To study the rpoB gene sequences of M.tuberculosis & M.leprae these data were downloaded from database. The analysis revealed that the rpoB gene of M.tuberculosis & M.leprae were both comparable with 98% similarity with database sequence. The consensus pattern of protein sequences of the both organisms were found to be same with a well conserved region of 13 residues that can be used as a signature pattern. Among the templates studied one found to have Rifampicin complex, which helped to find active Rifampicin binding sites, which is found to be conserved in both M.tuberculosis & M.leprae. Among all these similarities, the SwissProt entry of M.tuberculosis H37Rv revealed the presence of 19 variants, which have Rifampicin resistance; however the protein sequence analysis of M.leprae does not reveal any variants. Modeling of M.leprae rpoB gene was also carried out and evaluated using Ramachandran plot, which showed that only 1.3% of residues, occurred in disallowed region, which is similar to M.tuberculosis.

(This work was presented in the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Mycobacterial Diseases (ICMR), Agra from 12-11-2005 to 14-11-2005).

3. COMPARISON OF STANDARD AND NESTED PCR METHODS FOR THE DETECTION OF SALMONELLA *TYPHI* IN BLOOD SAMPLES

Arunagiri K, Sekar B, Suhashini P.K.* Menaka.K, & Oommen P K

Central Leprosy Teaching & Research Institute, Chengalpattu, & *Prince Shri Venkateshwara College, Chennai, Tamil Nadu.

Many PCR methods have been reported for the lab diagnosis of Enteric Fever. We attempted to compare two methods of PCR for the detection Salmonella *typhi* in blood samples. Defined concentrations of 102,103,104 & 105 _ml of Salmonella *typhi* were seeded into 1 ml of blood from healthy volunteer and incubated. At the interval of 2, 4 and 24 hrs of incubation, 500 µl of samples from each concentrations were secured. DNA was extracted using Lysis buffer. PCR for *hil*A gene was performed as per the method of Sanchez-Jimenez etal 2004 which yielded 854bp product and Nested PCR for flagellin gene was performed as per the method of Haque etal 1999, which yielded 363bp final product . After minimal incubation of 2 hrs standard PCR for *hil*A gene was found positive only in 105 concentration where as Nested PCR was positive from 104 concentration onwards. However both methods were found positive in all concentration after 24hrs of incubation. Further we compared the efficacy of Nested PCR with conventional culture method in 20 clinical samples collected from cases of suspected Enteric fever. Culture was positive in 7(35%) samples, where as Nested PCR was

positive in 9(45%) samples. Thus Nested PCR was found to be more sensitive.

(This work was presented in the XXIX National Conference of Indian Association of Medical Microbiologist held at Sri Ramachandra Medical College & Research Institute (Deemed University), Porur, Chennai 600116)

4. APPLICATION OF DUPLEX PCR FOR THE DIAGNOSIS AND DETECTION OF DRUG RESISTANCE IN EXTRA PULMONARY TUBERCULOSIS

Sekar B, Ravi S*, Arunagiri K, Menaka K, & Oommen PK.

Central Leprosy Teaching & Research Institute, Chengalpattu & *Dept. of Pathology, Medical College, Chengalpattu, Tamil Nadu

Role of PCR methods in the lab diagnosis of Extra Pulmonary Tuberculosis (EPT) have been widely reported. We attempted the application of Duplex PCR for both diagnosis and detection of drug resistance simultaneously in the samples of cases of EPT. PCR targeting IS6110 gene of M.tb complex, for diagnosis and a Duplex PCR targeting both IS6110 gene and the *rpo*B gene, which encodes Beta-sub-unit of RNA Polymerase, the target of Rifampicin, were standardized. The 123bp of IS6110 gene and 157bp of *rpoB* gene PCR products were visualized by Agarose gel electrophoresis. 37 fine needle aspirates were initially processed for FNAC and diagnostic PCR. Out of which 31

samples were found positive by FNAC and among them 29 were positive by diagnostic PCR. Out of the total 37 samples, 31 samples (25 FNAC positive + 6 FNAC negative) were processed for Duplex PCR. Among the 25 FNAC positive samples, 23(94%) were found positive by Duplex PCR. All the FNAC negative samples were also found negative by Duplex PCR. The amplified PCR product of *rpoB* gene, can be subjected to a molecular tool for the detection of mutations. Thus this Duplex PCR offers a high sensitive and rapid tool for the diagnosis and the detection rifampicin resistance simultaneously in the pauci-bacillary cases of EPT.

(This work was presented in the XXIX National Conference of Indian Association of Medical Microbiologist held at Sri Ramachandra Medical College & Research Institute (Deemed University), Porur, Chennai 600116)

The following dissertation works were done in Biochemistry Division during the year 2005-06 and submitted to Bharathidasan University, Trichy for the award of Post Graduate Degree in Biochemistry.

Sl.No.	Name of the student	Title of the Dissertation
1.	Mr.C. Ramachandran	A study on blood coagulation factors and calcium levels in leprosy
2.	Mr.S. Anandan	A study on Protein profile in serum and skin scrapings of leprosy patients.
3.	Ms.S. Usha Rani	A study on the estimation of DDS in RBC of leprosy patients.
4.	Ms.P. Valarmathi	A study on Renal function impairment in leprosy patients

III. TEACHING AND TRAINING CONDUCTED DURING THE YEAR UNDER REPORT

All four Divisions, Clinical, Surgical, Epidemiology & Statistics & Laboratories are actively taking part in the various teaching and training programmes conducted by the Institute. The details of the programmes are as follows:-

(A) Routine Training activities undertaken During April 2005 to March 2006

S. No.	Category of service	Number of participants attended the training
1.	District Leprosy Officer Training course	1
2.	Medical officer training course	1 (Special training of leprosy – 6 weeks)
3.	Non Medical Health Supervisor's training course	1). 10 candidates from Govt. of Tamil Nadu, underwent training from 01-07-05 to 31-08-05. 2). 11 candidates from Govt. of Tamil Nadu, 5 candidates from Govt. of Nagaland underwent training from 03-10-05 to 30-11-05. 3). 12 candidates from Govt. of Tamil Nadu, underwent training from 02-01-06 to 28-02-06.

4.	Health workers training course	Nil
5.	Laboratory Technician training course	1). 13 Candidates who have completed their LT training were relieved on 30-06-05 2). 11 New Candidates Joined for LT Training from 30-06-06.
6.	Physiotherapy Technician training course	Nil
7.	Reconstructive surgery training course	Nil

(B) STUDY VISIT MADE BY MEDICAL AND NON-MEDICAL STUDENTS FROM OUTSIDE

Sl. No.	Name of the Training	Date / period of training
1	44 BPT Students from Adhiparasakthi College of Physiotherapy, Melmaruvathur made one-day study visit..	23-06-2005 04.-07-2005 17-11-2005
2	50 Diploma in Nursing Students from School of Nursing, Govt. Head Quarters Hospital, Kancheepuram made two days study visit	24-5-2005 and 25-5-2005
3	200 B.Sc. Nursing students from Adiparasakthi College of Melmaruvathur made one day study visit in our Lab.	03-06-2005, 13.09.05, 28.03.06
4	Ten batches of 46 CRRIs of Chengalpattu Medical College undergone 5 days training	25.06.05 to 31.03.06
5	50 BPT Students from Aalim Muhammed Salegh College of Paramedical Sciences, Chennai made one day study visit.	27-6-2005, 18.11.05
6	20 Diploma in Nursing students from Anbarasu Institute of Para Medical Sciences, Chennai made one day study visit	08-8-2005

7	20 Diploma in Nursing Students from Lakshmiammal School of Nursing, Chengalpattu made one day study visit.	17-8-2005.
8	99 students from Department of Biochemistry, Adhiparasakthi college of Arts & Science, Kalavai made one day study visit	19-8-2005 14-10-2005
9	22 Health Officers from Tamil Nadu Govt. – one day observation visit.	20.07.05
10	50 Diploma in Nursing students from Chengalpattu Medical College- One day visit.	20.07.05 & 21.07.05
11	57 students from Urapakkam Higher Secondary School – One day visit	24.08.05 & 09.09.05
12	37 students from National Arts & Science College, Avadi, Chennai – One day visit	18.10.05
13	96 MBBS final year students from Chengalpattu Medical College.	18.11.05, 25.11.05
14	50 DMLT students from Rajiv Gandhi Paramedical Training College, Chennai made one-day study visit.	05-01-2006. 09-01-2006
15	37 M.Sc., Microbiology students from ALM Postgraduate College, Chennai.	09.01.06, 10.01.06

16	4 BPT students from SLRTC, Karigiri – One day visit	06.02.06
17	12 DMLT Students from Dr.Raj Paramedical Institute, Chrompet, Chennai made one day study visit	17-3-2006
18	11 Medical Laboratory Technician Trainees (2004-05 Batch) completed their training course.	30-6-2005

(C) SPECIAL TRAINING OFFERED BY THE DIVISION OF LABORATORIES

Sl.No.	Name of the Training	Date / Period of training
1.	2 B.Sc., Industrial Biotechnology 3rd Semester students from Anna University, Chennai and 2 M.Sc., Bioinformatics students from Annamalai University underwent training in Basic Molecular-biological, Microbiological and Haemotological Techniques.	from 13-6-2004 to 24-6-2005
2.	16 PG students (M.Sc & M.D Microbiology) from IBMS, Taramani, Chennai, Stanley Medical College, Chennai & Coimbatore Medical College, Coimbatore underwent training on a) Microbiology of Leprosy & skin smear, b) Recent advances in leprosy & PCR & Molecularbiology & Histopathology	9-1-2006 & 10-1-2006.

3.	Dr.B.R. Gandhi from Gujarath State underwent training on Laboratory techniques on leprosy in the Division of Laboratories	14-9-2005
4.	Ms.Vinudha, a PG Medical Laboratory Technician Student from Madras Christian College, Madras underwent three days training in Clinical Pathology & Skin Smear	from 13-3-2005 to 15-3-2005.

The staff of surgical division took an active part in conducting the 4 weeks Reconstructive Surgery Course for surgeons and the nine months Leprosy Physiotherapy Technicians Course was borne by the staff of surgical division. Similarly, the Lab. Division staff also conducted the One year Lab. Technician Training Course.

(d) Special Training offered by Epidemiology & Statistics Division (As request by CBHI, DGHS, New Delhi)

1) Four Medical Officers attended "Health Statistics" training during 11-15th July 2005.

2) One Medical Officer attended "Health Statistics" training during 21-25th November 2005.

IV. W.H.O. ASSISTED RESEARCH PROJECTS

NIL

V. PUBLICATION / PRESENTATION

V. (A) PUBLICATION IN JOURNAL

1. A study on trend and factors influencing relapse in leprosy – Ind-J-Lepr. 77(2); 105-15. Showkath Ali, Thorat DM, Subramanian M, Uma Selvaraj, Parthasarathy G & Prabakar V, Division of Epidemiology & Statistics

2. "Protective role of Vitamin E on the oxidative stress in Hansen's disease (Leprosy) patients"
European Journal of Clinical Nutrition (2005) 59, 1121-1128

R. Vijayaraghavan*, CS Suribabu, B. Sekar, PK Oommen, SN Kavithalakshmi, N. Madhusudhan and C Panneer selvam

CLT&RI, Chengalpattu & Department of Medical Biochemistry, Postgraduate Institute of Basic Medical Sciences, University of Madras, Chennai.

V. (B)PRESENTATION

Dr.B. SEKAR, JOINT DIRECTOR (MICROBIOLOGY)

(a) Presented the paper entitled "Factors influencing the Demonstration of M. leprae in the Nasal Mucosa of Leprosy Patients by Polymerase Chain Reaction" in the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Mycobacterial Diseases (ICMR), Agra from 12-11-2005 to 14-11-2005.

(b) Presented the paper entitled "Application of Duplex PCR for the diagnosis and detection of drug resistance in Extra Pulmonary Tuberculosis" in the XXIX National Conference of Indian Association of Medical Microbiologist held at Sri Ramachandra Medical College & Research Institute (Deemed University), Porur, Chennai 600116 from October 21st –23rd 2005

DR. B. NIRMAL KUMAR, MEDICAL OFFICER

Presented a paper (Poster presentation) on "Analysis of BI positive leprosy cases reported at OPD, CLTRI from year 2000 to 2005" in the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Mycobacterial Diseases (ICMR), Agra from 12-11-2005 to 14-11-2005.

Shri M. Subramanian, Statistical Assistant

Presented the Poster of the paper entitled "Trend of New Case Detection Rate in Pre and Post elimination of Leprosy in Kancheepuram District" in the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Microbacterial Diseases (ICMR), Agra from 12-11-2005 to 14-11-2005.

Shri.K. ARUNAGIRI, TECHNICAL ASSISTANT

(a) Presented the paper entitled "Comparative Analysis of Genomes of M.tuberculosis and M.leprae with special Reference to Rifampicin Drug Resistance Encodes" in the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Mycobacterial Diseases (ICMR), Agra from 12-11-2005 to 14-11-2005

(b) Presented the paper entitled "Comparison of standard and nested PCR methods for the detection of salmonella *typhi* in blood samples " in the XXIX National Conference of Indian Association of Medical Microbiologist held at Sri Ramachandra Medical College & Research Institute (Deemed University), Porur, Chennai 600116 from October 21st –23rd 2005

Shri.M. Rajendran, Senior Technical Assistant

Presented the Poster of the paper entitled "Diabetic mellitus with renal failure in leprosy" in the XXIV Biennial

Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Microbacterial Diseases (ICMR), Agra from 12-11-2005 to 14-11-2005

Shri.S. Senthil kumar, Senior Technical Assistant

Presented the Poster of the paper entitled "T3,T4 in serum of leprosy patient" in the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Microbacterial Diseases (ICMR), Agra from 12-11-2005 to 14-11-2005.

E.Sathish Kumar, M.Subramanian, D.M. Thorat & P.K.Oommen

Presented the paper entitled "Leprosy Surveillance in the Post Elimination Phase" in the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Microbacterial Diseases (ICMR), Agra from 12-11-2005 to 14-11-2005.

D.M.Thorat, M.Subramanian, M.Alikhan & P.K.Oommen

Presented the paper entitled "Trend in New Case Detection in CLTRI Rural Field Operation Area" in the 24th Biennial conference of the Indian Association of Leprologists held at Agra from 12th – 14th November,2005

VI. WORKSHOPS / CONFERENCES / MEETINGS / SEMINARS / TRAINING / CME ATTENDED BY OFFICERS / STAFF

DR.P.K.OOMMEN, CONSULTANT(ORTHO) & DIRECTOR , C.L.T.R.I.

MAY 15TH – 16TH 2005

Attended Regional Conference on leprosy organized by H.K.N.S.(TN), G.L.R.A., Sasakawa Memorial Health Foundation, I.D.E.A. and L..E.A, held at Radha Park Inn, Chennai.

JUNE 6TH – 11TH 2005

Conducted Reconstructive Surgery Camp at Rural India Self Development Trust at Kathipudi, Annavaram, Andhra Pradesh. Operated on 19 cases.

AUGUST 6TH – 12TH 2005

Conducted R.C.S. Camp at Kathipudi, Andhra Pradesh. Operated on 22 cases.

SEPTEMBER 20TH 2005

Attended 1 day National Workshop on "Surveillance for Leprosy" at Hotel Crescent Park Inn, Nungambakkam, Chennai organized by N.I.E., W.H.O. I.C.M.R., G.O.I and I.A.L.

In the absence of D.D.G.(L) presented paper on 'Leprosy Scenario in India'.

OCTOBER 10TH 2005

Invited to ALERT – India, Mumbai for 1 day Workshop on "Integration of Leprosy Rehabilitation Services into the mainsteam of Physical Medicine and Rehabilitation".

Presented Status Paper on "Leprosy Disability Situation in the country: Backlog today and Strategy for Care in the integration phase."

OCTOBER 22ND – 29TH 2005

Conducted R.C.S. Camp at R.L.T.R.I., Aska, Orissa. Operated on 13 patients.

NOVEMBER 12TH -14TH 2005

C.J.I.L. Agra – Attended I.A.L. National C.M..E. Workshop on 'Newer Technologies for patient care and Epidemiology of Leprosy and other Mycobacterial Diseases"

On 13th and 14th attended 24th Biennial Conference of I.A.L.

NOVEMBER 15TH 2005

Attended Scientific Advisory Committee meeting of C.J.I.L., JALMA, Agra as member.

DECEMBER 16TH 2005

Invited by G.L.R.A. to H.M.D.I, Villupuram to deliver guest lecture on Surgery to Physiotherapists – P.O.D. Workshop.

20TH – 22ND JANUARY 2006

Invited to attend ton 34th Annual Conference of Indian Association of Physical Medicine and Rehabilitation held at J.W. Marriott Hotel, Mumbai.

on 22nd January delivered 2 guest lectures:

i) "Overview of Leprosy in India and Rehabilitation in leprosy: A challenge to Physical Medicine and Rehabilitation Experts."
ii) Lecture on " Neuritis in leprosy"

JANUARY 23RD - 24TH 2006

Invited by Mr.Ashok Bhatt, Hon. Minister for Health and Family Welfare, Govt. of Gujarat to attend Leprosy Reconstructive Camp 2006. On 23rd and 24th operated on 6 hand cases. Held at SSG Hospital, Vadodara.

FEBRUARY 6TH – 8TH 2006

Attended Govt. of India/W.H.O. meeting of SLOs and State DTST Coordinators on 7th. On 8th presented the WHO – POD Workshop project to 6 State SLOs and State Coordinators and N.G.Os. Meeting held at NIHFW, Munirka, New Delhi.

FEBRUARY 15TH – 17TH 2006

As per orders of DDG(L) went to New Delhi to discuss involvement of Physical Medicine Rehabilitation institutes for R.C.S. in leprosy and submitted Plan.

Dr.B. SEKAR, JOINT DIRECTOR (MICROBIOLOGY)

September 6th 2005

Participated as Expert Panel Member for the topic "Recent Advances in the Lab. Diagnosis of Leprosy" in the PG Seminar on Leprosy organized by the Damien Foundation India Trust, Chennai and Stanley Medical College at Stanley Medical College, Chennai

October 21st –23rd 2005.

Attended the XXIX National Conference of Indian Association of Medical Microbiologist held at Sri Ramachandra Medical College & Research Institute (Deemed University), Porur, Chennai 600116

November 12th – 14th 2005

Attended the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Mycobacterial Diseases (ICMR), Agra.

January 19th 2006

Took part as Expert Panel Member in the workshop on Leprosy for Dermatologists organized by IAV&D, Bangalore and AIFO, Bangalore and delivered a talk on "Recent Advances of Microbiology of Leprosy and Rational of MDT" .

March 14th 2006

Visited Madurai Kamaraj University to have a detailed discussion with Prof.K. Dharmalingam, in connection with collaborative projects in the field of Biotechnology, along with Shri.C.S. Suri Babu, Assistant Director (Bio.) and Dr.B. Nirmal Kumar, Medical Officer

March 19th 2006

Attended the meeting with Prof.K. Dharmalingam, Madurai Kamaraj University in connection with collaborative projects in the field of Biotechnology at Central Leather Research Institute, Adayar, Chennai, along with Shri.C.S. Suri Babu, Assistant Director (Bio.) and Dr.B. Nirmal Kumar, Medical Officer

BY DR. P. NARAYANA MURTHY, CHIEF MEDICAL OFFICER (NFSG)

March 25th 2006

CME programme on TB Control conducted by IMA Tambaram Sanatorium Branch.

Shri. C.S. SURI BABU, ASST. DIRECTOR (BIO.)

October 20th – 24th 2005

Attended the 5th International Congress on "AIDS India" held in Chennai.

January 30th – 31st 2006

Attended the workshop and a meeting on "Alocrna on HIV/AIDS at Drop-in-Centre, DLC, Vegavaran, Eluru, Andhra Pradesh.

February 14th 2006

Along with Dr.B. Sekar, Joint Director (Microbiology) and Dr.B. Nirmal Kumar, Medical Officer attended the meeting with Prof.K. Dharmalingam, Madurai Kamarajar University and Dr. Sankar Narayanan, Sakthi Nagar, Erode held at CLT & RI, Chengalpattu in connection with collaborative projects in the field of Biotechnologhy.

March 14th 2006

Along with Dr.B. Sekar, Joint Director (Microbiology) and Dr.B. Nirmal Kumar, Medical Officer visited Madurai Kamarajar University to have a detailed discussion with Prof.K. Dharmalingam, in connection with collaborative projects in the field of Biotechnologhy.

March 19th 2006

Along with Dr.B. Sekar, Joint Director (Microbiology) and Dr.B. Nirmal Kumar, Medical Officer attended the meeting with Prof.K. Dharmalingam, Madurai Kamarajar University in connection with collaborative projects in the field of Biotechnologhy at Central Leather Research Institute, Adayar, Chennai.

Dr.(MRS).T.S.GEETHA,C.M.O

November 12th -14th 2005

Attended 24th Biennial Conference of I.A.L. at CJIL, Agra.

DR.R.VEERAKUMARAN, M.O.

November 12th -14th 2005

Attended 24th Biennial Conference of I.A.L. at CJIL, Agra.

DR. B. NIRMAL KUMAR, MEDICAL OFFICER

August 17th to September 9th 2005

Participated in Screening Committee for screening of medical bills at Pay and Accounts Office, Chennai

November 12th -14th 2005

24th Biennial Conference of Indian Association of Leprologists – at Agra.

March 14th 2006

Participated in meeting held at Department of Microbiology, Madurai Kamaraj University, Madurai regarding Collaborative study on Serum Analysis in ENL leprosy patients

March 19th 2006

Participated in meeting held at C.L.R.I, Guindy, Chennai in continuation of the above study

August 1st to 12th 2005

RNTCP training for Medical Officer Trainers at Tuberculosis Research Centre, Chennai.

Shri.M. RAJENDRAN, SENIOR TECHNICAL ASSISTANT

November 12th – 14th 2005

Attended the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Microbacterial Diseases (ICMR), Agra

Shri.S. SENTHIL KUMAR, SENIOR TECHNICAL ASSISTANT

November 12th – 14th 2005

Attended the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Microbacterial Diseases (ICMR), Agra

Shri.M.Subramanian Statistical Assistant

August 2nd 2006.

Attended briefing meeting on "Study on Leprosy Deformity Situation in India and POD care" held at New Delhi

November 12th – 14th 2005

Attended the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Mycobacterial Diseases (ICMR), Agra.

Shri.K. Arunagiri, Technical Assistant

October 21st –23rd 2005

Attended the XXIX National Conference of Indian Association of Medical Microbiologist held at Sri Ramachandra Medical College & Research Institute (Deemed University), Porur, Chennai 600116.

November 12th - 14th 2005

Attended the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Mycobacterial Diseases (ICMR), Agra.

Shri.E.Sathiskumar, DEO Gr'A'

November 12th - 14th 2005

Attended the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Mycobacterial Diseases (ICMR), Agra.

Shri.G.Parthasarathy, DEO Gr'A'

November 12th - 14th 2005

Attended the XXIV Biennial Conference of Indian Association of Leprologists held at Central JALMA Institute for Leprosy and other Mycobacterial Diseases (ICMR), Agra.

Smt.K. Menaka, Lab. Assistant

October 21st –23rd 2005

Attended the XXIX National Conference of Indian Association of Medical Microbiologist held at Sri Ramachandra Medical College & Research Institute (Deemed University), Porur, Chennai 600116.

VII. THE OFFICER WORKED IN THE DIVISION OF LABORATORIES

1.	Dr.P.K.OOMMEN M.B.B.S.,Dip.ORTH,M.S.(ORTH)	CONSULTANT (ORTHO)& DIRECTOR
2	Dr.B. SEKAR, MBBS., MD.,	JOINT DIRECTOR (MICROBIOLOGY)
3	Dr. V. DURAI, MBBS, MS (Genl. Surgery),	CHIEF MEDICAL OFFICER (NFSG) – TRANSFERRED TO CGHS, CHENNAI DURING JUNE 2005
4	Dr. P. Narayana Murthy, MBBS, MD (ONCOLOGY)	CHIEF MEDICAL OFFICER (NFSG).
5	Dr. T.F. Hassan, MBBS	CHIEF MEDICAL OFFICER (NFSG)
6	Dr. K. Shamsudheen, MBBS	CHIEF MEDICAL OFFICER (NFSG)
7	DR.(MRS) P.SANDHYA MURTHY M.B.B.S.	CHIEF MEDICAL OFFICER (NFSG)
8	Shri. C.S. SURI BABU, M.Sc.,	ASST. DIRECTOR (BIO.)

9	Dr.R.NAGESH, M.B.B.S.	CHIEF MEDICAL OFFICER (NFSG)
10.	Dr.T.S.GEETHA, M.B.B.S.	CHIEF MEDICAL OFFICER
11.	Dr.R.VEERAKUMARAN, M.B.B.S.	MEDICAL OFFICER
12.	Dr. B. NIRMAL KUMAR, MBBS, MD (General. Medicine)	MEDICAL OFFICER
13.	DR.G.DINESH KANNAN, M.B.B.S.	MEDICAL OFFICER
14.	Dr. M. Sankaranarayanan, MBBS	Medical Officer
15.	Dr. M. Punitha, MBBS	Medical Officer

VIII. **FELLOWSHIP OF W.H.O/NATIONAL / INTERNATIONAL / ANY OTHER ORGANIZATION GRANTED TO AND AVAILED OF BY OFFICERS AND STAFF MEMBERS**

NIL

IX. EQUIPMENTS ACQUIRED, BOOKS AND PERIODICALS PURCHASED AND VISITORS VISITED C.L.T & R.I.

I. EQUIPMENT ACQUIRED FOR LABORATORY DIVISION

Sl.No.	**Equipment / Machinery acquired - 2004-2005**	Nos.
1	Ultra pure water purification system (synergy 185 system s1# 1514)	1 No.
2	Submarine electrophoresis apparatus	1 No.
3	Mini vertical unit for 2 Slab Gel Electrophoresis	1 No.
4	Incubator	1 No

Sl.No.	**Equipment / Machinery acquired- 2005-2006**	Nos.
1	Photocopier Machine	1 No.
2	Refrigerator	3 No.
3	Reverse Osmosis Plant	1 No.
4	Refrigerated Microfuge	1 No.
5	Biophotometer	1 No.
6	Electrophoresis Power Pack	1 No.
7	Electronic Balance	1 No.

Biochemistry Section

Sl.No.	Equipment / Machinery acquired	Nos.
1	B.O.D. INCUBATOR	1 No.
2	INCUBATOR	1 No.
3	ELECTROPHORESIS POWER PACK	1 No.
4	$_{P}$H METER	1 No
5	COMPUTER	1 No.
6	PHOTOCOPIER	1 No.
7	ELECTRONIC BALANCE	1 No.
8	ELECTROPHORISIS TEACHING KITS	4 Nos.
9	REFRIGERATOR (LG - 310 LITRE)	1 No.

II. BOOKS AND PERIODICALS PURCHASED FOR OUR CENTRAL SCIENTIFIC LIBRARY

During the year 2005-06, CLTRI added to its stock in the Central Scientific Library 168 books and 356 Bound Volumes of Periodicals. The Library subscribed to 33 foreign and 7 Indian Journals on behalf of CLTRI. In addition 4 foreign and Indian Journals are being received on Gratis.

The total collection of CLTRI Central Library is 2836 books and 4510 Bound volumes of periodicals, 154 Microfilm copies of articles and 420 Reprint of articles. The Library received 40 foreign, Indian periodicals and WHO Publications on subscription basis and 5 as gratis.

Library Utilization

During the period under report 2452 books and 1814 periodicals have been issued to the readers and about 16 different topics of bibliographies on leprosy have been prepared and issued to Medical Officers/Zonal Officers and trainees.

Inter-Library Loan System:

The Library has Inter-library Loan arrangement with all medical Institutions and British council Library, Chennai.

Literature References Facilities:

As in previous year, the library continued to extend its facilities for reading and references to the scientific and research personnel working in various disciplines.

Special Publication:

The Institute brought out the annual report of CLTRI every year. A Library references Manual giving the consolidated list of back and current volumes of periodicals available in the library of CLTRI with full details.

III. VISITORS

(i) State Tuberculosis Officer and WHO Consultant, Tamil Nadu State (RNTCP) visited on 25th April 2005 to inspect the facilities and infrastructure available in CLTRI for establishing State TB Training and Demonstration Centre, at CLT&RI.

(ii) Prof.K. Dharmalingam, Dept. of Genetic Engineering (Biotechnology) Madurai Kamaraj University and Dr N.P. Shanker Narayanan, Voluntary Health Services, Leprosy Project, Sakthi Nagar, Erode visited our Institute in connection with collaborative projects in the field of Biotechnology on 14-2-2006.

X.ANY OTHER RELEVANT INFORMATION

I. OTHER PERFORMANCES (CONSULTATION SERVICES RENDERED)

Dr.B. SEKAR, JOINT DIRECTOR (MICROBIOLOGY)

March 31st - 8th April 2005

As External Examiner of University of Madras, conducted the Practical Examinations as for II year M.Sc., Microbiology Students of Hindusthan College of Arts & Science, Chennai.

April 11th – 13th 2005

As External Examiner of University of Madras conducted the Practical Examinations for M.D., Microbiology Student of Dr.ALM Post Graduate Institute Basic Medical Sciences, Taramani, Chennai.

May 23rd - 28th 2005

As External Evaluator attended the valuation of Post Graduate Degree theory examination (M.Sc., Microbiology) of University of Madras at M.O.P. Vaishnav College (W), Nungambakkam, Chennai.

September 9th 2005

Participated as Examiner in the Endowment Prize Examination in Leprosy for medical students organized by Dr.M.G.R. Medical University in association with the Damien Foundation India Trust, Chennai.

February 19th – March 2nd 2006

Visited Bihar as Govt. of India representative, for the Evaluation of District Technical Support Teams (DTSTs) in Bihar and evaluated Districts of Sitamarhi and East Champaran.

II. Award

Shri.M. Subramanian, Statistical Assistant was awarded for the best poster presentation entitled "Trend of New Case Detection Rate in Pre and Post elimination of Leprosy in Kancheepuram District" in the IAL Biennial Conference held at Agra during 12-14th November 2005.

Budget

	Allotment	Expenditure
Plan	1,56,00,000	1,31,28,643
Non Plan	3,20,35,000	3,18,27,986
Total	4,76,35,000	4,49,56,629