PERFORMANCE OF REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME IN RAJASTHAN AND TAMIL NADU DURING 2ND QUARTER 2001 TO 1ST QUARTER 2002

BV Venkatachalappa & S Nagaraju*

INTRODUCTION

India accounts for nearly one third of the global tuberculosis (TB) burden. Every day more than 20000 people are getting infected and out of these 5000 develop TB and more than 1000 people die of TB. More than 80% of the TB patients are in the economically productive age group of 15-54 years.

National Tuberculosis Institute (NTI) formulated National Tuberculosis Control Programme in 1962 on a 50:50 sharing basis between center and state. The objectives of the programme were to reduce the morbidity & mortality, to reduce disease transmission and to diagnose as many cases of TB as possible and to provide free treatment nearer to the TB patient's home. However, it could not make much of an impact on this disease. According to findings of programme review report -1992 (Government of India (GOI) & World Health Organisation (WHO), the GOI evolved the revised strategy in the forms of Directly Observed Treatment Short course (DOTS), with the objective of curing at least 85 % of the smear positive patients and detecting at least 70 % of them. DOTS, known as the Revised National Tuberculosis Control Programme (RNTCP) in India, is a comprehensive strategy for TB Control. DOTS strategy has five components. It includes sustained government commitment, effective laboratory based diagnosis, standard treatment given under direct observation, secured drug supply & systematic monitoring and evaluation.

This strategy was pilot tested in 1993 on a population of 2.35 million in 5 states (Delhi, Kerala, West Bengal, Maharashtra and Gujarat). This was expanded for assessing technical and operational feasibility of the programme to a population of 13.85 million during 1995. The scale of expansion was stepped up substantially since 1998. By the end of June 2002, 49% of population of the country has been covered under RNTCP. The states of Rajasthan, Kerala, Delhi, Himachal Pradesh, Tamil Nadu, Manipur, Sikkim and Union Territory of Chandigarh have achieved 100% RNTCP population coverage by March 2002.

OBJECTIVE

This paper appraised the performance of two fully implemented RNTCP states, viz. Rajasthan and Tamil Nadu with all India performance of RNTCP in terms of case finding & treatment activities for the financial year 2001-2002 (i.e. 2nd Quarter 2001 - 1st Quarter 2002).

MATERIALS & METHODS

Quarterly report on case finding, smear conversion and cohort analysis of the treatment results originated from different districts. These reports were analyzed by Central TB Division, Directorate General of Health Services, Government of India, New Delhi. The consolidated report on performance of these districts published by Central TB division constitutes the material for this paper.

RNTCP has laid down certain expected level of performance in terms of the monitoring parameters. The following are the expectations in respect of some key indicators.

1. The ratio of smear positive to smear negative cases should be about 1:1
2. The proportion of initially sputum smear positive patients having laboratory evidence of sputum conversion to negative at the end of 3 month should be 90%.
3. New sputum smear positive case detection rate per lakh population is expected to be 40-85.
4. Total case detection rate per lakh population is expected to be 135.
5. The treatment cure rate among smear positive cases is expected to be at least 85%.

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In India estimated incidence rate used in programme planning is 85 new smear positive cases per lakh population of whom 60% (51 per lakh) will attend the government services. The expected breakup of total case detection rate of 135 per lakh population is as follows.

New smear-positive: New smear-negative 50 : 50

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Smear-positive</th>
<th>Smear-negative</th>
<th>Extrapulmonary</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category I</td>
<td>50</td>
<td>10 (seriously ill)</td>
<td>2 (seriously ill)</td>
<td>62</td>
</tr>
<tr>
<td>Category II</td>
<td>25</td>
<td>Nil</td>
<td>Nil</td>
<td>25</td>
</tr>
<tr>
<td>Category III</td>
<td>0</td>
<td>40</td>
<td>8</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>50</td>
<td>10</td>
<td>135</td>
</tr>
</tbody>
</table>

Quarter-wise performance of these parameters is compared with the expected norms in the states of Rajasthan, Tamil Nadu and for all India.

**BRIEF HISTORY OF THE SELECTED STATES**

The state Rajasthan is located in the northwestern part of the sub continent. The state has an area of 132,140 sq. miles (Fig 1). Rajasthan is relatively dry and infertile; this area includes some of the Thar Desert also known as the ‘Great Indian Desert’ with a population of 56,473,122. The sex ratio in the state is 920 females per 1000 males. The state has 32 administrative districts. RNTCP in the state has been fully implemented in all the 32 districts since 2000.

Tamil Nadu state is situated in the extreme south of India peninsula with a population of 62,110,839 (Fig 1). The state has area of 130,058 sq. km. The sex ratio in the state is 950 females per 1000 males. The state of Tamil Nadu is divided into 30 administrative districts. Tamil Nadu has 1000-km long coastal line.

RNTCP was implemented in phased manner in the state of Tamilnadu. Twenty districts were implemented RNTCP by the end of 2nd quarter 2001. Four districts were implemented during 3rd quarter 2001. During 4th quarter 2001 four more districts implemented the RNTCP. One district implemented the RNTCP during 1st quarter 2002. 99% of the population in Tamil Nadu is covered under RNTCP.
1. Annualized smear positive & total case detection rate

Annualized smear positive & total case detection rate give the trend in the TB case notification. If a programme is able to achieve the 85% cure rate, it will significantly reduce the chain of transmission of TB in the community. Hence incidence of new cases in the community will decline in the younger age group. If incidence is reduced, then the notification rate will also come down after few years of proper implementation of the programme.

Table 1: Number of smear positive and total cases treated

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Rajasthan</th>
<th>Tamil Nadu</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total cases</td>
<td>New Smear +ve cases</td>
<td>Population in lakhs</td>
</tr>
<tr>
<td>II, 2001</td>
<td>22942</td>
<td>9407</td>
<td>10928</td>
</tr>
<tr>
<td>III, 2001</td>
<td>23021</td>
<td>9060</td>
<td>11941</td>
</tr>
<tr>
<td>IV, 2001</td>
<td>20494</td>
<td>7919</td>
<td>14994</td>
</tr>
<tr>
<td>I, 2002</td>
<td>19810</td>
<td>7680</td>
<td>18697</td>
</tr>
<tr>
<td>Total</td>
<td>86267</td>
<td>34066</td>
<td>56560</td>
</tr>
</tbody>
</table>

Table 1 shows the detection of new smear positives and total cases during the period. It is observed that new smear positive case detection rate per lakh population is ranging from 54 - 67 which is satisfactory in Rajasthan, 38 - 45 is just below the satisfactory level in Tamil Nadu and 44 - 49 is satisfactory for all India (Fig 2a).
Total case detection rate per lakh population is ranging from 140-163 which is satisfactory in Rajasthan, 99-123 is below the satisfactory level in Tamil Nadu and 115-124 is below the satisfactory level for all India (Fig 2b).
2. Ratio of smear positive to smear negative

The most cost-effective method of detecting the infectious cases among pulmonary TB suspects in a high prevalent population is by sputum microscopy. Ratio of smear positive to smear negative is an important indicator to know the diagnostic practice by the programme manager.

![Graph: Ratio of smear positive to smear negative patients](image)

Figure 3 depict the ratio of smear positive to smear negative case detection during the period. It is observed that ratio ranging from 1.3 - 1.4 is just above the expected level in Rajasthan, 0.9 - 1.3 is in expected level in Tamil Nadu and 1.1 - 1.4 is just above the expected level for all India.

3. Smear positive to smear negative conversion rate

Smear conversion rate is not only an indicator of the effective treatment regimen but also effectiveness of the programme implementation. Sputum microscopy is much more informative than radiology in following the progress of treatment. In order to anticipate the result of treatment (which would otherwise be not available for another 12-15 months) it is essential to monitor the sputum conversion rates achieved at the end of 2 and / or 3 months. A high conversion rate is usually followed by high cure rate. This gives an indication about the efficacy of the treatment regimen and the degree of supervision during the intensive phase of the treatment.
Figure 4 depict the smear positive to smear negative conversion rate, for patients treated during 1st quarter 2001 to 4th quarter 2001. It is observed that rate is ranging from 88 - 91 % in Rajasthan, 82 - 88 % in Tamil Nadu and 87 - 89 % for all India.

4. Cure rate

Cohort analysis is the key management tool used to evaluate the effectiveness of the TB control programme delivery. Cure rate is most important indicator in the cohort analysis. The main goal of RNTCP is to achieve the 85% cure rate among new smear positive patients. By achieving a high cure rate, the rate of transmission of TB in the community will reduce.

A program, which achieves at least 85% cure rate in smear positive pulmonary TB patients, will have the following impact.

(i) TB prevalence and the rate of TB transmission both decreases.
(ii) TB incidence decrease in younger age group and gradually decrease in older age group.

Table 2: Cure rate of new smear positive patients treated successfully (%) (2nd quarter 2000 - 1st quarter 2001)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Rajasthan</th>
<th>Tamil Nadu</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>85</td>
<td>70</td>
<td>82</td>
</tr>
<tr>
<td>III</td>
<td>85</td>
<td>74</td>
<td>83</td>
</tr>
<tr>
<td>IV</td>
<td>85</td>
<td>79</td>
<td>83</td>
</tr>
<tr>
<td>I</td>
<td>84</td>
<td>80</td>
<td>83</td>
</tr>
<tr>
<td>Total</td>
<td>85</td>
<td>76</td>
<td>83</td>
</tr>
</tbody>
</table>
Table 2 shows the cure rate of new smear positive patients treated during 2nd quarter 2000 to 1st quarter 2001. It is observed that rate ranging from 84 - 85% is satisfactory in Rajasthan, 70 - 80% which is below the expected level in Tamil Nadu and 82 - 83% which is nearer to expected level for all India.

5. Conclusion

Overall the performance of RNTCP in Rajasthan and for all India is satisfactory with respect to the programme indicators. This implies that DOTS strategy is implemented effectively in this state as well as in the country. If Rajasthan would have been a separate country, it would be the second largest in the world, after Vietnam, to have reached the global targets for case detection and cure rate.

It was observed that overall performance of case detection rate and cure rate in Tamil Nadu state is below the expected level. This can be improved by giving proper training, supervision to health workers and correct timely follow-up examination of patients. Cure rate can be achieved by ensuring patient adherence to treatment by continuing education programme to patients and family and active follow up of the defaulter patients by health worker.

REFERENCES


9. Census of India 2001, Table 1: Population, decadal growth rate, sex ratio and density - States/Union territories and Districts.
प्रस्तावना

राष्ट्रीय श्यामर संखा डेश भर के क्षेत्र की वर्तमान जानपदिक रोगीय स्थिति के मूल्यांकन के लिए 1-9 वर्षीय बच्चों के बीच देशव्यापी गुलिंकी वर्तमान समय कर रही है। वर्तमान के उद्देश्य से देश का चार भौगोलिक क्षेत्रों में समर्थता किया गया है। पश्चिम क्षेत्र में, जुगनगढ़ (जुगनगढ़), कोटा (राजस्थान), खुबुआ (मध्य प्रदेश) तथा नागपुर, धार और रतलागिरि (महाराष्ट्र) को संबंधित के लिए चुना गया है। जुगनगढ़ और कोटा क्षेत्रों में समर्थता कार्य के पर्यवेक्षण के लिए सबसे अधिक उपयोगी नजर आए।

जुगनगढ़

जुगनगढ़ में, हमने जिन विभिन्न समुदाय स्वास्थ्य केन्द्रों (सीएएस) और प्रामाणिक स्वास्थ्य केन्द्रों (पीएस) को मंडल की, उन सभी केन्द्रों के जिला क्षेत्र के अधिकारी (डीटीडी) एवं उनके टॉर्न ने पालन-पूर्ण सरकार के कारण एसएआई स्वास्थ्य कार्य की सुचारू रूप से संपन्न हुई। साथ ही, दोनों ग्रामीण क्षेत्र शहरी केन्द्रों के लोग अवैध सहायकों और संबंधित के दुरुस्थ संचालन में मदद की।

जुगनगढ़ के एक गाँव में संबंधित के दौरान घटित एक अवस्थानीय घटना को में पाठकों के साथ बांटना चाहती हैं। टीकरा लगाने की परीक्षा-विकल्प परिस्थिति प्राप्त करने के लिए जिन जिलों को साफ़ करने के लिए हमें निर्देश दी गई। संबंधित किसी तीन दिन के प्रभावों के लिए नजर आए हैं। जिला क्षेत्र के समस्त लोग स्वास्थ्य को समझ सकने के लिए दिन काफी समय लग गया।

कोटा

कोटा का क्षेत्र अनुभव जुगनगढ़ के अनुभव से अलग था। कोटा का संबंधित कार्य अवैध कितना है और हमें कई समस्याओं का सामना करना पड़ा। इनमें से कुछ हैं:

- हर एक जमवार के रात अवैध बुरी हालत में थे और हमें गाँवों तक पहुँचने में बहुत समय लगा।
- अखबारों और बांदा जैसे गाँव आवेदण थे, क्योंकि वे जंगलों के आंदर थे और कब्जे रहते थे।
- अखबारों के गांव बांदा तथा अनेक गांवों में निर्देशों से भरा था और गांव को उमांस में गुजरना था।

यह दौरान संचरण के कोई माध्यम उपलब्ध नहीं था। ऐसे गांवों के पहुँचने का लाभ के लिए अवैध कितना काम था।

* क्षेत्र अन्वेषक, जनपदिक रोग विज्ञान अनुभाग, राष्ट्रीय श्यामर संख्या, सं. 8, बेल्लारी रोड, बेंगलुरु - 560 003.

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बारिश के दिनों में, गाँवों की गाँव तक पहुंचना और भी कठिन था और एक घर से दूसरे तक पैदल जाना भी बहुत मुश्किल था। चूंकि हम केन्द्र पर परीक्षण नहीं कर पाते थे, एक घर से दूसरे में परीक्षण जल्दी था और यथातुल्य: बरसात के दिनों में हमें परीक्षण बंद करना पड़ा।

एक प्रामाण्य जमघट, यथा, हमें तत्कालिन में परीक्षण के लिए हमें गाँवों से सहयोग नहीं मिला। पहले हम दिन किसी तरह हम उन्हें आश्वस्त कर 29 बच्चों का परीक्षण कर पाए। तथापि, लोग इतने ज़िंद्री थे कि वे फिर हमारा विरोध करने लगे और हमें परीक्षण करने नहीं दिया। तब हम नेवीन राज्य स्वास्थ्य केन्द्र गए और अपने साथ दो स्वास्थ्य कर्मियों को भी ले गए जो उसी गाँव के लिए काम करते थे। तब भी गाँववाले आश्वस्त नहीं हुए और अंत में हमें उस गाँव को छोड़कर दूसरा गाँव लेना पड़ा।

एक और गाँव में हमने इस समय का सामना किया कि जब तक हमने सभी बच्चों का परीक्षण करना स्वीकार नहीं किया तब तक वहाँ के लोग ने हमें जाने ही नहीं दिया। हमें 200 बच्चों की परीक्षण करनी मजबूरी जो हमारे लक्ष्य से अधिक था और हमें एक अतिरिक्त कार्य विवस उस गाँव में भिटाना पड़ा।

इन सभी कठिनाईयों के साथ, हम किसी तरह राज्यशासन के कोटा जिले के 83 जमघटों के परीक्षण को पूरा करने में सफल रहे। यह कहना अधिक संगत होगा कि टीम के सदस्यों के बीच का सहयोग काम को सफलतापूर्वक पूर्ण करने में प्रयास तत्काल रहा।

राष्ट्रीय नमूना सर्वेक्षण-संक्रमण की वैधिक जोखिम परियोजना में भाग लेने का जो अवसर मुझे प्रदान किया गया, उसके लिए मैं हार्दिक धन्यवाद, मुझे अनेक तथ्यों एवं विश्लेषण, सह-अनेक तथ्यों और उनके आभारी हूँ। साथ ही मैं अपने सहयोगियों तथा अन्य स्तरों को भी धन्यवाद देता हूँ, जिन्होंने मुझे सुपरिण गए हम कार्य को सम्पन्न करने में अपना पूरा सहयोग प्रदान किया।