ORGANIZING TREATMENT ARRANGEMENT AND MONITORING OF PATIENTS UNDER RNTCP: EXPERIENCES IN MUMBAI CITY

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The case detection - smear positive as well as total - has reached the target (50 and 135 respectively) due to increased access to the services, involvement of the medical colleges and improving quality of sputum microscopy. The ratio of Smear positive to Smear negative patients is currently 1:0.94 (Second Quarter 2002) which is below the maximum permissible (1:1.2) The conversion rate and cure rate of smear positive patients also have reached their targets (90% and 85% respectively)

I. INTRODUCTION

Mumbai is a megapolis in the Western Indian state of Maharashtra. It is an island city, 437.71sq. mtr in area, with a population of 12 million. More than half of its population lives in slums and slum-like conditions. The city is estimated to have 30,000 incident cases and 9,000 deaths due to TB every year.

Mumbai has a huge network of public health infrastructure consisting of 4 medical colleges and tertiary care hospitals, 19 secondary care and special hospitals (including the 1,000 bedded TB hospital), 163 municipal dispensaries and 176 urban health posts providing outreach services. Apart from this, a host of central government health service facilities are also present. The private sector is massive with 1098 large and small registered nursing homes and hospitals and an unidentified number of clinics, and as in other parts of India, totally unregulated.

H. TB CONTROL EFFORTS IN MUMBAI

A city TB programme tinder the National Tuberculosis Programme (NTP) was implemented in 1976 through the public health department with the TB hospital providing the technical and monitoring role. The programme was run as a vertical programme, with the diagnosis (sputum microscopy and Mass Miniature Radiography), and the initial intensive phase of treatment (Short Course Chemotherapy for all sputum positive patients) being provided through the TB clinics (patients collecting their drugs on a fortnightly basis) and the subsequent continuation phase of treatment being provided through the municipal dispensaries, (patients collecting their drugs on a monthly basis). All defaulter retrieval activities were the responsibility of vertical TB workers, the Treatment Organizers (TO) and Health Visitors (HV).

A municipal ward in Mumbai was chosen as one of the sites to implement the Revised National TB Control Programme (RNTCP), based on the Directly Observed Treatment Short Course (DOTS) strategy, in 1993. The pilot programme was later extended to cover two more wards (total population of 1.5 million) in 1995. A TB clinic, an upgraded municipal dispensary and a secondary care hospital functioned as the TB Unit (TU) for these areas, providing diagnostic services, while treatment was decentralized to the urban health posts with community health workers acting as DOT providers.

In 1999, the entire city was covered by the programme under the expansion phase of the RNTCP. Six Officers of the Corporation were sent for training as District TB Officers (DTO) and designated by the Corporation for implementing the RNTCP in the six administrative zones of the city. Twenty-two TB Units were established to cover the entire city by designating five TB clinics, 13 secondary care hospitals and four upgraded dispensaries as TB units. Sputum microscopy services were made available through 89 Microscopy centers (MC-s) by including sputum microscopy in the public health laboratories in 56 municipal dispensaries and 19 peripheral hospitals apart from the five existing municipal TB clinics. Lab Technicians were trained for the former facilities, for the purpose. Treatment was made available through all the municipal dispensaries and urban health posts. TB patients were called on alternate days for first two months and then once a week for next four to six months to these treatment centers. Treatment was provided under observation by the paramedical staff - the Public Health Nurses (PHN), Auxiliary Nurse Midwives (ANM) and Multi Purpose Workers (MPW) at the health posts and TOs available under the NTP, in dispensaries and peripheral hospitals.

In order to supervise and monitor the programme, the Mumbai District TB Control Society (MDTCS) appointed 22 Senior Treatment Supervisors (STS) and 22 Senior TB Laboratory Supervisors (STLS) on a contractual basis. These workers helped in monitoring TB patients as follows:

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a) Monitoring the result of sputum smear examination during treatment and
b) Monitoring collection of drug by the patients to ensure that these are collected as scheduled.

The four TB inspectors from the NTP were made responsible for maintaining drug supplies and logistics.

The table below gives the performance of the programme in the first year of its implementation.

**TABLE**

Performance of RNTCP in Mumbai in 1999

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Cases:</td>
<td></td>
</tr>
<tr>
<td>Cat I</td>
<td>6,919</td>
</tr>
<tr>
<td>Cat II</td>
<td>2,790</td>
</tr>
<tr>
<td>Cat III</td>
<td>5,356</td>
</tr>
<tr>
<td>Total</td>
<td>15,065</td>
</tr>
<tr>
<td>Ratio of Smear positive to Smear negative patients</td>
<td>1:1.47</td>
</tr>
<tr>
<td>Annualised New Smear Positive Case Detection</td>
<td>34.32/100,000 population</td>
</tr>
<tr>
<td>Annualised Total Case Detection</td>
<td>107.98/100,000 population</td>
</tr>
<tr>
<td>Sputum Conversion Rate</td>
<td>80.33%</td>
</tr>
<tr>
<td>Cure Rate</td>
<td>74.08%</td>
</tr>
<tr>
<td>Defaulter Rate</td>
<td>12.85%</td>
</tr>
</tbody>
</table>

**III. PROBLEMS IDENTIFIED AND SOLUTIONS THERETO**

Through intensive meetings with various levels of staff and visits to the centers, the following were identified as the reasons for the poor case detection and sputum conversion, which would impact on the cure rate in the subsequent year:

* Inadequate number and geographical distribution of the Microscopy and DOTS centers.
* Staff behaviour: RNTCP was considered as an additional duty that was not in their original duty-list, by the health post staff. Hence there was resistance and disinterest in the programme itself.
* Patient selection: Refusal by staff to start treatment for patients without proof of permanent residential address (ration cards) due to fear of default.
* Ratio of Smear positive to Smear negative patients was high, as the diagnostic algorithm was not adhered to in the peripheral hospitals.
* Non-standardization of treatment: As NTP was still available all over the city (mainly in the medical colleges, government hospitals and the private sector), it was the easier option for the patients to adopt.
* Inadequate monitoring / supervision: the DTOs appointed by the corporation had RNTCP as an additional charge to their existing duties. They were, hence, not able to devote their entire time to the programme. Inability of the Medical Officer-TB Control (MO-TC) to conduct visits also resulted in inadequate support to the STS and STLS.

Efforts were made to:

1. **Increase access:**
   a) **Increasing the number of Microscopy Centres** -

   i. As the Medical colleges were still treating a large number of TB patients, it was important to expand the coverage of RNTCP to these institutions. A chest physician and a Health Visitor were appointed at the DOTS Centres established at these Hospitals. A laboratory technician was also appointed for RNTCP activities in the Labs of the institutions. Thus, all the patients attending the out-patient departments (OPD) as well as the in-patients (at the time of discharge) are referred to the DOTS center, where they are categorized and referred to the DOTS centers most convenient to them.

   ii. Some private clinics / hospitals and NGOs having their own laboratories, were approached and accredited to act as Microscopy Centres after their staff was trained.

   iii. Some of the existing labs in the public health setup were upgraded and some new labs were established to improve access for the patients.

   Currently there are 107 functioning Microscopy Centres in the city, which has led to increased case detection.

   b) **Decentralizing DOT** -

   i. DOT has been decentralized to locations most convenient to the patients by involving private medical practitioners (PMP), private and trust-run hospitals and some Non Governmental Organizations (NGO). This is being done by implementation of the Public Private Mix
(PPM) Project in collaboration with partner NGOs in two zones of the city and also through individual efforts of staff in other areas, (Separately presented in this issue of the Journal). The number of DOTS centers has gone up to 509 including 237 in Public health structures, 239 with PMPs and 33 with NGOs.

2. Improving programme monitoring and supervision:
   a) Supervisory visits -
      i. One four-wheeler has been provided per zone to maintain the drug supply and for the DTO’s visits. In addition to this, each STS has been provided with a two-wheeler for easing the commuting between the centers for supervisory visits, drug supply etc. The STS and the STLS conduct the regular supervisory visits recommended by the programme.

   ii. Meetings -
      1. Weekly review meeting for STS, STLS, TO and TB Inspectors along with DTOs are held to exchange information on transferred-out patients, admitted patients in TB hospital and medical colleges and cross checking the STLS performance with STS performance.

      2. Fortnightly meeting for STS, STLS, TO, full-time medical officer (FTMO) / PHN is held at the TU to exchange of information about referred patients and for discussion of problems with the MO-TC.

      3. Combined meetings are held for two zones on a monthly basis for all the staff and also the NGOs for reviewing the performance of the month, solving difficulties and reviewing involvement of PMP-s and their performance.

      4. A quarterly meeting of DTO, STS, STLS, TB Inspector and TOs with the Member Secretary is held to review the performance of the previous quarter. During such meetings, there is free discussion of problems wherein the officials seek the workers' point of view on the activity performed and their opinion on solutions.

   b) Developing reporting format -
      i. Monthly reporting is done in the format provided by the Central TB Division (CTD), as well as some additional parameters are reported to have a better insight into the functioning of the programme.

      ii. Microscopy activities have been linked to the actual number of patients started on treatment to check the number of initial defaulters and steps are taken immediately to retrieve them.

c) Developing indicators beyond those demanded by the CTD -
   i. Some indicators are monitored on a monthly basis in addition to the routine ones. They are:

      2. Proportion of defaulters, failures and deaths in the outcome.
      3. Monitoring the reasons for delays in diagnosis and starting of treatment
      4. Proportion of extra-pulmonary cases among the total patients.

   These help to maintain the smooth functioning of the programme by providing information to take corrective measures from time to time.

   d) Developing e-connectivity -
      i. Computerization with e-mail facility at Zonal Level to promptly disseminate the information and analysis of the monthly reports submitted by the STS and STLS, has been put in place.

      ii. A system for communication of data from the large TB Hospital has been set up. As a result, a large number of patients who are diagnosed and admitted in the hospital, can be put on DOTS and referred to the right DOTS center, on discharge. It also helps in providing information about those patients on DOTS, who get admitted to the hospital during treatment. The transfer of information is managed at the main office of the MDTCS, from where a list of names and addresses of patients admitted to the hospital is sent to the different wards of the city on a daily basis. Confirmatory visits are made for these patients by the concerned staff (PHN/ANM/MPW at Health Posts and TO at the dispensaries and hospitals). Relevant information is conveyed back to the hospital through the MDTCS main office so that the patients are put on RNTCP as soon as possible.

3. Introducing an IEC strategy:

   The need to develop a specific IEC strategy was identified after the initial sporadic efforts to create awareness about the disease as well as the services available. The World TB Day was used as the ideal time to propagate the programme. Exhibitions, meetings, rallies were conducted, during which appropriate IEC material was displayed and distributed.

   The IEC material was developed with the help of inputs from the staff. It is being used by the staff for providing information to the patients, which has helped in case holding.
Patient “melavas” (meetings) are held monthly in centers with more than 50 patients in which cured patients and patients on treatment interact with each other. Opinion leaders from the community are invited to express their support to the patients. This helps in ongoing supportive counseling, resulting in better case holding and ultimately higher cure rates. Patients who complete their treatment without interruption are felicitated and act as a source of encouragement to others.

4. Monitoring the laboratory performance:

An External Quality Assurance Scheme is monitoring the quality of sputum microscopy by involving the Microbiology departments of the Medical Colleges, peripheral hospitals and a research NGO, since two quarters. The slides are crosschecked and reported every month to identify the poorly functioning labs and find ways to strengthen them.

5. Strengthening drug delivery:

Monthly stocks are maintained at the zonal level and distributed to the centers during the weekly visits of the STS. The TB Inspectors visit the central stores once a week and procure drugs or any other material required. The formation of the Central Drug Store and six Zonal Drug Stores has helped in timely drug distribution.

6. Capacity building of the staff:

a) Discussions were held with representatives of the staff unions. The staff was taken into confidence to add the duties under the RNTCP into their duty-list.

b) Training of staff for communication skills was conducted with the help of AVEHI (an NGO working in health education) in collaboration with a partner NGO. Skills such as interviewing, counseling, handling misconceptions etc. were imparted. This has resulted in bringing about attitudinal changes in the staff, helping create a patient-friendly atmosphere at the centers.

c) “Vishwas”, a quarterly newsletter has been started which provides information about the progress of the programme. This also gives the staff an opportunity to share their experiences with others.

d) The staff is also encouraged to present case studies and interesting anecdotes of patients during the monthly meetings. This has instilled confidence in them and succeeded in creating a sense of ownership for the programme.

IV. RESULTS FOLLOWING CORRECTIONS

All the above efforts have helped the programme to increase case detection, achieve optimum case holding and thus enable maximum patients to gain access to RNTCP services.

The case detection - smear positive as well as total - has reached the target (50 and 135 respectively) due to increased access to the services, involvement of the medical colleges and improving quality of sputum microscopy. The ratio of Smear positive to Smear negative patients is currently 1:0.94 (Second Quarter 2002) which is below the maximum permissible (1:1.2). The conversion rate and cure rate of smear positive patients also have reached their targets (90% and 85% respectively) due to the continued efforts of the motivated staff. Maximum number of detected patients, are being put on DOTS and the defaulter rate is showing a downward trend. The additional efforts put in by the programme managers, and the staff to help monitor the programme, have helped the progress of RNTCP in the city and will be continued to maintain this progress.

REFERENCES


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Fig1: RNTCP PERFORMANCE IN MUMBAI

- Annualised Total Case Detection Rate (per lakh population)
- Sputum Conversion Rate (%)
- Cure Rate (%)
- Smear + put on DOTS
- Annualised New Smear + Case Detection Rate (per lakh population)
- Default Rate (%)