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ANNUAL REPORT
2004-2005

Government of India
NATIONAL TUBERCULOSIS INSTITUTE
(Directorate General of Health Services)
'AVALON' No.8, Bellary Road, Bangalore 560 003
INDIA

NATIONAL TUBERCULOSIS INSTITUTE

WHO Collaborating Center
For
Tuberculosis Research & Training

ANNUAL REPORT
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'Avalon', No.8, Bellary Road, Bangalore-560 003
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e mail: ntiindia@blr.vsnl.net.in
http://ntiindia.kar.nic.in

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Facilitator
Dr. Prahlad Kumar

Compiled & Edited by
Dr. L. Suryanarayana
Shri. Sangeet Kumar
Dr. G.V. Ramesh
Dr. V.K. Challu
&
Shri. Sanjay Singh
Shri.R.K.Srivastava

Secretarial Assistance
Smt. R. Shantha Kumari

Publication Secretary
Mrs Sudha S Murthy

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National Tuberculosis Institute, Bangalore-560 003

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LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
AIIMS	All India Institute of Medical Sciences
AMRU	Animal Model Research Unit
ARTI	Annual Risk of Tuberculous Infection
ATI-EPI	Advanced Training Institute and Electronic and Process Instrument
BCG	Bacillus Calmette Guerin
BMP	Bangalore Mahanagara Palike
CAT	Category
CD	Compact Disk
CPWD	Central Public Works Department
CTD	Central Tuberculosis Division
DMC	Designated Microscopy Center
DOT	Directly Observed Treatment
DOTS	Internationally Recommended Strategy to Fight Tuberculosis
DRS	Drug Resistance Surveillance
DTC	District Tuberculosis Center
DTO	District Tuberculosis Officer
EPI	Expanded Programme on Immunization
EQA	External Quality Assurance
GIS	Geographical Information System
HIN	Health InterNetwork
HIV	Human Immunodeficiency Virus
ICT	Information and Communication Technologies
IDR	Initial Drug Resistance
IEC	Information Education Communication
IQC	Internal Quality Control
IRL	International Reference Laboratory
KSAPS	Karnataka State AIDS Prevention Society
LQAS	Lot Quality Assurance Sampling
MC	Microscopy Center
MDMS	Mobile Data management Project
MDR	Multi Drug Resistance

MMR	Mass Miniature Radiography
MO	Medical Officer
MO - TC	Medical Officer - TB Control
NICD	National Institute of Communicable Disease
NRL	National Reference Laboratory
NTI	National Tuberculosis Institute
NTP	National Tuberculosis Programme
PPD	Purified Protein Derivative
PPM	Public Private Mix
QAP	Quality Assurance Programme
QI	Quality Improvement
RC	Referral Centre
RNTCP	Revised National Tuberculosis Control Programme
SAARC	South Asian Association for Regional Co-operation
SCC	Short Course Chemotherapy
SEARO	South East Asia Regional Office
STC	State Tuberculosis Center
STDC	State Tuberculosis Demonstration and Training Center
STLS	Senior Tuberculosis Laboratory Supervisor
STO	State Tuberculosis Officer
STS	Senior Tuberculosis Supervisor
TB	Tuberculosis
TBCTA	Tuberculosis Coalition for Technical Activity
TCC	Technical Co-ordination Committee
THO	Taluk Health Officers
TRC	Tuberculosis Research Center
TU	Tuberculosis Unit
UIP	Universal Immunization Programme
VCTC	Voluntary Counselling and Testing Center
WHO	World Health Organization

FOREWORD

I am pleased to present the Annual report for the year 2004-05. The National Tuberculosis Institute continues to contribute its might to the noble cause of control of Tuberculosis in the community. The Institute, which functions as the technical arm of the Directorate General of Health Services since its inception of the programme in 1962, has been in the forefront in training the large number of health personnel required for implementation of TB Control Programme and operational research. The year 2004-05 is remarkable in that, an unprecedented number of training programmes in the field of tuberculosis control have been undertaken. The major thrust was on RNTCP modular training conducted for state level and district level officers. The feedback given by the trainees have encouraged and inspired us to take more and more such efforts in imparting training. A large mass of trained manpower both medical and paramedical is an asset for the implementation of control programme. The "Training of Trainers" course which was started in the year 2002 with greater emphasis on developing training skills and aptitudes among the participants is continuing with a stronger vigour. The institute also organized special training programmes for the STDC personnel and for state level TB programme managers. In this context the co-operation, guidance and encouragement given by Central TB Division is acknowledged with thanks. As a WHO collaboration center, institute has also undertaken training of the personnel of other member countries. Besides, several training programmes were held for the members of the WHO-SEARO and of SAARC region. In this regard, the leadership and strategic management workshop and regional training for TB control are some of the prominent programmes. In this regard, we wish to express our gratitude for the support and encouragement received from WHO and SAARC authorities.

Institute which is known for conducting operational research as its one of the prime functions from the stage of inception continues to accomplish many research projects. The major thrust of the research activities in the institute is oriented around operational aspects of RNTCP. This has been presented under four sub-topics viz., Ongoing research projects, Studies completed, Research papers published and Papers presented in the conference. A brief summary of each research project has been presented for the benefit of the reader.

Participation in appraising and evaluation of the districts implemented under RNTCP is another integral part of the function of the institute along with the Central TB Division. Monitoring of the programme by NTI at present confines to only non-RNTCP districts which are shrinking in numbers with the rapid implementation of RNTCP. However, the faculty at NTI has rich experience of the past in monitoring of the RNTCP since its inception and will be ready to take up if the necessity arises.

Library and information services of the institute classified as Category II as per the guidelines of the library Review Committee report, Government of India, New Delhi is a great asset of the institution. The collections in the library include core periodicals on TB and its back volumes, published books on TB, proceedings souvenirs and WHO unpublished documents. Digitization of the papers published by the institute and

NTP reports of the preceding twenty three years was a great achievement for the year under report. Its publication activities include bringing out NTI bulletins on quarterly basis, a hand book on NTI organizations and functions, annual reports, document on State TB Demonstration centers and a document on 'Annual risk of tuberculous infection in different zones of India a national sample survey – 2000-2003.

Other technical activities that are highlighted in the report comprise mobile data management project, establishment of scientific gallery, establishment of bio-safety level III facility and provision of technical assistance and consultation at central and state level. This report also furnishes information on various computer facilities available in the institute.

Participation in various meetings, training programmes, Seminars, conferences, workshops and continuing medical education have been highlighted in this report.

At this juncture, I would like to place on record the excellent co-operation and services provided by the officers and staff of the Institute in accomplishing the tasks set for the year. I hope that the zeal and enthusiasm evinced by the staff of the institute would be sustained in the years to come.

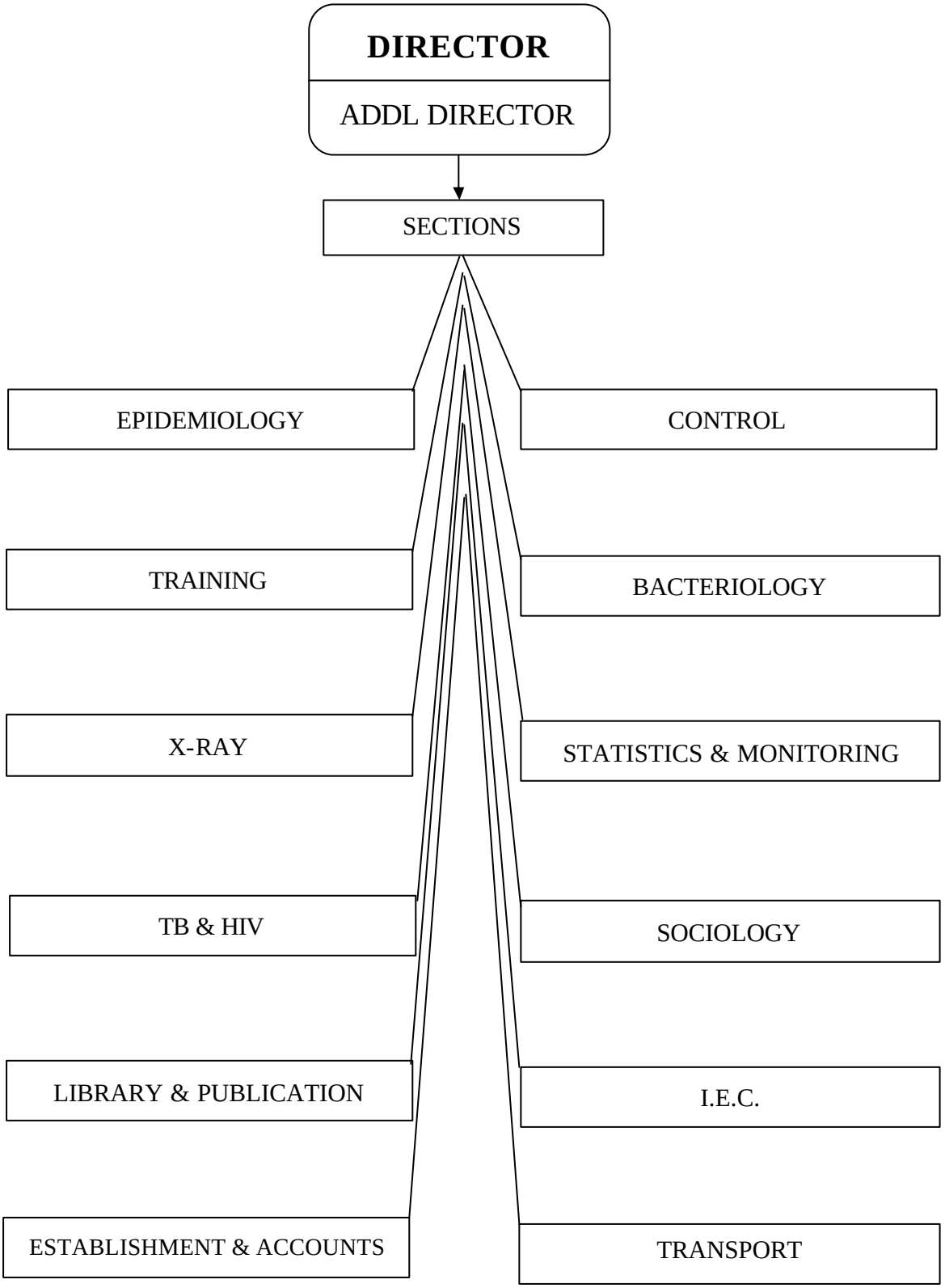
Dated: January 2006

Dr Prahlad Kumar

Place : Bangalore

Director

1. ORGANIZATIONAL SET UP



2. STAFF POSITION

Staff position in terms of posts sanctioned, in-position and vacant are given in the tables below.

	Sanctioned	In position	Vacant
DIRECTOR	1	1	Nil
ADDL DIRECTOR	1	1	Nil

STAFF POSITION : GROUP-WISE

Sl. No.	Category	Sanctioned	In position	Vacant
1.	Group 'A'	17	13	5
2.	Group 'B'	16	6	10
3.	Group 'C'	117	92	25
4.	Group 'D'	55	51	4
Total		**205**	**162**	**44**

3. COMMITTEES

Several Institutional and other committees have been constituted under the chairmanship of senior officers for examining the relevant issues, formulate recommendations to facilitate the Director in taking appropriate decisions. The functions of the important committees that existed during the year are described below:

Institutional Ethics Committee

To review the research protocols from ethical considerations and to give the stamp of approval before implementation.

Institutional Animal Ethics Committee

To review and approve research projects involving animal experimentation.

Technical Co-Ordination Committee

All the faculty members of the Institute are members of this committee. This committee meets frequently and ensures in-depth inter-disciplinary discussions on all technical matters, exchange of information, plan and co-ordinate research activities. Whenever a new research activity is proposed to be undertaken, it is discussed threadbare in the committee meetings. It also reviews progress of fieldwork & analysis of the research protocols. The draft findings of the research projects are again discussed before it is either presented in technical conferences or published in the journals.

Committee on Administration and Staff Welfare :

All important service matters are referred to this committee for examination from the point of view of prevalent rules and formulation of recommendations for action by Director.

Planning Committee for Civil and Electrical Works

This committee is responsible for identification of civil & electrical works to be carried out in the institute and prioritizing the same within the annual budget under this head. Scrutiny of the estimates received from Central Public Work Department (CPWD), and specifications of the work entrusted are undertaken by the committee before issue of administrative & expenditure sanction. The committee also monitors the progress of the work in close coordination with the concerned CPWD officials.

Purchase Committee

This committee is responsible for the scrutiny of the specification of the items sought by different sections, examination of pre-qualification criteria, opening of quotations/tenders and scrutiny of comparative statements with reference to the set specifications and relevant rules of purchase. Finally the recommendations are submitted to the Director for further action.

Rajbhasha Implementation Committee

This committee has been formulated to promote the use of Rajbhasha and encourage the officials to learn and use Hindi language in official correspondence. This committee coordinates the celebration of Hindi Saptah and Hindi Divas.

Library Committee

This committee is entrusted with the responsibility of recommending the subscription of periodicals, acquisition of books, user-oriented activities and ways to promote dissemination of information.

Editorial Committee

This committee coordinates the publication activities of the Institute, especially the biannual publication viz., **"NTI Bulletin"**.

Quarters Allotment Committee

The committee is responsible for scrutiny of applications for allotment of quarters, scrutiny of waiting list and finalization of recommendations for allotment as per the prevailing allotment rules.

Campus Maintenance Committee

This committee has an advisory role in matters pertaining to the general upkeep, maintenance and security of the campus.

Flag Hoisting Committee

The committee is responsible for the supervision of the hoisting of National Flag daily as well as on occasions of national importance as per the guidelines of Government of India.

Sexual Harassment Committee

This committee deals with the complaints of sexual harassment faced by the women Government servants.

4. TRAINING

A. RNTCP modular training

The training activity for the year 2004-05 was unprecedented in that there were 7 sessions of two weeks each in modular training in RNTCP. In all 136 participants comprising of STOs/DTOs/MOTCs from different states participated in the training programme. The course consisted of a pre test, training in modules, lecture classes on important topics of RNTCP, discussions, question and answers session on the modules covered, field visits of RNTCP area in the districts of Bangalore urban, Bangalore rural and BMP where RNTCP has been implemented and post test. The break up of, the schedule of the training programme, number of participants and the states from which participated is given in the table below:

Sl. No.	Type of Personnel	Duration	No. of participants	*Organization / State / District*
1	RNTCP Modular Training for STOs, DTOs & Master trainers	10th - 22nd May 04	20	Orissa, Karnataka & Assam and Teachers from Medical College
2	Modular Training in RNTCP for Lab technicians.	10th – 21st May 04	2	Dharmasala, Himachal Pradesh
3	RNTCP Modular Training for Nodal Officers & Members of Medical colleges	14th – 18th June 04	17	State Task Force of Medical College from Karnataka
4	Regular (NTI Sponsor) RNTCP Modular Training for DTOs / MO-TCs, THOs	26th July – 7th Aug 04	36	Karnataka, Himachal Pradesh, Punjab, J&K, Maharashtra, Rajasthan, Mizoram, Orissa, Madhya Pradesh, Meghalaya
5	RNTCP Modular Training	27th Sep – 9th Oct 04	19	Assam, Chhattisgarh, Dadar & Nagar Haveli, Daman & Diu, Karnataka, Madhay Pradesh, Maharashtra, Gujarat, Nagaland, West Bengal,
6	RNTCP Modular Training	29th Nov - 11th Dec 04	14	Karnataka, Rajasthan, Madyapradesh, Assam, Pondicherry, Maharashtra, Chandigarh

7	RNTCP Modular Training using revised RNTCP Modules	28th Mar - 9th April 05	28	Gujarat, Karnataka, Orissa, Chattisgarh, Andhra Pradesh, Tamil Nadu

B. Training of Trainers

Continuing with the programme of training of the trainers which was introduced in 2002, for this financial year 48 personnel comprising 32 Medical Officers (MOs), 8 Senior Tuberculosis Supervisors (STS) and 8 Senior TB laboratory Supervisors (STLS) from different states were trained in training methodologies. The course emphasized on imparting skills to the trainees on assessing the training needs, planning, organization and evaluation of the training programmes. It was also aimed at imparting skills to function as good facilities. Both in house and guest speakers participated in imparting the training.

Sl. No.	Type of personnel	Duration	No. of participants	*Organization / State / District*
1	Training of Trainers	10th - 22nd Jan 05	48 (32 MOs, 8 STS & 8 STLS)	Arunachal Pradesh, Chandigarh, Chattisgarh, J&K, Karnataka, Maharashtra, Meghalaya, New Delhi. Orissa, Punjab, Rajasthan, Uttar Pradesh

C. WHO Collaborative Activities

As a WHO collaborative center, the institute took active part in conducting various training programme sponsored by World Health Organization. Two training programmes specifically meant for RNTCP medical consultants recruited for various states were undertaken as per the details mentioned in the table below. Both in house and Senior RNTCP consultants participated in imparting the training. The training programme included the field visits to the RNTCP areas of Bangalore rural, urban and Mahanagara Palika

Leadership and Strategic Management Workshop for 16 participants from SEARO region, WHO was held during 25th April – 1st May 2004. Both in house and external facilitators participated in the programme.

As one of the major activities, the faculty from the institute participated in the revision of 1-10 modules used for RNTCP training. STOs, WHO consultants and representatives from the Central Tuberculosis Division also participated in this exercise.

Two programmes for in-country fellows sponsored by WHO were undertaken for 12 participants from different states. They were trained in epidemiology, bacteriology and radiology. Thirteen trainings programmes for international fellows comprising 78 participants specially from SEARO region and SAARC region were conducted on different subjects related to tuberculosis control.

Besides, faculty took part in facilitating the training programmes conducted outside the institute.

Sl. No.	Type of Training	Duration	No. of Participants	Organization / State / District
1	RNTCP Modular Training for newly appointed WHO consultants in collaboration with WHO, WR, New Delhi	05th - 19th April 04	15	World Health Organization, WR, New Delhi.
2	Leadership and Strategic Management Workshop	25th April – 1st May 04	16	Bangladesh, Bhutan, India, Indonesia, Maldives, Myanmar, Nepal, Srilanka, Timor-Leste - Participants from the SEARO region, WHO
3	Training for Treatment organization & training in Monitoring & Evaluation in Tuberculosis Control	17th – 27th May 04	8 DTLAs & 2 SAs	WHO Sponsored participants from Nepal.
4	Workshop on Laboratory methods for DRS in Tuberculosis	21st – 25th June 04	17	WHO SEARO Training - Section Provided assistance to the Bacteriology Section
5	Revision of RNTCP Modules sponsored by WHO & CTD	6th – 17th July 04	39	WHO, National Institutes, Consultants, State authorities

Sl. No.	Type of Training	Duration	No. of Participants	Organization / State / District
6	Regional Training for TB Control	16th – 27th Aug 04	20	WHO SEARO region – Bangladesh, Bhutan, Indonesia, India, Maldives, Myanmar, Srilanka & Thailand
7	Training for Microscopist	5th – 27th July 04	2	Maldives
8	Training for Health Supervisors	5th July - 27th Aug 04	2	Maldives
9	Fellowship Training for WHO In-Country fellows	4th – 15th Oct 04	4	Delhi, Gujarat, Pondicherry (2 X-ray & 2 microscopist)
10	Fellowship Training for WHO In-Country fellows	4th Oct – 12th Nov 04	8	Karnataka, Sikkim Tripura, (5 Epidemiology & 3 Bacteriologists)
11	WHO Fellows for Microscopy Training	1st - 12th Nov 04	4	Myanmar
12	WHO Fellows for Culture sensitivity Training	1st - 26th Nov 04	2	Bhutan
13	TBCTA Training for In-country Participants	16th – 19th Nov 04	19	Karnataka, Gujrat, Rajasthan, Tamilnadu, Kerala, Andhra Pradesh, Maharashtra, West Bengal, Uttaranchal
14	Training on Radio diagnosis & TB Control	8th Nov - 4th Dec 04	1	one Medical Officer from Maldives
15	Training on Radiological diagnosis & TB Control	8th Nov - 4th Dec 04	1	one Medical Officer from Maldives
16	RNTCP Modular Training for Newly Appointed WHO Consultants	13th - 28th Dec 04	29	All India (WHO Sponsored)

Sl. No.	Type of Training	Duration	No. of Participants	Organization / State / District
17	Training in TB Management	20th - 24th Dec 04	6	Bangladesh
18	Tuberculin Survey Techniques	31st Dec 04 – 6th Jan 05	6	Nepal
19	DOTS Management		5	
20	Sensitization Programme on PPM & DOTS Management	14th – 25th Feb 05	15	Philippines
21	DOTS Management in TB Control	21st Feb - 4th Mar 05	2	Myanmar
22	DOTS Management in TB Control	21st Feb - 4th Mar 05	2	Myanmar
23	RNTCP Modular Training for Newly appointed WHO Consultants	3rd - 18th Mar 05	21	Andhra Pradash, AS, Bihar, Gujarat, JA, KA, MA, Uttaranchal, Madhya pradesh, Rajasthan, Uttarpradesh

Training Activity Out Side NTI

Title of training	Date	No. of Participants	Place	NTI faculty
Orientation Programme for WHO Consultants on revised RNTCP Modules & EQA	28th - 30th Mar 05	100	Surajkund, Haryana	Dr Sophia Vijay & Dr V H Balasangameshwara

The details of the consultancy services provided, participation as facilitators in continuing medical education, sensitization and orientation programmes conducted in different hospitals and medical colleges and participation in District Tuberculosis Society meetings are given below in table.

Sl No	Subject	*Date*	Place

1	Dr B Mahadev under took short term WHO consultancy	22nd April - 8th May 04	Review of the DOTS Implementation status in Papua new Guinea, identification of constraints & recommendation to address the constraints. Report has been dispatched to WHO WPR Manila.
2	Dr. G.V. Ramesh, CMO (NFSG) attended	18th May 04.	The district TB control society (Bangalore urban) meeting
3	Dr B Mahadev	24th June 04.	Meeting convened by secretary Health & Family Welfare department, Government of Karnataka
4	Dr G V Ramesh and Dr. L Suryanarayana	28th June 04	Sensitization programme on RNTCP at Baptist hospital
5	Dr. L Suryanarayana and Dr.G V Ramesh	14th Sept 04	Orientation programme at St Philomina Hospital
6	Dr VK Chadha, Sr. Epidemiologist, under took short term Consultancy	11th -29th Nov 04	Short term consultant assignment on Tuberculosis Pyongyang, DPR Korea.
7	Dr B Mahadev	30th Dec 04	Steering committee meeting on operational research on at New Delhi.
8	Dr G V Ramesh	20th Dec 04	Meeting of BMP Society for RNTCP
9	Dr B Mahadev	24th - 25th Jan 05	Meeting to decide the strategy for the next phase of World Bank assistance for RNTCP at New Delhi.
10	Dr G V Ramesh	26th Feb 05	Orientation programme at Chinmaya Mission Hospital

Short term one day orientation cum sensitization programmes were undertaken for 177 participants comprising nursing graduates, and graduates and post students of microbiology departments from different organizations situated in states of Karnataka, Kerala , Maharashtra and Tamilnadu. The details are given below in the table.

Orientation training for undergraduate/postgraduate/medical/paramedical students:

Sl No	***Date***	**Category**	**No. of participants**	**Organization**

Sl No	*Date*	Category	No. of participants	Organization
1.	07-04-04	Nursing students	29	St. John's college of Nursing, Bangalore
2.	16-04-04	Microbiology & Biotechnology students	23	Ganga Kaveri Institute of Science and Management, Bangalore
3.	20-04-04	Nursing students	30	Vani Vilas Hospital, Bangalore
4.	21-04-04	Air Force Medical Assistants	55	Air Force Medical Training Centre, Jalahalli, Bangalore
5.	06-05-04	4th Year BSc Nursing	25	St Philomena Hospital, Bangalore
6.	14-05-04	3rd Year GNM	38	St Philomena Hospital, Bangalore
7.	11-05-04	Nursing students	29	Indian Academy
8	25-05-04	Nursing students	45	Krupanidhi Institute of Nursing, Bangalore
9	26-05-04	Nursing students	45	Krupanidhi Institute of Nursing, Bangalore
10	28-05-04	Nursing students	40	Chinai College of Nursing, Bangalore
11	02-06-04	Nursing Students	26	Goutham College of Nursing
12	03-06-04	Nursing Students	60	Samagra Sikshana Samithi
13	14-06-04	Medical Nursing students	29	Commando Hospital, Bangalore
14	16-06-04	Medical Nursing students	55	Commando Hospital, Bangalore
15	08-06-04	Nursing students	50	Vijayanagara College of Nursing
16	09-06-04	Nursing students	60	Vijayanagara College of Nursing
17	10-06-04	Nursing students	60	Vijayanagara College of Nursing
18	24-06-04	Nursing students	26	St Marthas Hospital College of Nursing
19	19-07-04	1st year MSc Nursing Students	22	St Johns College of Nursing, Bangalore
20	29-07-04	Nursing Students	19	Unity Academy of Edu. College of Nursing
21	02-08-04	5th Semester Bio Medical Students	54	Sree Buddha College of Nursing, Kerala
22	03-08-04	Nursing Students	49	KPBNI College of Nursing, Ullal
23	04-08-04	MBBS Students	60	Pondicherry Institute of Medical Sciences
24	10-08-04	Nursing Students	20	INSA, Bangalore
25	24-08-04	Nursing Students	25	St. Philomena's College of Nursing

Sl No	*Date*	Category	No. of participants	Organization
26	03-09-04	Nursing Students	12	East west college of Nursing
27	09-09-04	Nursing Students	30	St Johns College of Nursing
28	29-09-04	Nursing Students	45	Oxford College of Science
29	11-10-04	Medical Assistance	55	Air Force
30	25-10-04	Nursing Students	45	Krupanidhi Institute of Nursing
31	26-10-04	Nursing Students	45	Krupanidhi Institute of Nursing
32	8-11-04	Nursing Students	23	St Joseph College of Nursing
33	09-11-04	Students	30	Govt. Science College
34	16-11-04	Nursing Students	30	Nursing Training Centre VV Hospital
35	13-12-04	Nursing Students	22	St Johns Medical College of Nursing
36	02-02-05	BSc Microbiology	60	Brindavan College, Bangalore
37	03-02-05	BSc Microbiology (2 Batch)	60	Govt. Science College, Bangalore
38	04-02-05	MSc Microbiology	20	MGR College, Hosur, Tamilnadu
39	07-02-05	Nursing Students	6	Sarvodaya College of Nursing
40	08-02-05	Nursing Students	28	Kasturi Walchanad College, Sangli, Maharashtra
41	08-02-05	BSC Microbiology	40	BHS 1st Grade College, Bangalore
42	09-02-05	Medical Assistants	60	Air Force Training College, Bangalore
43	10-02-05	BSc Nursing	38	Dr Reddy's Institute of Nursing
44	14-02-05	1st Year BSc Nursing	40	Hillside College of Nursing
45	15-02-05	1st Year BSc Nursing	40	Hillside College of Nursing
46	16-02-05	BSC Microbiology		SJR College, Bangalore
47	22-02-05	1st Year BSc Nursing	60	Hillside College of Nursing, Bangalore
48	02-03-05	3rd Year Microbiology	40	VV Puram College, Bangalore
49	21-03-05	4th Year BSc Nursing	30	St Johns College of Nursing, B'lore
50	22-03-05	2 Year Nursing Student	47	Bowring Lady Curzon Hospital, B'lore
			177	

5. RESEARCH

Research on Tuberculosis control and related areas is one of the prime functions of the Institute. Several technical sections in the institute pursue research in their respective areas. The Institute has put in place the mechanism of **Technical Coordination Committee (TCC)** for thorough technical discussion and exchange of information before finalisation of the research protocol. The projects are also scrutinized by the Institutional Ethics Committee from ethical considerations. The progress of the project is monitored by the TCC at periodic intervals. The conclusions of the research projects are also reported to the TCC before they are either presented in technical conferences or published in journals. The report on various research projects is presented under three sub headings.

A. The progress of the various ongoing research projects and those initiated during the year are given in brief below:

1. Accessibility and utilization of anti-TB services by slum dwellers of Bangalore.

This study has been taken up with the objectives of estimating the prevalence of chest symptomatics among slum dwellers aged 14 years and above, to find out the proportion of chest symptomatics suffering from smear positive pulmonary TB & their action taking pattern and to find out the accessibility of microscopy and treatment facilities of RNTCP including Directly Observed Treatment to slum dwellers. Till date 3346 houses have been visited with about 14398 population, 7550 individuals probed for chest symptoms. A total of 126 symptomatics were detected & interviewed and 688 sputum specimens were collected & examined. 31 TB patients were interviewed and the study is under progress.

2. Utilization pattern of RNTCP services in rural areas of Bellary district – study of age, gender & spatial differentials.

This study has been taken up with the objectives of arriving at Age & gender distribution of the out-patients attending the MC & RC, and those among chest symptomatics subjected to sputum examination and number of smear positive cases detected. The referral pattern of chest symptomatics for sputum examination by the RC's, relationship between the distance from the DMC & the number of smear positive cases detected and the relationship between treatment outcome with reference to age, sex and distance from the Health Centre. Data collection has been completed.

3. TB-HIV collaborative project in the district of Mandya.

A project in collaboration with Karnataka state AIDS Prevention society (KSAPS) has been taken up in the district of Mandya in Karnataka with the Objective of assisting in the implementation of TB-HIV collaborative activities. This is based upon the TB HIV regional strategic framework. Situational analysis of RNTCP and

HIV/AIDS controls programmes has been completed. Action plan for the collaborative activities has been prepared in consultation with KSAPS. District coordination committee for a TB-HIV collaborative activity has been constituted. Linkage between VCTC-RNTCP has been streamlined. Training of staff involved in KSAPS activities on RNTCP and TB-HIV collaborative activities has been completed. In this context a protocol on surveillance of HIV among TB patients of Mandya district has been prepared for submission to Institutional Ethics Committee.

4. Assessment of Diagnostic algorithm and treatment of chest symptomatics and smear negative patients under RNTCP.

This study has been taken up in BMP with the Objectives of finding out the compliance to the diagnostic algorithm, initial culture positivity among chest symptomatics declared as smear negatives and put on treatment. The study also aims at finding out the reasons for initiating Smear Negative patients on CAT I, CAT II or Non-DOTS treatment regimens. Pilot study was taken up in the last quarter of 2004 and appropriate changes incorporated in the main study. Fieldwork is under progress.

5. Screening two novel *M.tuberculosis* proteins for human T-cell response and testing DNA expressing the two proteins in guinea pigs for protection against tuberculosis – in collaboration with Indian Institute of Science, Bangalore.

This phase of the study entitled "Provision of animals for testing in the project on DNA Tuberculosis vaccine" was undertaken with the objective of evaluating new DNA vaccine candidates against Tuberculosis in Guinea Pig animal model. This is a part of the programme on development of new generation vaccines for several infectious diseases afflicting India. This is funded by the Department of Biotechnology, Government of India. In this study , experimental DNA vaccines with a highly effective LipoVac adjuvant was used for immunization in groups of guinea pigs followed by challenge with high virulent strain of *M.tuberculosis*. During the period under report, one hundred & eight albino guinea pigs were immunized with different antigens prepared at IISc, Bangalore. Necropsy examinations were conducted on forty-eight guinea pigs. Spleen, Liver and Lung tissues were processed for quantitative evaluation besides gross assessment of tuberculous lesions.

6. Study on "Virulence assay of parental, devR mutant and complemented strain of *M.tuberculosis* in NTI- bred albino guinea pigs"in collaboration with the Department of Bio-Technology, All India Institute of Medical Sciences (AIIMS) New Delhi, undertaken.

Existing anti-tubercular drug target replicating bacilli and drugs active against quiescent /latent bacilli are not available. The dev R- dev S, two component system of *M.tuberculosis* promises to be a novel target for identification of drugs active against non-replicating bacilli. Characterizing the pattern of infection in guinea pigs using dev R mutant strain will contribute in understanding its role during natural course of infection. During the period under report of this study two groups comprising of thirty-four guinea pigs each were given coded

suspensions of mutant strains of *M.tuberculosis* & control through subcutaneous route. Post-mortem examinations were completed on first group of animals for the virulence assay besides dissecting out spleen, liver & lung tissues for further processing at TRC, Chennai & AIIMS New Delhi. The study is under progress.

Mathematical Model for estimation of trends in the prevalence of smear positive pulmonary tuberculosis - A frame work for developing mathematical models for estimating TB incidence, prevalence and trends of smear positive pulmonary tuberculosis was conceptualized and further efforts in this direction are in progress.

B. Papers presented in Conference

1. Journey of tuberculosis control movement in India: National Tuberculosis programme to Revised National Tuberculosis Control Programme by Dr. Prahlad Kumar, Director, National Tuberculosis Institute

Dr. O A Sarma, Guest lecture presented by the Director of the institute was an honour conferred by Tuberculosis Association of India on the occasion of 59th National Conference on Tuberculosis and Chest diseases held at New Delhi. The presentation passes through the saga of important landmarks of the past dealing with era of pre-chemotherapy, conventional and Short Course chemotherapy over 2-3 decades and finally culminating in implementation of DOTS strategy under RNTCP covering almost entire country in the last one decade. The highlights with reference to sanitorial line of treatment, BCG campaign in India, establishment of National Tuberculosis Institute, findings of epoch making studies of National Tuberculosis Institute and Tuberculosis Research Center, evolution and implementation of National Tuberculosis Programme and introduction of Short Course Chemotherapy have been presented. Further, background to the introduction of Revised National Tuberculosis Control Programme (RNTCP) and its introduction on a pilot basis between 1993-94 also have been projected. The emphasis placed on involvement of medical colleges and non-governmental organizations and the crucial role of information education and communication as additional inputs in RNTCP have been narrated. Phased introduction of RNTCP almost covering 90% of the population and the future challenges have been discussed in the oration paper. The oration has concluded with an appeal of implementing RNTCP in an efficient manner with an enhanced co-operation among different level of workers connected with the programme.

2. Effectiveness of shopkeeper as DOT providers under RNTCP in Bangalore Mahanagara Palike:

An innovative approach of utilizing shopkeepers as alternate DOT Providers was undertaken in this study taking into considerations their universal availability, accessibility (time and distance) and their convenient working hours. The study was carried with the objective to assess of feasibility of using shopkeepers as DOTS providers in terms of Strengths and weaknesses as DOT providers & Effectiveness of their utilization as DOT providers in terms of cure and completion rates. A total of 349 TB patients attending the health facilities of six

TB units of BMP were offered the choice of shopkeepers as DOT providers in the vicinity of their residence. The identified shopkeepers were given on the spot training regarding administration of DOTS including maintenance of duplicate treatment cards. Periodic supervision of DOT by shopkeeper was carried out by the STS of the respective TU and NTI staff.

Out of 349, 300 (85.9%) patients opted for treatment through shopkeeper, of whom 224 (74.6%) were smear positive and 76 (25.3%) were X-ray active. The remaining 49 (13.75%) refused and opted treatment from the Health facility, of them 40 (81.6%) were new smear positive cases and 9 (18.4%) were X-ray active. Out of patients who opted treatment from shopkeepers, 244 took treatment continuously and their success rate was 89.3%. The success rate of patients who refused to take treatment from shopkeepers was 90% and those who routinely registered & took Treatment from BMP during the period of the study (excluding cases treated under shopkeepers) was 84.8%. Success rate for 224 New Smear Positive cases alone that initially started treatment with shopkeeper was 81%. From this study it could be inferred that the shopkeepers have a good potential to be utilized as DOT Providers because of their accessibility, availability and convenience to the patients. Findings of the study were presented in the National Conference on Tuberculosis and Chest Diseases held at New Delhi in February 2005.

4. Current status of functioning of TB Sanatoria and Chest Diseases Hospitals in Karnataka.

This study was undertaken in the nine sanatoria of Karnataka with the objective of evaluating the infrastructure & manpower available in the sanatoria, the diagnostic and treatment practices in the sanatoria and to arrive at the socio-economic and clinical profile of the patients utilizing the facilities of sanatoria. The information was collected through interview using semi structured questionnaire and Institutional records for the year 2001.

The average number of out patients attending Sanatoria was 29 per day. Of 2148 beds available, averages for occupancy rate and hospital stay of patients were 76% and 34 days respectively. The composition of cases admitted was, Smear positive pulmonary TB–26%, Smear negative pulmonary TB-51%**,** Extra Pulmonary - 5% and Children-18%. Non-Tuberculosis cases admitted varied from 2-17%.

Out of budget of Rs.12.09 crores spent on all the 9 Sanatoria for the financial year 2001-2002, an amount of Rs. 1.52 crores was spent on drugs and Rs. 1.59 crores on food. Average cost/day/patient worked out to Rs. 212. Of 39, out of 52 Medical Officers responding to the questionnaire, 31% of them -had post graduate qualification in TB and Chest Diseases and 76% of them had formal training in TB Control Programme . No defined diagnostic algorithm was found to be practiced. Only 13% of the MOs mentioned standard drug regimens for the treatment of TB patients. Neither, any written policy for admission nor guidelines for practice of treatment regimens were available. Majority of the patients were put on daily Rifampicin containing regimen.

Analysis of 414 Inpatients and 130 discharged patients interviewed revealed similar profile. Patients in the economically productive age group 25-54 constituted 67% of the Inpatients. Only 5% of the patients had history of heamoptysis. 84% of the cases did not have any associated diseases. 30% of the Inpatients had either been referred by private practitioners or medical officers in service.

51% of the Inpatients came from distances more than 40 kms away. Eighty percent of the patients had income below Rs.1000. Fifty seven percent of the patients wanted to stay in the hospital because of good food and 83% wanted to stay in the Sanatorium for good treatment. 57% of the patients were advised to take treatment at DTC/RNTCP-TB centers, PHI/Govt hospitals and 31% were advised to come back to Sanatorium, at the time of discharge. In light of the above findings and in the context of RNTCP implementation there is a need to redefine the role of Sanatorium all over the country. Stringent guidelines for admission of seriously ill tuberculosis patients or those having post tubercular complication have to be formulated. Training in RNTCP for Medical Officers & paramedicals working at Sanatoria may be made mandatory. Provision may be made to treat seriously ill TB patients at CHC / Taluk Hospitals. Findings of the study were presented in the National Conference on Tuberculosis and Chest Diseases held at New Delhi in February 2005.

5. Pattern of default and methods of retrieval of new smear positive TB patients treated under RNTCP in a rural setup.

This retrospective cohort study among TB patients selected on the basis of purposive sampling was undertaken in two adjacent RNTCP districts of Karnataka state in a rural setting with the objective of finding (1) the pattern of treatment irregularity (2) factors contributing default and (3) patient retrieval methods & its effectiveness both from patients as well as providers perspective. All the defaulted patients and an equal number of treatment completed patients of a particular cohort belonging to similar age group, gender and treatment center formed the *study group*. The data was collected from programme records and patient interview using semi-structured schedules.

Patients with instances of one or more missed doses in the intensive and continuation phase were higher among defaulted patients than the completed group in both districts. This resulted in undue prolongation of treatment in more than 40% of cases in both districts. As per treatment cards, retrieval actions were found to have been taken for instances of missed doses in 10% of patients in district I and 3% in district II. However, no differences were observed in this regard between 'defaulted' and 'completed' groups. The treatment outcome was not recorded in 41% of the treatment cards in district I and 52% in district II. A significant number of treatment cards were incomplete with regard to information related to DOT in both districts. Initial home visit for address verification before initiation of treatment was significantly higher in the completed group compared to the defaulted in district I, whereas, more than 93% of patients in district II reported that home visit was not done. Drugs were provided for self-administration for 37.8% of patients in district I. Defaulter retrieval actions were found to have been taken in 58% and 32% of patients in district I and II

respectively. Reasons for default were mostly treatment related. Based on the study findings it is recommended that the programme guidelines may be strictly adhered to and the supervision may be strengthened to minimize default. Findings of the study were presented in the National Conference on Tuberculosis and Chest Diseases held at New Delhi in February 2005.

6. Tuberculosis infection among children in two districts of West Bengal by age group, residence, BCG status and sex by Joydev Gupta, Field Investigator, Epidemiology Section.

11,970 children (1-9 years) in Barddhaman district and 6,518 in Jalpaiguri district were Tuberculin tested with 1TU PPDRT23 with Tween 80 as part of a Nation-wide study. Maximum transverse diameter of induration was measured 72 hours later. Based on frequency distribution of reaction-size, reactions >15 mm were considered attributable to tuberculous infection.

In 1-4 years age-group, 4% of children without BCG-scar were infected in rural and 5.6% in urban areas of Barddhaman. Among Children with BCG-scar, 8% were infected in rural and 8.1% in urban areas. In 5-9 years without BCG-scar, 9.3% were infected in rural and 15.1% in urban areas. In children with scar, proportion of infected was 14% in rural and 16.6% in urban areas.

In 1-4 years age-group, 4.1% of children without BCG-scar were infected in rural and 7.6% in urban areas of Jalpaiguri. Among Children with BCG-scar, 8.7% were infected in rural and 9.2% in urban areas. In 5-9 years without BCG scar, 13.3% were infected in rural and 16% in urban areas. In children with scar, proportion of infected was 17.4% in rural and 13.6% in urban areas.

Therefore, higher proportions were infected in Jalpaiguri compared to Barddhaman. Prevalence of infection was higher in urban areas for most of the sub-groups. Proportions of reactions >15mm was higher among children with BCG-scar compared to without scar. No definite difference trend was observed in risk of infection between sexes.

7. Awareness of TB among chest symptomatics in urban slums by Umadevi G Field Investigator, Epidemiology Section

The highest rates of transmission of tuberculosis infection have been observed among slum dwellers. One of the reasons could be lack of awareness regarding the disease and availability of anti-TB services. In selected slums of Bangalore city, 3,930 persons >14 years were screened for chest symptoms by house-to-house survey. Of 71 symptomatics, 55 were interviewed using a semi-structured proforma. Among symptomatics, 22 were aware that cough is a common symptom of TB, only 6 suspected that their symptoms could be due to TB. 17 said prolonged fever and chest pain could also be symptom of TB. Forty-eight did not have any idea about the cause of TB. Only 3 knew that germs cause TB, which spreads from person to person by coughing; 4 cited poverty, malnutrition, heavy workload, smoking or alcoholism as the cause. Forty-eight had no idea about the tools of diagnosis. Only 7 were aware of the role of sputum examination – 4 of

them said that X–ray was also required. Nine were aware of the availability of free diagnosis and anti-TB treatment at Government health centres. 9 persons said that TB is fully curable, 7 said it is incurable; 39 had no idea. 4 persons knew the duration of TB as 6-12 months, while others had no idea. Study revealed a poor level of awareness regarding tuberculosis among slum dwellers. It emphasizes the role of appropriate IEC activities for their informed participation in TB-control.

8. Health seeking behaviour of chest symptomatics among slum dwellers by Jameel Ahmed, Field Investigator, Epidemiology Section.

A study was undertaken in randomly selected slums of Bangalore City to find out health-seeking behavior of chest symptomatics. Seventy-one chest symptomatics were detected through house-to-house survey among 3926 individuals >14 years of age. 55 were interviewed for their action-taking pattern using a semi-structured questionnaire. Only 33 (60%) had taken action for relief of their symptoms. The most common reason for no action by other symptomatics were cited as non-severity of symptoms, domestic and financial problems.

The first point of contact for the majority was Private health centre, due to faith and proximity. However one third of them later shifted to Government health centers. While 70% of those attending Government health centers were subjected to sputum examination and x-ray of the chest, while most of those attending private centers were not subjected to investigations for TB. Of the total cases, about 50% were diagnosed as TB after visiting 2-5 health centers-government /private in equal proportions. Information, Education and Communication (IEC) activities are called for disseminating information on availability of quality services at Government health centres and for facilitating behavioral change in the form of early action by chest symptomatics.

9. A tuberculin survey in the districts of Purbisinghbhum and Samastipur by Lakshminarayana, Investigator, Epidmiology Section.

The two districts were a subset of the 26 selected districts for the nationwide tuberculin survey conducted between 2000-03. The study subjects comprised 3681 children from Purbi Singhbhum and 6505 from Samastipur from the age group 1-9. The children were subjected to the standard tuberculin test using 1TU PPD RT23 with Tween 80 and the reactions read after 72 hours. The proportion of infected children was estimated from the histogram of reaction size considering reactions of >15mm as infected. In children 1-4 years of age without BCG scar in Purbi Singhbhum district 4.2% were infected, while it was 13.3% in those 5-9 years of age. Among those with BCG scar, 4.2% and 11% were infected in the age groups 1-4 and 5-9 respectively. In Samastipur district, the proportion of children infected, without BCG scar, in the 1-4 year age group was 3.1%, while it was 7.9% in those 5-9 years of age. In children with BCG scar 5.7% and 8.9% were infected in the age groups 1-4 and 5-9 respectively. The proportion of infected children irrespective of the BCG scar status was more in the age group 5-9 years compared to 1-4 years and was more in urban compared to rural children. The proportions did not differ among males and females. The results of this study would provide baseline information in the district studies.

10. BRIDGING THE DIGITAL DIVIDE - a case study of WHO sponsored Health InterNetwork project on TUBERCULOSIS-Sudha S Murthy

The technology intervention on information resources & services has given a great impact on proliferation of access to users at all levels. When observed globally, the users find gaps in the availability of data from developing countries, which is subjective to many parameters. The gaps are more between health research, policy and practice. Therefore, in September 2000, the UN secretary-general launched a public-private initiative namely *Health InterNetwork* (HIN) to bridge the digital divide in health. Led by the World Health Organization, the *HIN* brings together international agencies, the government and private sector, foundations, non-governmental organizations and country partners under the principle of ensuring *equitable access to health information*. The aim of this project was to improve Internet based communication and networking among health professionals. The focus of HIN is on improving the information environment of health personnel: professionals, researchers and scientists, and policy makers, to bridge the **digital divide between the developing and developed countries** and allow the global use of Research data generated by the developing countries.

11. Technology interventions on information resources, access and services - Mrs. Sudha S Murthy and Dr. P Kumar

Libraries as repositories and service intermediaries of information are important components as essential infrastructure for the socio-economic and technological development of any country. The impact of knowledge on research and development activities is well documented. The scientific and technical achievements of the past decades are evidence of the radical changes brought about by corresponding developments and applications of information / knowledge in all sectors of the economy, more particularly in the biomedical domain. There is a growing awareness that embodied knowledge is a common heritage to be shared and utilized. Convergent technologies have considerably reduced the time lapse between the demand and supply.

The objective of this conceptual paper is to appraise the impact of Information and Communication Technologies (ICTs) on biomedical libraries; changing scenario of information centers (libraries) products, its availability and accessibility and the trend in information seeking approach and retrieval.

12. Health Inter Network - Mobile Data Management Project (MDMS) by Mr. Jitendra

The pilot project 'Mobile Data Management' under WHO's Health Internetwork was successfully launched on 2nd November 2004. In this project Hand held devices are being field tested for Monitoring of RNTCP in the 17 TB units of BMP, Bangalore Rural and Bangalore Urban districts. In this project Sr. TB Supervisor will capture the primary data from the treatment card and laboratory register on to the hand held device (simputer) and transfer it electronically to the central server situated at NTI. This innovative approach has the potential of achieving prompt recording and reporting which ensures efficient monitoring system. This in-turn helps to give proper feedback for corrective actions at the periphery. Under this project the Server infrastructure of the institute has been improved with the

dedicated Web server, a data base server and a remote access server to support the MDMS Project. Efforts are on to integrate the Geographical Information System (GIS) software as a decision making tool into the existing project. The findings of a pilot project study conducted in this regard in the TB units of Bangalore Mahanagar Palika was presented in the Conference held at New Delhi in February 2005

Research Papers published

Abstracts of the papers published during the year are presented below

1. Directorate General of Health Services, New Delhi, National Tuberculosis Institute, Bangalore, Tuberculosis Research Center, Chennai; Annual Risk of Tuberculous Infection in Different Zones of India - A National Sample Survey 2000-2003

In this study about 1,88,103 children have been tuberculin test read in 26 statistically selected districts spread over the entire country stratified into four zones. In sheer terms of the quantum of fieldwork, this study surpasses all previous epidemiological studies on tuberculosis conducted in the country. More than 100 people worked in the most challenging situations all over the country including the inaccessible remote areas in order to accomplish the data collection in record time. Utmost care was taken at various stages to ensure highest standards of research discipline and quality data collection. The survey of this magnitude could not have been possible without the total dedication and hard work of the field staff that was tremendous and laudable.

The results furnish vital information on the prevailing epidemiological situation of tuberculosis in different parts of the country and throw light on inter-regional differences in rates of transmission of infection, which depend not only on the load of infectious cases but also on the efficiency of case finding and treatment programmes. The results also provide a baseline information for assessment of epidemiological trends and impact of tuberculosis control interventions in the years to come. The findings with major implications are as under:

(i) The ARTI in North, West, South and East zones are estimated to be 1.9%, 1.8%, 1.1% and 1.3% respectively.
(ii) The children in urban areas were at a higher risk of infection than in rural areas, in all the four zones.
(iii) In children aged 1-4 years, the estimated prevalence among those with BCG scar was considerably higher than in those without BCG scar. The prevalence rates were similar in children with or without BCG scar in the age group 5-9 years. Thus Tuberculin surveys may be conducted irrespective of BCG scar status among children aged 5-9 years and the prevalence of infection may be estimated using the mirror-image technique.

2. Chadha VK et al : Annual risk of tuberculous infection in Khammam a tribal district of Andhra Pradesh; J Commun Dis. 2003; 35(3): 198-205.

A tuberculin survey to estimate annual risk of tuberculous infection was conducted in Khammam tribal district during 2001-2002. A total of 8637 children were test-read - 2991 without BCG scar and 5442 with BCG scar. The tests were performed using 1TU PPD RT23 and the maximum transverse diameter of induration was recorded at about 72 hours after the test. Based on the frequency distribution of reaction size, cut-off point for infection with tubercle bacilli was considered at 12 mm. Using this criteria, the prevalence of infection was estimated at 11.8% among children without BCG scar and 10.6% among children with BCG scar. This difference was found to be statistically insignificant. ARTI rates computed from the prevalence estimates among children without and with BCG scar were 1.6% and 1.5% respectively. It was computed as 1.5% from the prevalence in the combined group i.e. irrespective of BCG scar status.

3. Chadha VK et al : Average annual risk of tuberculosis infection in India; Int. J of Tuberc and Lung Dis; 2005; 9(1), 116-118.

As the majority of the tuberculin surveys in India had been confined to pockets in the southern region, a nation-wide study was undertaken between the years 2000 to 2003 to assess the epidemiological situation of tuberculosis in the country. For the purpose of the study, the country was stratified into four mutually exclusive zones, with the objective of estimating the average ARTI in each of the zones using uniform methodology. The survey was conducted among children 1-9 years of age residing in 1668 selected villages (rural clusters) and 645 urban blocks (urban clusters) in 26 districts of 19 states. The estimates of the prevalence of infection in the rural areas of the four zones were pooled together to obtain the national estimate for rural areas and that from the urban areas were pooled together to obtain the national estimate for urban areas. Rural and urban estimates of prevalence of infection at the national level were pooled to obtain the overall national estimate. The average prevalence of infection among children 1-9 years of age was estimated at 8.2% by the cut-off point method and 7.9% by the mirror image technique. The ARTI in North, West, South and East zones are estimated to be 1.9%, 1.8%, 1.1% and 1.3% respectively. The average ARTI for the country by both the methods was similar. The ARTI was computed as 1.5%, though it was higher in urban (2.2%) compared to rural areas (1.3%). The results call for further intensification of tuberculosis control activities, especially in urban areas, greater involvement of private practitioners and IEC for high-risk groups, to reduce the diagnostic and treatment delay thereby reducing the transmission of infection.

4. Chadha VK et al: Can BCG-vaccinated children be included in tuberculin surveys to estimate the annual risk of tuberculous infection in India; Int J of Tuberc and Lung Dis; 2004 ; 8(12), 1437-1442.

Tuberculin surveys have not only become operationally difficult in terms of obtaining adequate sample size of unvaccinated children but concerns have also been made on the applicability of the results obtained from the unvaccinated children to the overall population in that age group. In an earlier study in Bangalore district, the majority of children vaccinated under the Expanded Programme on Immunization (EPI) elicited low levels of tuberculin sensitivity and the prevalence of the infection estimated among unvaccinated and vaccinated

children was similar. However, since these observations pertained to a small area, the data from the nation-wide tuberculin survey was analyzed to examine whether the estimates of the prevalence of tuberculous infection in children with BCG scar was similar to that obtained in children without BCG scar. The study subjects in the age group 1-9 years were tuberculin test-read using 1 TU PPD RT23 with Tween 80 irrespective of their BCG scar status. The readers were blinded to the BCG scar status at the time of the reading of the maximum transverse diameter of the induration, 72 hours after the tuberculin test. The frequency distributions of tuberculin reaction size were compared for children with and without BCG scar separately for 1-4 year and 5-9 year age groups. The histograms were separately prepared for each of the three zones. It was not possible to estimate the prevalence of infection by the cut off point method from the frequency distribution of tuberculin reaction pertaining to children with BCG scar due to lack of antimode. In the majority of the distributions, the modes on the right side of the distribution, whenever discernible, were uniformly located at 20 mm, especially in the 5-9 years age group, immaterial of the BCG scar status. However, such modes were not clearly visible in the 1-4 age group in all three zones. The modal value of 20 mm was also corroborated from the similar result obtained from earlier studies among smear positive TB cases. Hence, it was reasonable to presume that the reactions due to tuberculous infection may be distributed around the modal value at 20mm. In children without BCG scar aged 1-4 years, the estimated prevalence of infection was 3.5%, 3.8% and 3.6% in the western, northern, and eastern zones respectively. Among children with BCG scar it was 4.8%, 4.7% and 4.5% in the western, northern, and eastern zones respectively. In those aged 5-9 years, the estimated prevalence was respectively 10.4%, 11.0% and 9.1% among children without BCG scar and 11%, 11.9% and 8.7% among children with BCG scar in the three zones. Thus, in children aged 1-4 years, the estimated prevalence among those with BCG scar was considerably higher than in those without BCG scar. This difference was small in those aged 5-9 years. Thus Tuberculin surveys may be conducted irrespective of BCG scar status among children aged 5-9 years and the prevalence of infection may be estimated using the mirror-image technique. However, the applicability of the findings should be re-evaluated in case of any change in the BCG vaccination policy and also in settings where BCG vaccine is prepared using strains other than Danish 1331.

5. Chadha VK et al: Protective effect of BCG among children vaccinated under universal immunization programme; Indian J of Pediatrics; 2004 Dec;71(12), 1069-1074.

A case control study was undertaken to assess the protection offered by BCG vaccination against TB rendered under the Universal Immunization Programme in India (UIP), as there was no scientific data pertaining to the Indian context available in the country.

This study was conducted among children aged 1-14 years with suspicion of TB, attending pediatrics department of two hospitals in Bangalore, namely St. Marthas Hospital and Vani Vilas Children Hospital. The children registered into the study were subjected to detailed clinical examination and investigations. The presence of BCG scar was taken as evidence of vaccination. Modified Stegen-

Jones (SJ) scoring method was adopted for diagnosing TB. Children with score of ≥ 7 were considered as TB cases. Children residing in the neighborhood of cases were similarly investigated and those scoring ≤ 4 were labeled as controls. A total of 118 age-sex matched case-control pairs were identified and the final analysis was confined to 113 cases and 109 controls after excluding children with doubtful BCG scar. A low protective effect of BCG vaccination at 31% (not significant, statistically) was observed against TB - all forms combined, among children vaccinated under the UIP. A similar protective effect of less than 30% was observed in Georgia, Alabama & Puerto Rico. A higher level of protection at 75- 80% was observed in Saudi Arabia, Chicago and among American Indians. A meta-analysis of case control studies involving vaccination of infants revealed that the protective effect of BCG was 55% against all forms of TB including adult type. In this study, the protective efficacy against extra-pulmonary TB was observed to be higher than for pulmonary TB but it was not statistically significant. Inadequate matching with respect to socio-economic status and deficiencies in vaccine administration could have been some of the limitations of the study. The protective effect of BCG vaccine against TB meningitis and miliary TB could not be specifically evaluated in this study owing to small numbers. The authors conclude by stating that it would be appropriate to conduct further studies on protection rendered by BCG vaccination against tuberculous meningitis and other severe forms of TB. Nevertheless, till such time the current BCG vaccination policy needs to be adhered to.

6. Chadha VK et al: Tuberculin sensitivity among children vaccinated with BCG under universal immunization programme; Indian J of Pediatr; 2004 Dec;71(12), 1063-1068.

The information on the tuberculin sensitivity in BCG vaccinated children under UIP in India, was fairly limited. So, the large volume of data available from the nation-wide tuberculin survey was analyzed to compare tuberculin sensitivity patterns in children with and without BCG scar and also to study their trends with age.

The database comprised of 45,988 children 1-9 years of age with BCG scar and 54,227 children without BCG scar residing in selected rural areas of north, east and west zones of India.

The children were subjected to tuberculin testing using 1 TU PPD RT 23 with Tween 80 procured from BCG lab, Guindy. Trained personnel performed the tuberculin test using Mantoux technique. The maximum transverse diameter of induration was measured after about 72 hours. The readers were blinded to the BCG scar status at the time of reading the reactions. About 45-60% of the BCG vaccinated children elicited reactions <5 mm in size and about 70-80% had reactions <10 mm. Therefore, in the majority of children (showing tuberculin reaction of <10 mm, BCG-induced tuberculin sensitivity does not interfere with the interpretation of the tuberculin test. The study also revealed that a proportion of reactions among BCG vaccinated children in 5-9 mm, 10-14 mm and 15-19 mm range may be attributable to BCG vaccination. Therefore, reactions between 10-14 mm and especially 15-19 mm among the vaccinated children are to be interpreted carefully. However, 19 mm was observed as the upper limit for BCG

induced tuberculin sensitivity and all reactions > 20 mm in size may be considered to be due to infection with tubercle bacilli, irrespective of the BCG vaccination status. Considering that BCG induced tuberculin sensitivity depends on various factors like dose and type of vaccine, age and technique of vaccination, time gap between vaccination and tuberculin testing and also on racial factors, the findings of this study may not particularly be applicable to settings in other countries.

7. Shashidhara AN et al: The annual risk of tuberculous infection in Orissa State; India. Int. J of Tuberc and Lung Dis; 2004 ; 8(5), 545-551.

A tuberculin survey was conducted to estimate the prevalence of tuberculous infection among children of 1-9 years of age and compute the annual risk of tuberculous infection. The cross- sectional community based survey was carried out between May 2002 and February 2003 by DANTB, Orissa under the guidance of the National Tuberculosis Institute, Bangalore.

A stratified cluster sampling technique was adopted for selecting eight districts out of the 30 districts in the state. The districts were stratified into tribal, coastal and other. At the district level, the selection of clusters was done by probability proportional to size method. Thus three districts (Mayurbhanj, Sundargarh, Gajapati) were selected from the tribal strata, three (Ganjam, Balasore, Bhadrak) from the coastal strata and two (Angul, Bargarh) from the other stratum. A total of 490 clusters (422 rural and 68 urban) were distributed into these three strata in proportion to their population.

In all 25,281 children were registered into the study of which 10,626 (42%) were without BCG scar. Child cards were prepared for only the unvaccinated children and they were subjected to the standard tuberculin test with 1TU of PPD RT23 with Tween 80. Reading of the reactions was done about 72 hrs later by measuring the maximum transverse diameter of the induration.

Based on the frequency distribution of the tuberculin reaction sizes, the prevalence of infection was estimated both by the cut-off-point method and the mirror image technique. By cut-of-point method, the prevalence of infection in the state of Orissa as a whole was estimated at 9.7% and ARTI was computed at 1.7%. Using the mirror image technique, the prevalence of infection was estimated at 10.2% and ARTI computed at 1.8%. The magnitude of risk was higher in children residing in urban areas compared to those in rural areas and it was more in females than males.

The average ARTI estimated in the present study was higher than that estimated for the eastern zone during the nationwide tuberculin survey, but it was within the range obtained for the eastern zone. The ARTI in Orissa indicates a high rate of transmission of infection and the expected incidence of smear positive tuberculosis cases would be about 85-90 per 100,000 population.

8. Chadha VK et al: The annual risk of tuberculous infection in the eastern zone of India; India. Int. J of Tuberc and Lung Dis; 2004 ;8(5), 537-544.

This study in the eastern zone comprised of states of Jharkhand, Bihar, Orissa, West Bengal, Sikkim, Arunachal Pradesh, Assam, Meghalaya, Tripura, Nagaland,

Manipur and Mizoram. The study was conducted in 387 rural clusters and 128 urban clusters located in the districts of Samastipur (Bihar), Purbi Singhbum (Jharkhand), Papum Pare (Arunachal Pradesh), Cuttack (Orissa), Kamrup (Assam), East District (Sikkim), Jalpaiguri and Bardhman (West Bengal). The selection of the districts and clusters was based on a stratified two-stage sampling procedure. During the study period between June 2001 to January 2003, 40,964 children were subjected to the standard tuberculin test using 1TU PPD RT23 with Tween 80 and the maximum transverse diameter of induration was measured about 72 hours later. The BCG scar was observed in 51.5% of the test-read children. The frequency distribution of tuberculin reaction size among 19,332 children without BCG scar (49.5%) was found to be bimodal, with mode of reactions attributable to infection with tubercle bacilli at 20 mm. There was a suggestion of an anti-mode at 16 mm in the urban stratum and 16/17 mm in the rural stratum. These findings were also corroborated by the modal value at 20 mm obtained from the tuberculin reaction size among 362 smear positive pulmonary TB cases. The prevalence of infection estimated by both the cut-off point and mirror image methods was 6.9%. The average ARTI for the zone was 1.3% and the magnitude of the risk was significantly higher in urban compared to rural children. The result of the ARTI in this area provide a baseline to evaluate the trends of the disease in the future.

9. Sophia Vijay et.al: Treatment Outcome and Two Year Follow-up Status of New Smear Positive Patients Treated Under RNTCP in Bangalore City, Ind.J Tub., 2004,51, 199-208.

A study was conducted in Bangalore metropolitan area implemented under RNTCP, to evaluate the treatment outcome of new smear positive patients supported with pre & post-treatment bacteriological profile and to assess the bacteriological and clinical status two years after treatment initiation. 271 new smear and culture positive patients were initiated on CAT I treatment during 1999. They were followed up till treatment outcome and 2 years thereafter. Two sputum samples each were collected for smear microscopy, culture and drug susceptibility profile after every interview.

Treatment success of the study group was 68.7% and 24.7% patients defaulted from treatment. The failures and deaths during treatment were 5.2% and 2.2% respectively. Initial drug susceptibility status did not influence the treatment outcome of the study group except in six patients who were Multi Drug Resistant. The treatment duration of the study group ranged from 1-388 days against the expectation of 180-210 days. The development of drug resistance during treatment was 1.3%. The proportions of bacteriologically positive cases and mortality at follow up were significantly higher among patients who defaulted from treatment. The relapse during the intervening period was 11.4%. The fully intermittent CAT I regimen is effective in programme condition irrespective of the pre-treatment drug susceptibility status. The study findings underscore the importance of strict adherence to the programme guidelines for a desired successful treatment completion and for a lasting cure by minimizing defaults.

10. Sophia Vijay, Balasangameshwara VH, Jagannatha PS & Kumar P: Initial drug resistance among tuberculosis patients under DOTS programme in Bangalore City: Ind J Tuberc 2004,51, 17 – 21.

The level of Initial drug resistance (IDR) and its trend is a sensitive indicator of the programme efficiency. There is paucity of information on age specific pattern of IDR from India. Frequency of drug resistance in the younger age group reflects a precise evaluation of the current situation. The published data from Bangalore (1985-86) pertaining to patients under the National TB program reported an IDR of 20.6% to any drug. RNTCP with DOTS strategy to achieve high cure rate of 85% was implemented in the area in late 1998. This study was undertaken to determine the pattern of IDR among new smear positive patients soon after RNTCP implementation in the area. The study group comprised a cohort of 324 new smear positive patients initiated on Cat-I regimen under RNTCP in Bangalore Mahanagara Palike from April to December 1999. This information would serve as a useful baseline data for the area to assess the impact of DOTS strategy on IDR in future assessments. Two pre-treatment sputum samples were collected from patients and subjected for microscopy, culture & susceptibility. The susceptibility testing was done by Economic version of proportion method as per IUATLD guidelines. Information regarding the previous treatment was elicited using a pre-tested semi-structured schedule based on the WHO questionnaire for IDR surveillance and scrutiny of records. Among 271 correctly categorized new patients, 27.7% were resistance to one or more drugs. The resistance to streptomycin was highest (22.5%) followed by INH (13.7%), and MDR was 2.2%. The age specific resistance was highest in cases below 25 years and declined significantly in the higher age groups to as low as 17.7% in ≥45 years. Effective RNTCP implementation is expected to show declining trends in the IDR particularly in the younger age group during the subsequent surveys.

11. Vaidyanathan PS et.al: Annual risk of tuberculous infection in rural areas of Kota district; Ind J Tuberc 2004; 51:123-130.

This part of the nation-wide study was undertaken in the rural areas of Kota, a subset of the 26 districts selected for the survey. In rural areas, a total of 6264 children 1-9 years of age, residing in 64 clusters were registered into the study. The children were subjected to the standard tuberculin test using 1 TU PPD RT23 with Tween 80 procured from BCG laboratory, Guindy and the maximum transverse diameter of the induration was measured after about 72 hours. In all, 3157 children without BCG scar and 1520 with BCG scar were successfully test read. The prevalence of infection among children without BCG scar using the mirror image technique was estimated as 13.6% and the ARTI was computed at 2.6%. Using similar technique, the prevalence of infection among the entire study group-irrespective of BCG scar was estimated as 14.9% and the ARTI was computed at 2.8%. The result pertaining only to the rural areas were presented, as the urban sample size of children without BCG scar was small.

The findings indicate a high rate of transmission of tuberculous infection in rural areas of Kota and emphasize the need for further strengthening of tuberculosis control measures.

12. Suganthi.P: Prevalence of tuberculosis infection- a review of the published data; NTI Bulletin

Some of the important survey findings of various tuberculin surveys carried out in India from 1951 to 1999 are presented in this article. Such surveys carried out in representative sample of the population provide estimates of prevalence and ARTI that are useful in planning programmes for control of TB in the community by identifying areas of high prevalence of infection. About 40% of the population (all age groups combined) were found to be infected in Tumkur district of Karnataka during 1960-61. This proportion was found to vary between 30-65% during various rounds of surveys conducted in rural Bangalore & Chingleput district in sixties and seventies. However, most of the tuberculin surveys have been carried out among children since the prevalence of infection in younger age groups is an indicator of the recent transmission of tubercle bacilli. The majority was carried out in Southern parts of the country besides a few in Bikaner and Morena districts where there was, variation in the reading technique. While longitudinal diameter was recorded during the earlier surveys conducted by NTI, transverse diameter was measured in the others. The level of demarcation used for estimating prevalence of infection and the estimates of prevalence and risk of infection wherever computed are given in a tabular form in the article. The attempt has been made to include all tuberculin surveys conducted till date and the article would be of great value to the reader not only in assessing the TB situation but also in formulating proposals for undertaking epidemiological surveys in future.

13. Sudha S Murthy: Digitization: a practical experience at the National Tuberculosis Institute, Bangalore: Information Studies 2005, 11, 109-125.

The objective of digitization is principally to create content of databases to facilitate access to, preservation and dissemination of information resources. This paper is based on the experience of digitization undertaken institute in collaboration with WHO under their "Health InterNetwork India" Tuberculosis - India. The various aspects of conceptualization of the digitization project, measurement criteria for inputs and outputs, the ability to access and retrieve information are discussed in detail. An important dimension of digitization process is co-ordination between information technology expert and library professionals. The standards and guidelines followed and problems encountered are mentioned. The importance of securing consent for archiving and sharing resources globally from the concerned parties is pointed out. Efforts made use of in digital library software operable in a network environment and the importance of metadata and vocabulary management tools in accessing, searching and retrieving; digitized documents are highlighted.

6. NATIONAL REFERENCE LABORATORY

National tuberculosis institute is recognized as one of the national reference laboratories for purposes of quality assurance under RNTCP both for sputum smear microscopy laboratory network and culture sensitivity testing of *M. tb.* Ten states have been covered under its jurisdiction, viz., Bihar, Jammu and Kashmir, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Rajasthan and West Bengal.

Quality Assurance Programme (QAP) covers Internal Quality Control (IQC) and External Quality Assurance (EQA) and quality improvement (QI). It involves classification of errors in sputum smear microscopy and assessment of laboratories based on Lot Quality Assurance Sampling (LQAS).

A: External Quality Assurance (EQA) of sputum smear microscopy

During the year the institute took a leading role in finalizing the Revised EQA document for smear microscopy under RNTCP. The institute was entrusted with the responsibility of training majority of state level microbiologists and laboratory technicians in the Revised EQA document and monitoring the implementation and maintenance of EQA in smear microscopy in ten states of India as mentioned above. Institute took up the task of meeting the responsibility of EQA as a National Reference Laboratory (NRL) by training its laboratory personnel in Revised EQA methodology at TRC. The strength of technical staff of the NTI required for this purpose was reinforced by Central TB Division by providing three contractual Staff (one Consultant Microbiologist & two Senior Laboratory Technicians) The institute completed the training of contractual laboratory staff of NTI and TRC on EQA and DRS during Feb – March 05. The trained staff in turn of took part in imparting training for the 1st batch of State Tuberculosis Demonstration Center also referred as intermediate reference laboratory (IRL)] personnel from Karnataka. The onsite evaluation of implementation of EQA in the state of Maharastra was undertaken by the institute during February 2005. This also provided an opportunity to assess the pilot districts in Maharastra (Gondhia and Bhandara) for Revised EQA. The results of assessment in these two pilot sites helped in simplifying the sampling procedure using Lot Quality Assurance Sampling Method (LQAS). The simplified table was incorporated in the final EQA protocol.

B. Drug Resistance Surveillance

NTI took an active and major role in development of methodology for selection of sample size for State-wide DRS under RNTCP, along with TRC and other members of National RNTCP Laboratory Committee. This included determination of sample size for population-proportionate-cluster-sampling and identification of new and retreatment cases diagnosed at DMCs. The methodology developed served as a template for routine identification of these cases in all DMCs under RNTCP in the country. Draft protocols were developed by program officers of two states, namely Maharastra and Gujarath under technical guidance from NTI laboratory in consultation with experts from TRC and National RNTCP Laboratory Committee. NTI conducted facility evaluation of laboratory of STDC, Cuttack, Orissa in the month of Sept 04, along with a expert from TRC. The institute, in collaboration with TRC developed laboratory assessment tool to

assess the preparedness of STDC labs for undertaking DRS in their respective states. This was followed by National Lab Committee meeting at NTI to finalize the DRS protocols of Maharastra and Gujarat. The protocols were finalized in the meeting by the National RNTCP Laboratory Committee and later approved technically by Central TB Division and by the respective State TB control Societies of Maharastra and Gujarat. Simultaneously, draft protocols for DRS for two states namely Orissa and Andhra Pradesh were also developed. However, some corrective measures were suggested to increase the quality of data from DMCs before the draft protocols could be finalized. These suggested corrective actions included assessment of history of previous treatment for patients under RNTCP and review of ratio of 'new' and 'previously treated cases'. As a prerequisite for taking up DRS in the two states Maharastra and Gujarat, the institute trained microbiologists and laboratory technicians from the Intermediate Reference Laboratories of the above two states in TB bacteriology.

7. MONITORING

Performance of the National Tuberculosis Programme (Jan – Dec 2004)

The performance of revised strategy being implemented across the country in a phased manner is directly being monitored by Central TB Division, Directorate General of Health and Family Welfare, Ministry of Health and family welfare, New Delhi. Some of the RNTCP districts are also forwarding a copy of the RNTCP reports and non-DOTS cases to NTI. The database of RNTCP performance is being created at NTI for the purpose of research and training. In the districts / states where RNTCP has not yet been implemented the erstwhile National Tuberculosis Programme (NTP) is in vogue. National Tuberculosis Institute has been monitoring the performance of NTP since 3rd quarter of 1977 through periodic reports from the DTCs.

The quarterly reports brought out in 2004-05 appraise the performance of NTP districts in terms of implementing, reporting, case-finding and treatment activities. The report also contains the information on treatment of Non-DOTS cases in RNTCP districts.

Implementation status

NTP Districts	85
RNTCP Districts	547

A total of 270 quarterly reports were analysed during the year 2004. The reports with inconsistent data and other types of errors were excluded from the analysis. Some DTCs did not submit the report for one or more quarters. Out of 270 reports analysed, 50 reports pertained to non-DOTS cases from RNTCP districts.

Reporting Efficiency:

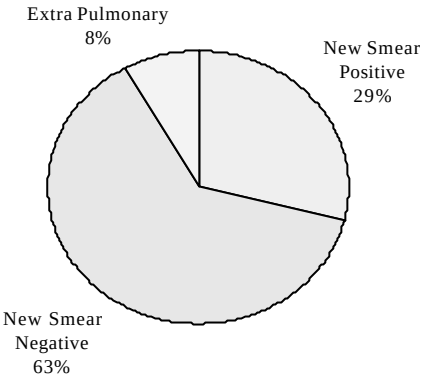
NTP districts	62%
Reported with errors / not reported	38%

Case finding:

During the calendar year 2004 the number of cases reported under NTP or non- DOTS cases from RNTCP areas were as under:

New smear positive cases	23677
New smear negative cases	51664
Extra Pulmonary cases	6792
Total	**82133**

Composition of Cases

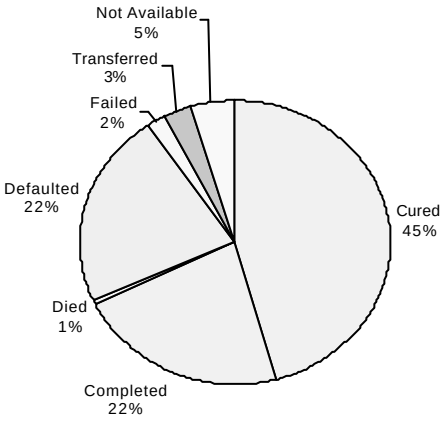


The states of Uttar Pradesh, Madhya Pradesh, Bihar and Jammu & Kashmir together account for 83% of the case finding activity during the year while they constitute 80% of the population under NTP. The overall ratio of Smear positive to Smear negative cases during the year was 1:2.18. The ratio was decreasing steadily over the years. However the ratio for Bihar was 1:10.44, which was still very high. The overall percentage of smear positives among new sputum smear examined was 7.1%. The annualized total case detection rate among reported NTP districts was 77/lakh population. The annualized new sputum positive case detection rate was 22/lakh population among reported NTP districts against the expected 50/lakh.

Treatment outcome

During the year, 2 months sputum conversion rate under SCC was 77% and under SR, it was only 62%. Treatment success rate under SCC was 71% and under SR it was only 67%.

Treatment Outcome of New Smear Positive Cases



8. LIBRARY AND INFORMATION SERVICES

Library & Information Services

The institute has a specialized health science library classified as **Category II**, as per the guidelines of the library Review Committee report, Government of India New Delhi. The categorization is based on Resources, Services, and Dissemination of Information & Automation activities. Its resources and services are focused on TB and allied disciplines. The collections include core periodicals on TB and Respiratory diseases (80 journals) and its back volumes, published books on TB and multi disciplinary aspects (around 6500), reports, proceedings, souvenirs, WHO unpublished documents, selected papers and non-print media viz., slides, cassettes, transparencies, CD-ROMs etc.

It is an integral part of all activities of the institute and shoulders the responsibility by building up the appropriate collection, its progressive development, and organization of information services to provide increased access to its resources. Its major role is Selective Dissemination of Information to all Health Care workers: viz., Policy makers, Administrators, Academicians, Programme workers depending upon their information needs. The National data on Tuberculosis hosted on NTI website, creation of Digital Library, Digitization of monitoring reports on TB for archival value stands as a testimony for its efficiency. The information resource on Indian Data on TB available on the electronic media has drawn the attention of various Research Workers/Scientists Globally.

Besides, Library coordinates the activities of the Editorial committee and Publication Section. It plays active role in publication programmes of the Institute.

The following are highlights of the activities during the year under report.

- **Periodical Abstract Bulletins.**

  Periodicals Abstract Bulletins of Vol. 38/1-12 issues were brought out, each with 80 citations on TB and its multidisciplinary aspects. Besides a separate bibliography on Public Private Mix in TB Control with 30 citations & Select Bibliography of Indian Medical Literature on TB for publication in the NTI bulletins were compiled.

- **Automation activity**

  Creation of database of Select Bibliography of Indian Medical Literature on TB was taken up. Data entry for 15 years i.e. from 1990 to 2005 has been completed.

  Open Access Public Catalogue of Books has been initiated. Plans are afoot for its hosting on the Inter & Intranet.

- **In house digitization**
  Digitization of the monitoring reports on the performance of the National TB Control Programme for 23 years has been completed. Digitization of the research papers published by the institute during the above period has been completed.

9. PUBLICATIONS

Publication section was created to coordinate the publication activities of the institute. The major responsibilities of this section are to over see the regularity of the publication of NTI bulletin and the production of other specialized publications. The faculty and the staff of the institute contribute the articles for publication

Documents published – The following documents were published during the year

1. One thousand (1000) copies of NTI bulletin Vol. 19/1&2 and Vol. 3&4 of the year 2003 issues
2. Two thousand (2000) copies of the document titled "NTI - Organization and functions". This serves as handbook on the updated activities of the earlier handbook, which was brought out in the year 1985.
3. One hundred and fifty (150) copies of the NTI Annual Report of the year 2002-3
4. One thousand (1000) copies of the State Tuberculosis Demonstration Centers document - Ed 3.
5. One thousand five hundred (1500) copies of the document 'Annual risk of tuberculous infection in different zones of India a national sample survey - 2000 - 2003'.
6. Two thousand (2000) copies of the document "Luminaries of Tuberculosis control in India - A Tribute".

- The following documents are at various stages of publication are being continued during the year under report :-

    1. Summaries of NTI Studies Vol. 2
    2. Treatise on Review articles of NTI
    3. NTI Past, Present and Future

In House printing

1. RNTCP Modules : 1-10: 100 copies
2. Financial Modules: 50 copies
3. Guidelines for Quality Assurance : 100 copies
4. Exercise workbooks on RNCTP: 50 copies
5. Performance Report on NTP: a) Jan – March & Jan – Sept 2004: 30 copies
6. Document on State TB Centre: 1000 copies
7. RNTCP Laboratory Net work:100 copies

Besides, the printing section assisted in printing various research forms and administrative requirements in addition to Reprographic services to the laboratory, Animal Model Research Unit & library.

10. OTHER TECHNICAL ACTIVITIES

(A) RNTCP appraisal visits

The faculty of the institute assisted the Central TB Division in appraising the districts before commencement of RNTCP implementation. The objectives of such appraisals were to assess the readiness of the districts in terms of infrastructure and trained manpower for implementation of RNTCP. During the year the following districts were appraised:

Purnia (Bihar)	28 – 30 Sep 04
Rewa (Madyapradesh)	7th - 11th Dec 2004
Sidhi (Madyapradesh)	7th - 11th Dec 2004

(B) SCIENTIFIC GALLERY

The concept of establishing the scientific gallery was born in the year 2002. This was an innovative approach conceived by Dr. P.Kumar, Director, NTI, Bangalore soon after he took over. The objective of this is to project the general information on TB and important milestones in the evolution of the programme and achievements of the institute both in the past and in the present. Taking in to consideration the various categories of trainees and visitors visiting the institute, it was thought appropriate to project the achievements of the institute in an interesting, graphic and phased manner. It was also felt essential to disseminate the health education material regarding tuberculosis as disease, treatment, epoch making events, evolution of the control programme and the luminaries who have contributed in tuberculosis control. Accordingly a lot of efforts were invested in the last 2 years for the establishment of scientific gallery. The scientific gallery comprises of the following three units:

1. Photographic display unit, 2. Projection facility, 3. Information kiosk

Photos Display Unit: Enlarged laminated photographs of the disease, important events, Field activities, Training programme, Luminaries, Directors of past & present, WHO Officers associated with the NTI at the time of inception and Health Education panels have been projected on the panel boards.

Projection facility: Under this sub division the digitized version of four modules viz about the institute, tuberculosis disease, TB control programme and monitoring aspects are available for the viewers.

Information kiosk on TB: Touch screen monitor has been installed for providing information on TB in a kiosk version. The viewers depending upon their preferences can get into the details of the different modules on: NTI. TB disease, TB control programme and its monitoring.

Target group: Information available under the above facilities may be useful for medical and the para medical personnel working in teaching and non-teaching institutions. This may also benefit students of the medical and nursing colleges.

The scientific gallery is a worthy source of information for all those working for the control of tuberculosis, which includes health care workers, teaching faculty, research workers, undergraduate & post graduate students and private practitioners, both government and non-governmental institutions can avail these facilities. The viewers / visitors will get an overview of the functions of the National Tuberculosis Institute, TB control programme, magnitude of the TB disease and monitoring aspect of the programme in a nutshell within a brief period. Information kiosk on TB will provide information to the viewers / visitors depending upon their preference. The photographic display session will leave an indelible impression in the minds of the viewers on the achievements of the institute, the evolution of the programme and its monitoring aspects. This facility is available for the target group free of cost on all the five working days of the week (Monday to Friday). Interested organizations are requested to inform in advance about their visit to the Director and get confirmation of the dates of visit.

(C) STATUS OF LABORATORY ANIMALS

Five hundred fifty eight NTI-bred albino guinea pigs were raised in healthy condition. Appropriate preventive measures were taken to check sickness and outbreak of disease

One hundred and seventy six animals were utilized for the ongoing research projects.

(D) ESTABLISHMENT OF BIO-SAFETY LEVEL III FACILITY

Establishment of Bio-Safety Level III facility was completed and commissioned.

(E) TECHNICAL ASSISTANCE AND CONSULTATION

i. **Provision of information to Central TB Division on Parliament questions:** Technical information regarding the starred and unstarred questions on

Tuberculosis control programme sought by the honourable members of LokSabha / RajyaSabha was provided to Central TB Division

ii.Clinical consultation and correspondence: Consultation and advice on further management was offered to TB patients referred from different institutions. Clarifications sought by individuals and institutions regarding treatment of tuberculosis and its control aspects were furnished.

iii. Participation in State / District Tuberculosis control society: Faculty from the institute participated in State Tuberculosis Control Society meetings and that of urban and rural districts of Bangalore on a periodical basis on invitation from the host organization.

iv.X-ray services: The section apart from its routine maintenance and repair of the existing installations undertook repair of 10 MMR roll film cassettes received from different DTCs/STCs.

One of the staff was sent for training in operation and maintenance of x-ray and dark room conducted by the advanced training institute and electronic and process instrumentation (ATI-EPI), Ministry of Labour, Hyderabad, Andhrapradesh.

v. Drug inspection: Faculty from the institute undertook pre despatch inspection of the drug consignment as per the instructions of the Central TB Division: The details are given below:

Date	Institutions
15th & 16th April 04	M/s Karnataka Antibiotics & Pharmaceuticals Ltd, Bangalore and M/s Strides Arcolab Ltd, Bangalore
22nd May 04	M/s Strides Arcolab Ltd, Bangalore
25th Feb 05	M/s Strides Arcolab Ltd., Jigani Industrial Area, Bangalore Rural

11. OVERVIEW OF COMPUTER FACILITIES

Virtually no segment of the society is today untouched by the rapid development of Information Technology and its applications. Rich benefits have been reaped by its implementation and are always looked upon often as a problem-solving tool.

The rapid expansion of the networking infrastructure in the previous year has successfully created more awareness among the end users in the Institute. Their frequency of access to the Internet as a knowledge base and the computing infrastructure has increased many folds. Moreover the Institute's Computer Centre has been successful in catering to the increasing demands of the National / International Training that have been periodically conducted by the Institute; be it in the form of providing broadband internet connectivity to the trainees or provision of the infrastructure to conduct Specialized Computer training.

(i) Hardware Infrastructure:

The details of the PC's and its peripherals held by different sections are presented in the table below:

Sl No	Section	Computers		Printers			LCD Projector	Others*
		PCs	Lap top	Dot matrix	Laser Jet	Ink Jet		
1	Directors office	3	1	1	2	1	1	4
2	Addl Director's office	1	-	-	-	1	-	-
3	Statistics	14*1	1	2	2	3	-	3
4	Epidemiology	3	1	2	1	-	-	1
5	Control	1	1	-	1	1	-	-
6	X-Ray	1	-	1	-	-	-	-
7	Stores	1	-	1	-	-	-	-
8	Bacteriology/ AMRU	4	1	2	1	1	-	-
9	TB & HIV	1	-	-	-	-	-	-
10	Training	1	2	1	1	1	2	3
11	Library	4	-	3	1	-	-	2
12	Administration	7	-	3	-	1	-	-
13	Scientific Gallery	2	-	-	1		1	3*
14	Transport	1	-	-	-	-	-	-

- Others include – HP Scanners, External CD ROM drive/writers, omega zip drive, tape drives .
- *-----(1 Hometheatre system, 1 CPU & 1 Touch Screen).

- *1 --- Inclusive of 2 servers

(ii) Future Plans:

The Institute is planning to expand networking of Hostel Blocks , Stores Block , X-ray Block and the Bio Safety Level III Laboratory /AMRU Block with Optic fiber cabling in the next phase of expansion. In addition the Statistical Computer Centre is being expanded and upgraded to sustain and support the higher level of computing requirement and the training activities in the future. The Silver jubilee hall of the Institute is planned to be converted to a Wireless Fidility (Wifi) hotspot to enable the trainees with their personal laptops to access the Institutes network without the hassles of re-configuration inside the venue.

12. PARTICIPATION IN MEETINGS / TRAINING PROGRAMMES / SEMINARS / CONFERENCES / WORKSHOPS / CONTINUING MEDICAL EDUCATION ETC.

Sl No	Particulars	Date	Participated/ attended by
1	Participation as a short term WHO consultant in the review of DOTS Implementation status in Papua new Guinea, focusing on identification of constraints and possible solutions.	22-04-04 to 08-05-04	Dr B Mahadev CMO (NFSG)
2	Presentation on ARTI at the State TB Officers Meeting held at Surajkund	01-05-04 & 13-05-04	Dr Prahlad Kumar Director
3	Participation in the State TB society meeting held under the Chairmanship of Principal Secretary, Government of Karnataka	05-05-04	Dr Sophia Vijay Sr TB Specialist
4	Participation in the district TB control society (Bangalore urban) meeting	18-05-04	Dr G V Ramesh
5	As facilitator for RNTCP training for Medical Officers of Jharkhand State held at Ranchi	30-05-04& 12-06-04	Dr Preethish S Vaidhyanathan CMO
6	Participation in Central Steering Committee meeting on Operational Research on RNTCP held at Central TB Division, DteGHS, Nirman Bhavan, New Delhi	11-06-04	Dr Prahlad Kumar Director
7	Presentation of the protocol entitled "Study on Defaults & Patients Retrieval among New Smear Positive patients treated in RNTCP under different geographical settings" at RNTCP Central steering committee meeting on operations research held at Nirman Bhavan, New Delhi.	11-06-04	Dr Sophia Vijay Sr. TB Specialist
8	Participation at "National felicitation to Hon'ble Justice Dr V.S. Malimath" (Chairman, Institutional Ethics Committee, NTI) on completion of 75 years of his creative life dedicated to the service of the Nation, organized by National Felicitation Committee, Bangalore, at Ambedkar Bhavan, Bangalore	12-06-04	Dr Prahlad Kumar Director
9	Participation in meeting convened by secretary H & FW department, Govt of Karnataka regarding RNTCP implementation	24-06-04	Dr B Mahadev CMO (NFSG)
10	Participation in orientation programme on RNTCP at Baptist hospital, Bangalore	28-06-04	Dr L Suryanarayana CMO (NFSG) & Dr G V Ramesh CMO (NFSG)

Sl No	Particulars	Date	Participated/ attended by
11	Inauguration and Chairing of the deliberation for the finalization of protocols on DRS. Representatives from the states of Maharashtra and Gujarat in the Silver Jubilee Hall of NTI. The representatives from Central TB Division, DteGHS, New Delhi, National Tuberculosis Institute, Bangalore, TRC, Chennai and states of Gujarat and Maharashtra participated in the meeting.	01-07-04 & 02-07-04	Dr Prahlad Kumar Director
12	Participation in the meeting of the committee constituted for setting priorities in Phase-II of the world bank assisted Revised National TB Control Programme held at Nirman Bhavan, New Delhi.	08-07-04	Dr Prahlad Kumar Director
13	Participation in the discussion with Mrs Gurnani, Director, Karnataka State AIDS Prevention Society (KSAPS), Bangalore, regarding TB-HIV collaborative project held at KSAPS, Bangalore.	26-07-04	Dr Prahlad Kumar Director & Dr Preethish S Vaidhyanathan CMO
14	Participation in the Fourth Annual General Body meeting of the Karnataka State TB Coordination Society held at Bangalore.	03-09-04	Dr Sophia Vijay Sr TB Specialist
15	Participation in orientation programme at St Philomina Hospital, Bangalore	14-09-04	Dr L Suryanarayana, CMO-NFSG & Dr GV Ramesh, CMO-NFSG
16	Participation in Research and Policy meeting held at Central TB Division, DteGHS, Nirman Bhavan, New Delhi.	18-09-04	Dr Prahlad Kumar Director Dr.VK Chadha Sr. Epidemiologist & Dr. Sophia Vijay Sr. TB Specialist
17	Participation in the investigators meeting held at Cadila Pharmaceuticals, Ahmedabad for discussion on DBT protocols on clinical study with Mycobacterium Welchi.	21-09-04 & 22-09-04	Dr Sophia Vijay Sr TB Specialist
18	Participation in Inter-country workshop on TB surveillance, monitoring & evaluation held at SEARO/WHO New Delhi	21-09-04 to 24-09-04	Dr V K Chadha Sr Epidemiologist
19	Inauguration and chairing of the session held for development of Protocol and work instructions on Drug Resistant Surveillance in the for four states i.e., Maharashtra, Gujarat, Andra Pradesh and Orissa. Representatives from NTI, Bangalore TRC, Chennai and concerned participated in the deliberations.	29-09-04	Dr Prahlad Kumar Director
20	Participation in the inaugural function of 55th TB Seal Campaign organized by Karnataka State TB Association, at Rajbhavan, Bangalore. His	02-10-04	Dr Prahlad Kumar Director

Sl No	Particulars	Date	Participated/ attended by
	Excellency Governor of Karnataka inaugurated the Campaign.		
21	Participation in the programme "Research Day and presentation of Citation Laureate Awards" organized by Informatics, Bangalore, at hotel The Leela Palace, Bangalore.	10-10-04	Dr Prahlad Kumar Director
22	Visited TRC, Chennai for conducting Base line survey of Journal Custom Content for Consortia (JCCC), a facility initiated under the HIN project. Data collected were forwarded to the FRCH, Bangalore compiler of the report.	13-10-04 to 15-10-04	Mrs. Sudha S Murthy
23	Visit to the district of Mandya (Karnataka) for discussion with District Tuberculosis Officer in connection with WHO sponsored TB-HIV project.	28-10-04	Dr Prahlad Kumar Director
24	WHO assignment as short-term consultant for TB programme of DPR Korea. Doctors were trained in TB Epidemiology & ARTI surveys. Protocol was designed for 3 provinces in DPR Korea along with work instructions & formats. Reporting & analysis of DOTS programme were reviewed.	12-11-04 to 28-11-04	Dr V K Chadha Sr Epidemiologist
25	Presentation of the results of the National ARTI survey at 'Third national level workshop of medical colleges' held at New Delhi.	23-11-04 & 24-11-04	Dr Sophia Vijay Sr TB Specialist
26	Participation in the National Convention of MLAI 2004 held at Chennai. Paper titled "Bridging the digital divide - A Case Study of WHO Sponsored Health Inter Network Project on TUBERCULOSIS" was presented.	09-12-04 to 11-12-04	Mrs. Sudha S Murthy
27	Participation in the 16th Executive Committee Meeting of the Karnataka state TB Coordination Society held at "Krishna", Directorate of Health & Family Welfare Services, Bangalore.	20-12-04	Dr Prahlad Kumar Director
28	Participation meeting of TB Control Society of Bangalore Mahanagara Palike, Bangalore	20-12-04	Dr G V Ramesh CMO-NFSG
29	Meeting with the District TB Officer, Mandya district about the WHO TB-HIV project at the District TB Centre, Mandya.	29-12-04	Dr Prahlad Kumar Director
30	Participation in the RNTCP Central Steering Committee meeting for discussions on operational research in Tuberculosis held at Nirman Bhavan, New Delhi.	30-12-04	Dr Prahlad Kumar Director Dr.B Mahadev CMO-NSFG
31	Addressing of the delegates at the inaugural session of WHO/NICD training course on Surveillance, prevention and control of plague held at NICD/PSU, NTI Campus, Bangalore.	04-01-05	Dr Prahlad Kumar Director

Sl No	Particulars	Date	Participated/ attended by
32	Felicitated as the guest of honour in the Annual CME 2005 held at K.S. Shadaksharappa Auditorium, API Bhavan, Vasanthnagar, Bangalore.	08-01-05 & 09-01-05	Dr Prahlad Kumar Director
33	Chairing of the session I - Burden of illness of the Research Dissemination Workshop-II ; Speaker in Session-5 - 'Strengthening RNTCP'; and Panel member in Session-7 -'Implications & points for policy making' held at Tuberculosis Research Centre, Chennai.	19-01-05 & 20-01-05	Dr Prahlad Kumar Director
34	Presentation on Fate of New smear positive patients initiated on treatment under RNTCP in Bangalore city (A cohort study) at WHO sponsored Iind Research dissemination workshop organized by TRC, Chennai.	19-01-05 & 20-01-05	Dr. Sophia Vijay Sr TB Specialist
35	Presentation of National ARTI survey data at the research dissemination workshop organized by TRC & WHO held at Chennai.	20-01-05 & 21-01-05	Dr. V K Chadha Sr. Epidemiologist
36	Meeting to decide the strategy for the next phase of World Bank assistance for RNTCP at New Delhi.	24-01-05 & 25-01-05	Dr B Mahadev CMO-NFSG
37	Attended the F.P. NATCON 2005, Bangalore, held at Gyanajyothi Convention hall, Central College Campus, Palace Road, Bangalore and delivered a talk on RNTCP.	29-01-05 & 30-01-05	Dr Prahlad Kumar Director
38	Participation in the "59th National Conference on TB & Chest Diseases" held at LRS Institute of TB & Respiratory Diseases, New Delhi. Delivered a oration on Dr O.A. Sarma Honour Guest Lecture. Member of the panel discussion on "RNTCP Challenges Ahead"; Chairperson for the Guest lecture on RNTCP – an update.	03-02-05 to 06-02-05	Dr Prahlad Kumar Director
39	Delivered guest lecture and chaired the scientific sessions in the 59th National Conference on Tuberculosis and Chest Diseases held at L.R.S Delhi	04-02-05 to 06-02-05	Dr V K Chadha Sr. Epidemiologist

40	Participation in the National Conference on TB & Chest Diseases 2005 held at LRSITB & RD, New Delhi.	03-02-05 to 06-02-05	Dr.Balasangameshwara CMO(NSFG) Dr.LSuryanarayana CMO(NSFG) Dr.B.Mahadev CMO (NSFG) Dr. Sophia Vijaya Sr.TB Specialist Mr Lakshminarayan, Mrs G Umadevi, Mr Joydev Gupta and Mr Jameel Ahmed.
41	Organized a meeting to finalize the action plan related to the WHO collaborative project to facilitate TB-HIV collaborative activities in Mandya district. The District Health Officer, District Surgeon, DTO, MO-VCTC Mandya district also participated in the meeting.	07-02-05	Dr Preethish S Vaidhyanathan CMO
42	Participation in the "Third Meeting of the South East Asian Regional Technical Working Group on TB" as Temporary Advisor to the Regional Director at the WHO Regional Office for South East Asia, New Delhi.	08-02-05 & 09-02-05	Dr Prahlad Kumar Director
43	Participation in the meeting to set priorities of "TB phase-II project" held at Nirman Bhavan, New Delhi.	16-02-05	Dr Prahlad Kumar Director
44	Participation as facilitator Orientation programme on RNTCP held at Chinmaya Mission Hospital, Bangalore.	26-02-05	Dr G V Ramesh CMO-NFSG
45	Organized a sensitization programme for personal of the AIDS control programme of Mandya district on RNTCP and TB-HIV colloborative activities.	09-03-05	Dr Preethish S Vaidhyanathan CMO
46	Participation in Consultation Meeting for estimation of TB burden in India, conducted by CTD, DteGHS, New Delhi, held at India International Centre, New Delhi.	10-03-04 & 11-03-04	Dr Prahlad Kumar Director
47	Active participation in an expert committee meeting conducted for estimation of TB burden. In this context two mathematical models were presented for estimating the incidence and prevalence of TB cases and the trends in the prevalence of the smear positive pulmonary TB cases.	10-03-05 & 11-03-05	Dr V.K. Chadha Sr Epidemiologist
48	Participation in the Laboratory Group Meeting held at Central TB Division, DteGHS, New Delhi.	11-03-05	Dr Prahlad Kumar Director

49	Participation in the preliminary meeting on DOT Plus held at Central TB Division, New Delhi and Presentation of 'international experience regarding issues related to treatment of MDR-TB'.	21-03-05	Dr Sophia Vijay Sr TB Specialist
50	Participation in the Expert cum monitoring group meeting on the study entitled "Efficacy and safety of immunomodulator (Mycobacterium) was an adjuvant therapy in the treatment of category II pulmonary Tuberculosis patients (a randomized clinical trial)" held at Department of Biotechnology, New Delhi.	22-03-05	Dr Sophia Vijay Sr TB Specialist
51	Participation in the celebration of World TB Day and the rally following it. This was held under the auspicious Karnataka State TB Association, Bangalore at Rajbhavan.	24-03-05	Dr Prahlad Kumar Director
52	Participation as expert in the Training of WHO RNTCP consultants on new initiatives in RNTCP held at Surajkund, Haryana	27-03-05 to 30-03-05	Dr Sophia Vijay Sr TB Specialist

13. VISITORS

During the year the Institute was privileged to have the following dignitaries as visitors

Sl. No.	Name, Designation & Purpose	Date
1.	The documentary production team from Nepal: Mr Jeevan Kumar Bista and Mr Arjun Bista from Society of Development of Journalist, Kathmandu, visited the institute and covered audio-visual clippings of different sections in order to prepare a documentary on advocacy on TB and HIV/AIDS under the SAARC awareness year 2004.	April 2004
2.	Mr Andrew Pleasant from WHO visited regarding simputers (hand held devices) based RNTCP monitoring project.	
6.	Dr B.M. Das, Director (E&R), Directorate General of Health Services, New Delhi, visited the Institute and had discussions on the role of NTI in the RNTCP, TB-HIV WHO project being taken up by NTI in Mandya district.	June 2004
7.	DDG (TB), Central TB Division, DteGHS, New Delhi visited for discussions about the various issues of the Institute.	August 2004
8.	Dr Vinod Arora, Dean, Indian Institute of Health Management & Research, Jaipur, Rajasthan visited for discussion about TB programme.	
9.	Dr Deepika Nag from Office of the WHO visited for discussion about the in-country fellowship on TB control.	
10.	Hon'ble Minister for Health & Family Welfare, Dr Anbumani Ramadoss visited the Institute. The dignitary was appraised about the activities of the Institute.	
11.	Dr Ramanathan, Pathologist, TRC, Chennai visited for discussion about the collaborative project on 'animal research'.	September 2004
12.	Ms K. Sujatha Rao, Secretary, National Commission on Macroeconomics & Health, Min of H & F.W., New Delhi for a discussion regarding revised role of NTI in RNTCP.	
13.	The World Bank Mission Team visited to review the TB control programme in Bangalore.	October 2004
14.	Dr P.R. Gupta, Professor of Chest & TB, SMS Medical College, Jaipur visited to deliver a presentation on "Role of Medical Colleges under RNTCP" for the participants of the WHO in-country fellowship training programme.	November 2004
15.	Dr Sudarshan Kumari from Regional Office of WHO, New Delhi visited for discussions on the collaborative projects WHO-SEARO.	

Sl. No.	Name, Designation & Purpose	Date
16.	Dr Laetita Rispel from South African High Commission, Economic Office, New Delhi, visited for discussion about the contribution of NTI in TB control and probable area of collaboration in TB control between the two countries.	November 2004
17.	Dr Katherine Floyd and Dr Knot Lonnroth, Experts from WHO, Geneva and WHO Consultants for PPM-DOTS visited the Institute for participation in the workshop on the WHO-Government of India Protocol development for the Public Private Mix (PPM)-DOTS and the pilot project of RNTCP.	December 2004
18.	Mr Deepak Sharma from the Department of Biotechnology, AIIMS, New Delhi visited for discussion on a collaborative project titled "Evaluation of devR mutant of Mycobacterium tuberculosis in animal model of tuberculosis and in cultured bacilli: Virulence and gene expression analysis"	February 2005
20.	Dr A Bhagathi, Vice President, Clinical Research and Development and Clinical Research Operations, Cadila Pharmaceuticals Limited, Ahmedabad, visited for discussions on the modalities for the project "Efficacy and safety of immuno-modulator (Mw) as an adjunct therapy in pulmonary tuberculosis".	
21.	Dr G. Visweswaraiah, Chief Medical Consultant and Japananda Swamiji of Swami Vivekananda Integrated Rural Health Centre, Pavgada, visited the Institute to deliver lecture for the WHO fellows from Philippines.	
22.	Dr Mandal, CMO; Ms Alka Singh and Dr Yamuna Mundade, WHO Consultants from CTD, DteGHS, New Delhi visited for discussions about various operational research projects to be undertaken with reference to RNTCP.	March 2005
24.	Japananda Swamiji of Swami Vivekananda Integrated Rural Health Centre, Pavgada, DTOs of Tumkur & Bangalore Urban districts and WHO Consultant, Karnataka visited the Institute for a meeting with DDG (TB), CTD, DteGHS, New Delhi and Director, NTI, Bangalore, to facilitate cooperation between the NGOs and districts TB control programme.	

14. IMPORTANT DAYS CELEBRATED AT NTI

15th August 2004	**Independence Day** was celebrated in the Institute. The staff along with family members, trainees, staff from other offices situated in the campus and students from neighboring Bethesda School participated in the celebrations. The Director hoisted the national flag. Patriotic songs were sung by the faculty, staff and trainees. The Director addressed the gathering.
16th September 2004	**44th Foundation Day** of the Institute was celebrated. Dr Chandrashekar, Ex-Director of NTI was the chief guest. The speakers recollected the contributions made by NTI towards the prevention and control of TB and urged the present faculty and staff to rededicate themselves to this noble cause.
6th -13th September 2004	**The Hindi week** was observed from 6-13th September 2004 and Hindi Divas was celebrated on 16th September 2004. Shri Dev Dutt Pazliwal, Rajasthan Magazine, Bangalore was the chief guest on the Hindi Divas. As part of the observance of the Hindi week, Anthakashri, Hindi translation, Letter writing, Essay, Quiz competition, Ek Shyam Bachonke Naam (cultural programme for the children of NTI staff) and Hindi Jokes / Songs were organized. Prizes were distributed to the winners of the events and also to the concerned officials who participated in writing one Hindi word a day on the notice boards of Avalon Block and P.V. Benjamin Block to promote usage of official language.
1st– 6th November 2004	**Vigilance awareness week** was observed in the Institute. As part of the observance of vigilance awareness week the staff of NTI, NICD, CPWD and PAO Audit took oath. Poster / cartoon writing competitions were held as part of the observance. Director addressed the gathering in which he highlighted the need for observance of high standards of morality and to be vigilant against corrupt practices.
26th January 2005	The **Republic Day** was celebrated in the Institute. The faculty, staff and trainees participated. Director hoisted the National

	Flag. Patriotic songs were sung by the faculty, staff and trainees. Hoops display / cultural programmes were presented by Bethesda School children, Bangalore The Director addressed the gathering.
24th March 2005	Director and the faculty of the institute participated in the **World TB day** celebrated under the auspicious of State Tuberculosis control Society. This function was held in the premises of Rajbhavan. His Excellency the Governor of Karnataka inaugurated the rally which went around the important points in the city highlighting the salient features of TB control services available under RNTCP. The Director and faculty also participated in the function held in this context at Balbhavan, Cubbon park, Bangalore

15. FINANCIAL OUTLAY & EXPENDITURE

The Plan & Non-plan budget allocation and expenditure incurred for the financial years 2002-03, 2003-04 & 2004-05 are presented in tables below.

PLAN

Year	Budget allocated (Rs)	Expenditure (Rs)
2002 - 2003	1,31,00,000	92,70,059
2003 – 2004	1,03,81000	96,05,000
2004 – 2005	1,00,00,000	91,90,000

NON PLAN

Year	Budget allocated (Rs)	Expenditure (Rs)
2002 - 2003	2,35,00,000	2,13,02,405
2003 - 2004	2,41,90,000	2,39,80,000
2004-2005	2,55,00,000	2,54,90,000

Revenue generated by the Institute for the year 2004-05 credited to the consolidated fund of Government of India is given in the table below.

REVENUE GENERATED

Year	Amount (Rs)
2004-2005	4,68,000

16. ADMINISTRATIVE SECTIONS

ESTABLISHMENT

- The section is responsible for general upkeep of the office. The various types of activities undertaken in the section include :

i. Attending to administrative matters of the Institute.

ii. Recruitment, posting, transfers, retirements and all other service matters.

iii. Provision of personal assistants to all the sections.

iv. Processing of legal issues in service matters under Central Administrative Tribunals and higher institutions.

v. Correspondence with Directorate General of Health Services (DGHS) & other agencies on administrative matters.

vi. Provision of secretarial assistance to all the sections.

vii. Maintenance of office buildings, hostel facilities and campus.

- The retirement and repatriation details of staff of the Institute during the year is given in the table below.

Sl. No.	Name	Designation	Date
Repatriation			
1	Sri A. Ramesh	UDC, Administration section	27.08.04
Retirement on Superannuation			
1	Sri B. Narayan Prasad	Investigator, Epidemiology Section	30.04.04
2	Sri Zacharia Joseph	Sister Tutor, Control section	31.08.04
3	Sri Srikantramu	Statistical Assistant Statistics Section	31.03.05

ACCOUNTS

The major responsibilities of the section are :

i. Preparation of annual budget proposal and performance budget.

ii. Drawing and disbursement of salaries, Travelling Allowances, Medical reimbursement and other staff expenses.

iii. Processing of payment for stores services and annual maintenance service contracts.

iv. Processing of payments of advances to the staff.

v. Deduction of Professional tax and Income Tax at source from the employees and its remission to concerned authorities.

STORES

- The section is responsible for procurement and supply of stores items for the smooth functioning of the Institute. This involves extensive procedures like receipt of indents from individual sections and their compilation, calling for quotations/ tenders, arrangements for opening the tenders, preparation of comparative statements & submission to the Purchase Committee and processing of the recommendations of the Purchase Committee.

- The other functions of the section include:

i. Maintenance of stores /stock ledger.

ii. Arrangement for Annual Maintenance of electrical, electronic and other equipment.

iii. Disposal of condemned items as per laid down procedure.

iv. Annual Stock verification

TRANSPORT

The Institute has a fleet of vehicles and this section is primarily responsible for its upkeep and provision of the vehicles for administrative and research facilities. The section also handles maintenance of all documents regarding registration, insurance and condemnation. The section is also equipped to undertake minor repairs of vehicles.

Approval for condemnation of the vehicles were received from DGHS on 30-03-05 and action is being taken for disposal of 5 jeeps and 2 cars

HOSTEL

The institute has two hostel blocks namely Krishna nivas and Cauvery nivas for providing boarding and lodging facilities for medical & Paramedical trainees and officials visiting from head quarters and other Institutions/Offices. The 17 hostel rooms have been renovated with attached toilet facilities. The rooms have been refurbished with new furniture and other facilities.

17. CIVIL & ELECTRICAL WORKS AND MAINTENANCE

CIVIL & ELECTRICAL WORKS

The Civil and Electrical works are executed through Central Public Works Department (CPWD), Ministry of Urban Development and Poverty Alleviation out of the budget allocated to NTI for each financial year.

NEW CIVIL CONSTRUCTIONS

Construction of 21 residential quarters viz. Four each of Type I, II, & III; eight of Type IV and one designated quarter for director have been completed out of the budget Rs. 137.22 Lakh sanctioned by the Ministry of Health & Family Welfare, Government of India. The allotment process for the eligible applicant have been completed. Thus 43% of the staff have got the accommodation facility in the campus at present.

MAINTENANCE WORKS

The Central Public Work Department executed the following works pertaining to maintenance of existing building and campus during the year under report. This has been executed out of the budget of Rs. 49 Lakhs under this head.

CIVIL

1. Renovation of rear wing of AVALON building (Main building) and toilets in I floor of AVALON building.
2. Renovation of the 3 rooms of the guest house and provision of attached toilet facility for 17 rooms in Kaveri Nivas.
3. Provision of venetian blinds and cabinet facilities in the 1st floor of PV Benjamin Block (Library Block).
4. Renovation of open well.
5. Renovation and special repair of fins, laying of path-stone slabs and roof treatment of staff quarters.
6. Replacement of seeping RCC overhead tanks with PVC tanks.
7. Maintenance of horticultural work.
8. Erection of flag-post in the play ground.

ELECTRICAL

1. Provision of split air conditioners to four class rooms in the second floor of PV Benjamin Block, TCC room & three guest rooms.
2. Rewiring and provision of additional electrical facilities and master control switches at the entry for seventeen rooms and three guestrooms.
3. Synchronization of standby 25KVA diesel generator with BESCOM power supply line in addition to the existing 125 KVA main diesel generator to provide uninterrupted power supply to the newly commissioned Bio-safety Level – III laboratory of Animal Model Research Unit.
4. Besides above, maintenance of the existing air-conditioners was also undertaken by CPWD as a part of their routine annual repair and maintenance.

Acknowledgements

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