

IISc, Bangalore in the field of economic loss due to TB and testing of vaccine candidate respectively^{138,139}.

The NTI computer facilities continue to be upgraded. In addition, NICNET and INTERNET facilities have been provided. It has now an E-mail facility: **address ntiindia@blr.vsnl.net.in**. To enhance facilities to users, the library is now equipped with “5223-T Zoom” Modi Xerox Copier; a new PC-Pentium with MMX technology, to which all databases have been loaded. Action has been initiated for activating retrieval services from MEDLINE through NICNET. Clearly, learning by research and dissemination of knowledge acquired continues to be NTI’s forte.

The monitoring section has been given an additional thrust. All the posts of the section have been filled. Greater attention is being given to supervision of DTCs needing NTIs intervention. The Director is regularly reviewing both the implementation and supervision work to strengthen the NTP at the grass root level. It is extremely

important to increase the efficiency levels of the NTP and to network with NGOs and private practitioners. Its publications wing has brought out the highly acclaimed “*Summaries of the NTI Studies*”, a goldmine collection of operations research conducted from its inception. It has also brought out a booklet: “*Childhood TB*” and the manual “*Isolation, Identification and Sensitivity Testing of Mycobacterium TB, Ed.2*” During 1997, eleven papers have been published and five papers were presented in the 52nd National Conference on TB and Chest Diseases held at Ahmedabad¹³⁹. During 1998, eight papers were published and nine papers are under publication. Also, two papers in the 53rd National Conference on TB & Chest Diseases at Bhubaneswar, Orissa, and one paper each at IUAT Conference, Bangkok and National Congress of respiratory diseases, Jalandhar, were presented¹³⁸.

5.3. In prospect

The expression “In prospect” used for the subheading here, is

indicative of the future. What are the future plans of NTI? With the ushering of the revised strategy what type of operational research NTI will undertake? NTI intends to focus on operational research to improve the networking of the DOTS. The problem areas identified concern treatment adherence and successful implementation of DOTS. NTI envisages intensified communication, collaboration and coordination between the government, NGOs, private practitioners and other institutions. DGHS has also given priority to short and long term operations research. Rupees 26 crores have been allotted for this purpose by the ministry as announced in the Central Steering Committee meeting held by DGHS on 16.2.99¹⁴⁰. However, experimental research continues to be an integral part of NTI laboratory.

NTI has been awarded two highly ambitious projects in collaboration with TRC and concerned states by the central coordination committee headed by DGHS: “*A National Sample Survey to estimate the ARI in different parts of India*” and “*Assessment of*

TB trends by estimating ARI by repeat tuberculin surveys in different parts of rural India”. These investigations are critical in estimating the extent of TB and pinpointing the results of programme implementation. To determine the appropriate dose of tuberculin for the above research projects, a comparative study of 1TU and 2TU doses of PPD RT23 has just been completed. The results have indicated that in Indian situation, it would be appropriate to continue using 1TU¹⁴¹. The Institute continues to work on problem solving strategies to conduct tuberculin surveys where BCG vaccination coverages are high.

Another important protocol, *Surveillance of drug resistance* has also been awarded to NTI and TRC. The protocol seeks to determine the proportion of patients with initial and acquired drug resistance. This is an indicator of programme quality. The World Bank assisted project includes increasing the availability of highly potent drugs, particularly rifampicin, as part of SCC in both RNTCP and SCC areas. It therefore becomes essential to

be conversant on the epidemiology and trends of drug resistance. This has been recommended earlier by the expert group meeting on drug resistance surveillance in TB¹⁴². This proposal should be examined in coordination with the already approved drug resistance surveillance projects through NTI at Mayurbhanj, Hooghly and Nowgaon, and TRC at Raichur, N.Arcot, Pune and Jabalpur with the assistance from JALMA for Agra and the involvement of other nodal institutions. These initial steps have been followed but the size of the country compounded by heterogeneity in drug resistance pattern, necessitate additional steps. These will ensure that thorough interviews are undertaken to determine the history of previous treatment.

NTI is interested in undertaking research projects dealing with a changing environment. The establishment of a Bio-safety level III for animal experiments, involving a low dose aerosol infection system, which simulates the conditions for TB in humans is underway. If any new vaccine for

TB is developed, this new system will also help in its testing. Many organisations are trying to develop a new vaccine for TB in India. Six new projects have been contemplated. One of these is: Invivo studies on non-tuberculous mycobacterial disease in a rational animal model keeping in view its likely emergence due to partnership with HIV. The status of the main laboratory will be changed from P1 to P2 in near future and then attempts will be made to raise it to P3 status by installing upgraded instruments. These will facilitate further sophistication.

NTI will intensify the training programme as the expansion of RNTCP will demand a huge trained staff in the country for next five to six years. This will require more: (i) Modular training programmes, (ii) Workshops and (iii) Seminars on RNTCP. The regular training course of eight weeks will be continued without reducing the duration. This programme is essential for newly appointed DTC teams for skill development, indepth knowledge of TB control aspects and management of programme. The DTC key

personnel will thus possess the skills to train the whole PHI staff working in general health institutions, for conducting TB work.

Monitoring of the DTPs will be reinforced with supervision and corrective actions in order to get the feed back on DTP reporting and improvements in the programme. NTI would be strengthening by providing extra staff and funds for it.

5.4. Introspection

Perhaps a universal tendency of any problem is to escalate. The government now faces another, perhaps bigger impediment. India's ever increasing population is aging. It is among the aged that TB is rampant. There will be a corresponding increase in the number of cases. Additional threats are imposed by HIV and MDR-TB. Its socio-economic milieu is changing. It is much more mobile than before. Not much is being done to increase the efficiency levels of the GHS with which the NTP is linked. These will have their own

repercussions on the programme and people's perceptions. This was seen in the early 60s, when the classic sociology studies were conducted by NTI. Efforts have been made by NTI to highlight these issues to the higher authorities. Strangely, even the problems with the knowledgeable continue as before or sometimes problems are so vast that if any improvement does occur it is neither perceptible nor measurable. Population explosion continue to retard not only TB control but other development activities too.

When NTP was introduced, it was hailed as the biggest scientific intervention meant for a country like India with limited resources. It earned the respect of the whole world as the first major effort amalgamating preventive aspects of medicine with peoples perspectives. Even though shortcomings hindered its efficiency, a better programme could not have evolved under the given situation. India is better placed than most countries as it has a sound health infrastructure with which the NTP is integrated.