Contribution of Statistics Section towards TB control programme

Statistics section is an important wing of the Institute and is functioning right from the inception of the Institute. It plays a pivotal role in the growth and functioning of the Institute. Health Statistics in TB programme provide information for understanding, monitoring, improving and planning the use of resources to improve the lives of people, provide services and promote their well being. Initially, like any other division of the institute, it was nurtured by the WHO experts as well as experts at the national level. Later on the leadership of the division was taken over by the Indian Statistical Service (ISS) senior level personnel. It has a team of well qualified, trained, experienced and committed secondary level man power to sustain the higher standards achieved.

Present scenario of staff position:

The section is headed by a Chief Statistical Officer who is supported by a Senior Statistical Officer and Statistical Officer. The officers are assisted by Statistical Assistants and Computor.

Research

The contribution of Statistics section in the Research Projects of NTI starts right from planning stage and it is ensured that the studies undertaken by various divisions are free from statistical flaws i.e.,

a) It includes provision of suitable and proper design for the studies, determination of sample size, preparation of survey schedules for data collection, choosing reliable measurement techniques, manual of instructions to the field staff and ensuring quality data collection, documentation of the research protocols and their reports.

b) Planning of field work, scrutiny of filled-in schedules received from the field, providing feedback to the field staff regarding deficiencies and discrepancies to ensure quality of data pertaining to the research protocols, keeping custody of records, forms and filled-in schedules pertaining to the research protocols

c) Digitization of field data, verification, processing, generation of tables and proper statistical analysis and interpretation of the data. The division has a modern Electronic Data Processing system upgraded to its latest level to provide quality data processing. It maintains database of all the studies taken up by the Institute.

d) To assist in the preparation of reports of the research protocols.

Monitoring

The National Tuberculosis Programme (NTP) was implemented in all parts of India since 1962. The Statistics section played a major role in its formulation. Sustained research efforts by the section helped in several operational improvements in implementation of NTP. The basic

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objective of monitoring was to provide a 'Management information system' for better management of Tuberculosis programme at national, state, district and sub-district levels. The regular flow of information generated at various management levels assisted the programme managers in assessing their performance against the expectations. The areas of non-performance and bottlenecks in programme delivery could be identified and evaluated for immediate remedial action.

Up to 1977, NTP was monitored by two designated Regional Centres i.e., southern and northern. In 1977, the entire monitoring responsibility was handed over to NTI, Bangalore. The contribution of Statistics section in Mathematical Modeling and Operations Research Techniques to improve NTP and Projections for the future has been quite substantial. The following were the activities involved with monitoring:

a) Scrutiny of the periodical District Tuberculosis Programme (DTP) implementation reports and sending feedback to the District Tuberculosis Centres (DTCs) regarding deficiencies/discrepancies found in the reports for corrective actions.

b) Digitization of data and analysis of the same. Preparation of reports at State and National level on quarterly basis and sending the same to DGHS, New Delhi.

c) Provide feedback to the District Tuberculosis Centre (DTC) on their performance for effecting further improvements in their performance.

d) Supervisory visits were undertaken as a built-in exercise in programme for monitoring District TB Programme by overseeing the functioning pattern & reporting, wherein suggestions for improvement were provided.

However, due to various problem faced by the programme, NTP failed to make desired impact on the problem of tuberculosis. It was found that despite the existence of NTP, TB patients were not accurately diagnosed and majority did not complete the Treatment. Based on these findings and the globally recommended strategy DOTS, the Revised National Tuberculosis Control Programme (RNTCP) was initiated in 1993. Till 2005, Quarterly & Annual Report Generation of NTP data was carried out in the Statistics section.

Training

The statistics section has largely shouldered the burden of the heavy training requirements under the NTP Programme.

a) Impart training to statistical assistants in the preparation of various DTP records and the periodical reports on TB control activities.

b) Impart training to the medical officers and paramedical workers about the basic statistical aspects of NTP.

c) Training in electronic database (EPICENTRE) of RNTCP

Apart from assisting the various section of the Institute in their studies, Statistics section also carried out independent major projects viz.,

1) Economic evaluation of public-private mix for tuberculosis care and control

The study was carried out to assess the socio-economic profile, health-seeking behaviour and costs related to tuberculosis (TB) diagnosis and treatment among patients treated under RNTCP. A total of 1106 new TB patients registered for treatment under the RNTCP in the second quarter of 2005 participated. Interviews at the beginning and at the end of treatment were conducted. A convenience sample of 32 patients treated outside the RNTCP also participated.

The results of the study showed that among the TB patients, respectively 50% and 39% were from low and middle standard of living households and 77% were from households with a per capita income of less than US$1 per day. The first health contact was with a private practitioner in the case of more than 70% of patients. Mean patient delay was low, at 21 days, but the mean health system delay was 52 days. The average cost incurred by patients before treatment in the RNTCP was US$145, and during treatment it was US$21. Costs as a proportion of annual household income per capita were 53% for people from low standard of living households and 41% for those from other households. Costs during treatment faced by patients treated outside the RNTCP averaged US$127.

The conclusion of the study was that the patients treated under the RNTCP through a public-private mix approach were predominantly poor. Many of them experienced considerable health expenditure before starting treatment. Additional efforts are required to reduce the delays and the number of health care providers consulted, and to ensure that patients are shifted to subsidized treatment within the RNTCP.

2) Health Inter Network Project

The statistics section was associated with the HIN-India Pilot Project. India was selected as one of the first HIN pilot countries because it has several priority public health programs as well as valuable skills and resources that would contribute to the development of the global Health Inter Network project. The major pilot project activities included in the project are:

a) Networking of key research institutions in tuberculosis and tobacco control as well as selected medical college libraries in Karnataka and Orissa with the National Medical Library

b) Supporting electronic publishing of key medical journals, health research reports and policy documents related to tuberculosis and tobacco control

c) Developing interfaces to allow integrated access to various health data sources

d) Establishing internet connectivity at the selected access points and conducting the initial training for pilot project participants

e) Formatting health research information for maximum utility for different stakeholders

f) Testing appropriate and affordable technologies that can be used in a sustainable manner at the community level (e.g. Simputer, solar power, health kiosks, wireless in local loop or radio-based connectivity)

g) Establishing benchmarks to measure the impact of the pilot

3) The TB-Net India pilot Project, a DBT Funded initiative was undertaken with the Objective of creation of National level 'TB-Net database'. National Tuberculosis Institute, Bangalore has played a vital role in assisting to develop a database on the epidemiological, operational, sociological and monitoring aspects of TB disease control.

The broad objectives of the project are to create the appropriate database on TB with special focus on Indian contributions on various issues related to tuberculosis research and its management to facilitate intensive research and development and also analyze and validate the data generated so far on TB. The database when fully developed will provide information about several aspects of TB such as Clinical aspects, epidemiology, therapeutic, studies on Tubercle bacillus (genomics/genetics, proteomics, biochemistry, microbiology, etc.,) and host factors.

To access the total volume of data, a design of the database was prepared. Based on this the IT infrastructure and skilled personnel required for the complete project was proposed through this pilot study

Summary of Activities undertaken under the pilot project:

The process of identifying suitable open source software supporting the features required also providing possibilities for customization was undertaken. The software identified was in line with the recommendations made my MANIT Bhopal and NIC. An open source software with MySQL as the backend database was identified. Once the data structure was finalized locally, the same was shared with MANIT, Bhopal for ratifications. All important scientific literature since the inception of the institute from 1960 onwards, both in the form of papers published/unpublished government and monitoring data was compiled and digitized.

The source for the scientific literature uploaded onto the database were based on the Epidemiology-fundamental aspects, nation-wide and state wide information, published literature and official unpublished data, Operational Research-from nation-wide and state-wide information. Around 350 scientific articles have been populated and uploaded under the divisions like epidemiology, monitoring, operations research and sociological aspects. Further, articles including quarterly reports, TB registers, guidelines, monitoring reports, publications, reports of commissioned research, research protocols, RNTCP status reports and training materials-exercise books, modules on TB-HIV, etc., have been populated in the local TB-Net database. The application was hosted on web and the URL sent to the TB-Net group for evaluation and comments.

Presently, the section is playing a lead role in data management and analysis of epidemiologic studies in TB carried out across the country.