PERFORMANCE OF NATIONAL TUBERCULOSIS PROGRAMME 1992- 2001 - A Trend Report

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Summary :

The paper appraises the trend of performance of National Tuberculosis Programme (NTP) in terms of reporting, casefinding and treatment activities, for the years 1992-2001. The National Tuberculosis Institute (NTI), Bangalore has been monitoring the NTP performance since 1978. The programme is being monitored through the quarterly and annual reports actually received from the District Tuberculosis Programme (DTP) managers. At present, 46% of the population is covered under Revised National Tuberculosis Control Programme (RNTCP) and remaining 54% either under Short Course Chemptherapy (SCC) Convetional or Chemotherapy (CC).

Reporting efficiency of the districts ranged from 70% to 82% during the period. The number of total cases and new smear positive cases reported peaked in 1996. After 1996, there has been a gradual decline in case finding activities under NTP. This decline may be partly due to the conversion of good performing NTP districts to RNTCP.

The new smear positive case detection rate per lakh population remained almost uniform over the years. However, the total case detection rates per lakh population have shown a declining trend. The smear positive case detection rate per lakh population remained in the range from 35 to 40 during the period where as total case detection rate per lakh population ranged from 157 to 139. A significant phenomenon during the above period was the continued decline in the ratio of smear positive to smear negative cases from 1:3.5 to 1:2.1.

During the period, only about 25-30% of the new smear positive patients put on CC underwent satisfactory completion of treatment, whereas the same under SCC was 50-55%. Cure rates could not be calculated for want of relevant information.

Though significant improvements have been

achieved in terms of reduction in smear positive to smear negative ratio in the recent past, the overall performance of NTP, as reflected in the various evaluation parameters, was below expectation.

Introduction

The District Tuberculosis Programme, which is the functional unit of the NTP, was formulated by the NTI in 1962. The NTI demonstrated in the early 1960s that even with the limited health services, most of the tuberculosis (TB) patients seek care at health facilities indicating that the active case finding is not necessary¹. The NTI also demonstrated that technicians in the periphery could perform sputum smear microscopy effectively with minimal training and regular supervision, thereby establishing the feasibility of the use of sputum microscopy as the primary tool for diagnosis of TB². Earlier, Tuberculosis Research Centre, Chennai showed that the domiciliary treatment was as effective as sanatorium treatment³. Therefore, NTP was integrated with the general health services in the country with the main objective of providing diagnostic, treatment and preventive services to the community nearer to their homes.

The District Tuberculosis Centre (DTC), which is usually situated in the head quarter town of the district, is the nodal centre for implementation of DTP. All other participating health centres such as taluk hospitals, primary health centres. rural dispensaries etc., are nomenclatured Peripheral Health Institutions (PHIs) in the context of NTP. The key personnel in the DTC are the District Tuberculosis Officer (DTO), Laboratory Technician (LT), X-ray Technician (XT), Treatment Organizer (TO) and Statistical Assistant (SA). The NTP created an impressive infrastructure for TB control, with a network of 440 DTCs, 330 TB Clinics and more than 47,600 TB beds.

Over the years, several expert committees and institutions have reviewed the implementation of

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NTP and their suggestions have immensely helped in improving the operational efficiency and effectiveness of the programme. During 1975, on behalf of the Ministry of Health & Family Welfare, an expert committee constituted by the Indian Council of Medical Research (ICMR) reviewed the aims, objectives, implementation and performance of the NTP through analysis of periodic reports and field visits. The committee found that the conceptual and structural foundations of the programme were sound and recommended a number of measures for improving its operational effectiveness⁴. In the year 1988, the Institute of Communications, Operation Research & Community involvement, Bangalore, a non-governmental agency, conducted an in-depth evaluation of NTP and made several recommendations⁵.

In the year 1992, the Government of India, together with the World Health Organization (WHO) and SIDA reviewed the NTP in depth. The review brought out certain inadequacies in the ongoing programme, which were possible to be corrected only through substantial increase in funding as well as through changes in strategy of treatment⁶. The modification incorporated in the RNTCP was the result of this review.

A joint review of the TB programme was carried out, by a team comprising of the partners in financing and implementation of the programme in Feb. 2000. The review found that the implementation of the RNTCP was successful with assured drug supply, accurate diagnosis and a striking increase in the proportion of patients cured. The review committee recommended for i) increase the effective political commitment, ii) expand the RNTCP to cover the entire population of the country by 2005, iii) decentralize the key aspects of implementation and monitoring of the programme to the states in a phased manner iv) increase intra- and inter sectoral coordination for the TB control and v) optimize diagnosis and treatment of TB in areas not yet covered by the $RNTCP^{7}$.

The NTI has been monitoring NTP since 1978. Monitoring is a continuous assessment of certain key indicators of the programme through periodic reports. The reporting formats under NTP contain information on case-finding and treatment activities and several other related aspects. A two-tier system of reporting has been envisaged under the NTP. The first tier is the PHIs, which report to DTC, and second tier is the DTCs, which report to the state and national levels. Reports received at the NTI are analyzed in respect of some key indicators and feedbacks given for corrective actions.

For the success of any programme, monitoring has to be undertaken concurrently. It is of particular importance in the control of chronic diseases like TB because of the long time period required to achieve control of this disease in the country.

Objective

The paper appraises the trend of NTP performance in terms of reporting, case finding and treatment activities, for the years from 1992 to 2001.

Materials and Methods

Quarterly reports on case finding and treatment activities and quarterly/annual reports on cohort analysis of the treatment results emanating from the different DTPs constitute the material for this paper. Reports received at NTI have been analyzed and consolidated at state level and for all India. Though information was available for each quarter, the present analysis is restricted to annual performance. However, the performance of RNTCP districts, which are monitored directly by Central TB Division, Directorate General of Health Services, Government of India, has not been included.

The NTP has laid down certain expected levels of performance in terms of the monitoring parameters. The following is the description of expectations in respect of some key indicators :-

- 1. the extent of reporting by DTCs to higher levels is expected to be 100%,
- 2. the ratio of smear positive to smear negative cases should be near 1:1,
- 3. new sputum smear positive case detection rate per lakh population is expected to be 50,
- 4. total case notification rate per lakh population is expected to be 135, and
- 5. the treatment completion/cure rate among smear positive cases is expected to be at least 85%.

Observations and Discussion:

1) Implementation of DTPs

In 1992, NTP was implemented in 390 districts. Subsequently in 1997, 48 additional DTCs were recognized for implementation of DTP and hence the number of DTPs increased to around 440. However, the number of administrative districts in the country has risen to 597 as per the 2001 census. The strategy of implementation of NTP has undergone changes over the years due to innovative approaches facilitated by newer research findings. With the gradual expansion of RNTCP implementation since 1997, the number of districts implementing SCC has come down to 212. About 107 districts are still following the CC procedure. Certain states have created additional DTCs within the exis ting DTPs often without providing the necessary infrastructure including an appropriate reporting mechanism. Presently 46% of the population of the country is covered under RNTCP and the rest continues to be covered under either SCC or CC.

2) Reporting Efficiency:

Reporting efficiency of quarterly reports has

registered a gradual increase from 73% in 1992 to 82% in 1996. As mentioned earlier, 48 additional DTCs were recognized in 1997. Neither the reports from these DTCs were being received nor the key personnel were sent for training at NTI. Hence, the reporting efficiency declined sharply from 82% to 71% in 1997. As per the guidelines, the RNTCP districts are required to report non DOTS cases to NTI. Most of the RNTCP districts have, however, discontinued to report non-DOTS Cases to NTI resulting in a steady decline in reporting efficiency. In fig.1, the bars represent the number of functioning DTPs and the lines represent the reporting efficiency. The reporting efficiency has been calculated as the ratio of DTCs submitting quarterly reports to the total, expressed as a percentage.







3) Case finding

a) Number of cases :

The number of total cases and smear positive cases reported peaked in 1996. After 1996, there has been a consistent decline in total case finding. This decline could primarily be attributed to the three factors viz. i) the progressive coverage of districts

under RNTCP, which do not report the non-DOTS cases ii) decrease in diagnosis of smear negative tuberculosis cases and iii) non reporting by newly created districts. There has been a steady decrease in reporting of smear negative cases since 1999 (Fig. 2)

b) Annual/zed case detection rate per lakh population:

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Trend in case detaction under NTP

Smear positive case reporting per lakh population (> 5 years age) in NTP areas has been around 40, which is below the expected figure of 50. In 1992, the total cases reported per lakh population was 149 where as it was 129 in 2001 (fig. 3).

Though the total cases reported per lakh population have shown satisfactory levels in

Year

comparison to the expected figure of 135, the trend in smear positive cases was below the expectation. It may be observed that after 1997, there has been a gradual increase (32 in 1997 to 38 in 2001) in smear positive case detection rate per lakh population. However, this increase has not produced proportional increase in the total case detection rate due to a corresponding fall in the smear negative





cases. The fall in smear negative cases has been due to increased insistence on the use of smear microscopy as the diagnostic tool and a progressive reduction in reliance on X-ray. c) Smear Positive to Smear Negative Ratio:

It could be seen from the graph (fig. 4) that the overall smear positive to smear negative ratio has

been falling steadily from 1: 3.5 in 1994 to 1: 2.0 in 2001. Revised guidelines on diagnosis and case holding have come in to being in SCC and GC districts. In addition, reporting under the Prime

Minister's 20-point Programme has been revised to exclude targets for smear negative cases. Because of these interventions, there has been a steady decline in the proportion of smear negative cases.

Fig. 4

Ratio of Smear Positive to Smear negative Cases during 1992 - 2001



d) Cohort Analysis:

The cohort analysis has been done separately for patients put on CC and SCC regimen. Patients making 10 or more collections/consumption of drugs in CC are likely to have favorable outcome in terms of bacteriological conversion and hence have been deemed to have completed satisfactory level of treatment⁸. Those Patients who have collected >75% of the dose/collections have been considered to have satisfactorily completed the treatment⁹. Availability of follow up results of smear examinations including that at the end of treatment is a prerequisite to arrive at cure rates. Most of the DTPs do not subject the patients for final follow-up smear examinations. In the absence of such data, the next best indicator though less reliable was the treatment completion rate. The documentation of treatment completion is available for less than one fourth of smear positive patients only and the completion rates were relatively low at about 52% to 59% for SCC and 28% to 35% for CC (fig. 5).

Conclusion :

The overall performance of NTP fell short of expectations as far as the major monitoring indicators were concerned. Approximately one third of districts have defaulted in quarterly reporting. Even for the reporting districts, the information provided may be incomplete to the extent of non-response from the PHIs within the district. At present about 90% of the health institutions⁸ are participating in NTP, of which about 60-70% only are reporting.

Though the revised recording and reporting system has been introduced from 1998, only about 30% of NTP districts, primarily in a few states have begun reporting in revised formats. This may be due to lack of adequate training in the revised recording and reporting system. Intensive training in revised recording and reporting formats is therefore, very critical. The quantum of training requirements is definitely very huge. The State Tuberculosis centres have to be revamped or strengthened adequately to



Treatment Completion rate among Smear Positive cases for the Cohort years 1992 - 2000

improve the training of the district and sub district level personnel involved in reporting and monitoring of the programme.

Effective and adequate supervision of PHIs by the DTC personnel is very crucial for improving the effectiveness of the programme. The State governments concerned have to ensure that all key personnel are trained in DTP and those trained are deployed for the Programme me for at least three to four years continuously in the particular district. Diversion of trained staff for jobs other than DTP should be curbed to the maximum extent.

Case finding activity in DTPs needs to be improved both quantitatively and qualitatively, after ensuring that cases already detected are treated as per guidelines. Priority is to be given for detection and treatment of smear positive cases in order to cut the chain of transmission of the disease using the recommended diagnostic algorithm. Over dependence on X-ray diagnosis should be avoided. The gradual decline in the ratio of smear positive to smear negative patients (from 3.5 in 1992 to 2.5 in 2000) is a welcome development. This declining trend in the ratio needs to be sustained and the level of 1:1 should be achieved at the earliest.

Case holding is another area requiring attention for improving cure rates. The defaulter retrieval mechanism needs to be revamped thoroughly. Evaluation of the patients at the end of the treatment should be carried out as per the guidelines. The change in the frequency of reporting from annual to quarterly basis should further facilitate the analysis of treatment outcomes.

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