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A Cohort Analysis of Performance of RNTCP in Rajasthan

MS Subramanya Rao, KP Unnikrishnan**, MA Sharada*

BACKGROUND

Tuberculosis (TB) is one of the most serious health problems in India. It is estimated that every year, about 1.8 million people in India develop TB. India accounts for one-fifth of global TB incidence and is estimated to have the highest number of active TB cases amongst countries of the world. The National TB Programme (NTP) formulated in 1962, could not achieve the desired epidemiological impact, since its performance in terms of case finding and treatment success were below expectation [(1)]. There was an over reliance on X-ray for diagnosis and often treatment was incomplete. The programme was reviewed in 1993 and revised under the banner of Revised National Tuberculosis Control Programme (RNTCP) with Directly Observed Treatment Short-course (DOTS). DOTS has proven to be effective in controlling TB worldwide. The revised strategy is being implemented across the country in a phased manner and entire country was expected to be covered by end of 2005. RNTCP has shown excellent results in terms of cure rate and the case detection has also shown rising trends in most of the implementing districts.

In the present article a cohort-wise analysis has been attempted to asses the performance of RNTCP in Rajasthan State. Rajasthan is one of the states in which RNTCP was pilot tested and was fully covered under RNTCP by January 2001. The performance is evaluated on the key parameters/ indicators such as case detection rate, smear conversion rate, patients put on treatment, treatment success rate etc.,

Geographically Rajasthan is located in Western part of India and shares common borders with Uttar Pradesh and Madhya Pradesh. It also has borders with highly industrialised states like Gujarat, Punjab, Haryana and Delhi. The State also shares an international border with Pakistan on the Western side. It has an area of 342,239 Sq Km. and a total population of 60.9 million as per the provisional results of the Census of India 2001. The State has a sex ratio of 922 and literacy rate of 61% as per the census 2001. RNTCP was first piloted at Jaipur district in April 1995[(2)]. Encouraged by the good results of the pilot project, the implementation of RNTCP was started in 2 districts of the State in November 1998 and the full coverage of all the 32 districts was achieved in January 2001.

METHODOLOGY

RNTCP shifts the responsibility for cure from patient to health system. The programme is accountable for the outcome of every patient put on treatment. To ensure accountability, a standardized set of forms and records are maintained in the treatment units. Routine reporting formats have also been prescribed based on which identified performance indicators / parameters are worked out for monitoring the programme. These indicators help the programme managers at various levels in assessing the performance of the programme and to take corrective action. The quarterly performance reports published by the Central TB Division from 2001 to 2004[(4-17)] have been used for the analysis of the performance of Rajasthan. The quarterly reports on case finding,

* Statistical Officer, ** Chief Statistical Officer, Statistical Assistant, National TB Institute, Bangalore;
Email: ntiindia@blr.vsnl.net.in; Website: http//ntiindia.kar,nic.in

sputum conversion, treatment outcome, programme management and logistics have been used as important tools to assess the performance of the programme. The performance of RNTCP Rajasthan has also been compared with the all India performance of RNTCP to have a differential perception.

RESULTS

For the State of Rajasthan , the ratio of the number of new smear negative to new smear positive (NSP) cases varied in the range 0.6 to 0.8 during 2001 to 2003, where as for All India, the ratio was in the range of 0.7 to 0.9 (Fig.1). The NSP detection rate was maximum (approximately 80%) during 2nd quarter of 2001, 2nd & 3rd quarter of 2002 and it was around 65% for majority of the remaining quarters during 2002-03. The NSP case detection rate of the State was consistently higher than the All India performance (Fig.2). The State had also maintained a consistently higher sputum conversion rate than the National average and is tending towards the National level of 90% (Fig. 3). The state as a whole has achieved the targeted cure rate of more than 85% during 2000-03. The success rates achieved were marginally higher than the All India (Fig. 4).

DISCUSSION

The RNTCP has set certain targets of level performance under programme, against which the actual performance is compared. There should ideally, be a one to one relationship between the number of new smear negative cases and new smear positive cases [3]. It can be seen from Fig.1 that for the state of Rajasthan, the ratio lies with-in the expected range of 0.4 to 1.2 (this range was found ideal in view of field experiences and other practical considerations) for all the quarters during 2001-03. However, as compared to the All India performance, there is a scope for improvement. The detection of smear negative cases also needed improvement for effective control of TB in the community.

Case notification rate indicates the extent to which patients with pulmonary smear positive tuberculosis are being detected and treated by the public health system. The estimated incidence rate used in the programme planning was uniformly kept at 85 NSP per 1 lakh population for Rajasthan state as well as for All India, of which 60% was likely to be detected in the Government health facilities. From Fig 2, it can be observed that with respect to case detection rate, Rajasthan is doing extremely well when compared to the All India performance. Though there has been fluctuations in case detection rate, it was showing an increasing trend and is heading towards the desired minimum detection rate of 70%. However, with the revised targets for a total case detection rate of 216 per lakh and NSP detection of 80 per lakh population [18] (based on estimated ARTI of 1.8), the State has to put in more efforts to improve its performance in terms of case detection.

New smear positive cases and relapses should have at least 90% conversion from sputum positive to negative at the end of intensive phase of treatment. A high conversion rate is usually followed by high cure rate, except in special situations where there is high HIV incidence and instances of more transfers. From Fig 4, it can be seen that for each cohort of NSPs detected in the different quarters in 2001-03, the smear conversion rate has been excellent and was around 90% for almost all the quarters. From Fig.4 it can be observed that with respect to sputum conversion rate, Rajasthan's performance was better than that of All India.

The cure/success rate achieved for new pulmonary smear-positive cases treated under DOTS is the best and most important indicator of effectiveness of chemotherapy in treating TB cases and hence success of the programme. Aided by the high conversion rate, the state of Rajasthan has achieved excellent success rate of about 87% for most of the cohorts of NSPs detected during

2002-03. The success rates achieved by Rajasthan were consistently higher than the All India as evident from the Fig. 3.

To improve the reach of the programme, Rajasthan has requested all Sarpanchs (village heads) and NGOs/Private practioners for their active involvement. Also a core committee of medical colleges in the State has been formed to enhance their involvement to improve reach of the programme. Further the State has involved all auxiliary nurses and midwives (ANMs) as DOT providers. Almost all the ESI & Railway hospitals are involved in the programme as a DMC and/or DOTS center [2].

To sustain the good performance achieved so far by the State and to break the chain of transmission of TB, it is necessary to continue and strengthen the above novel initiatives. The high quality of care and strict adherence to the RNTCP guidelines should be continued and maintained to sustain the smear conversion and success rates achieved by the State under the programme.

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Annexure

Fig. 1

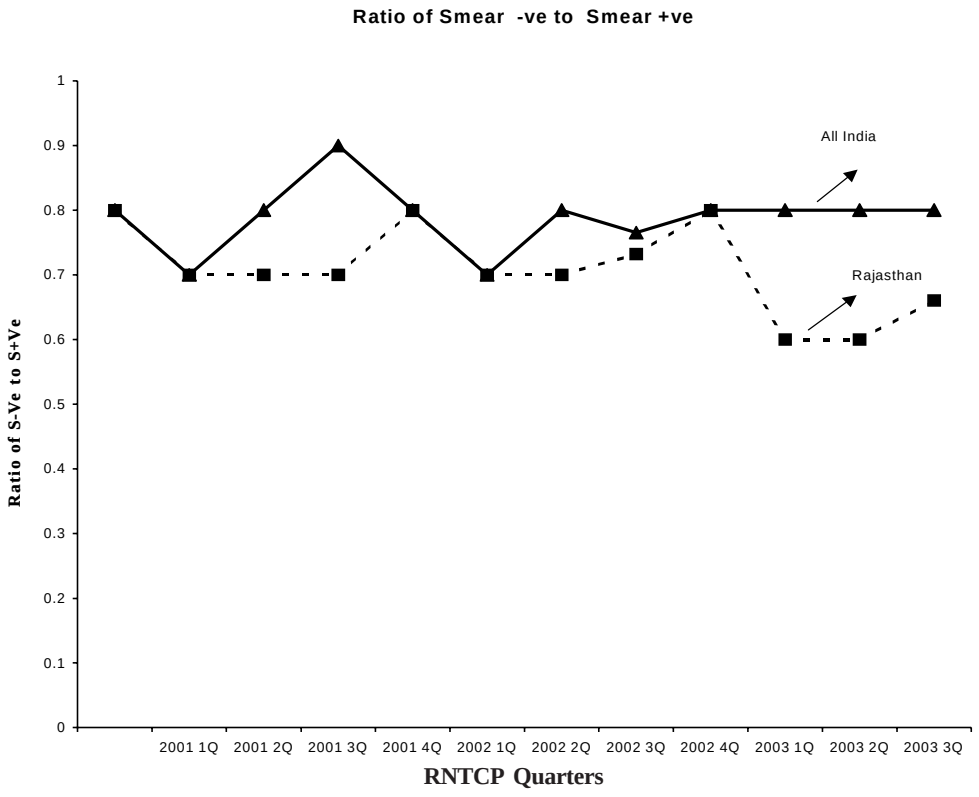


Fig. 2

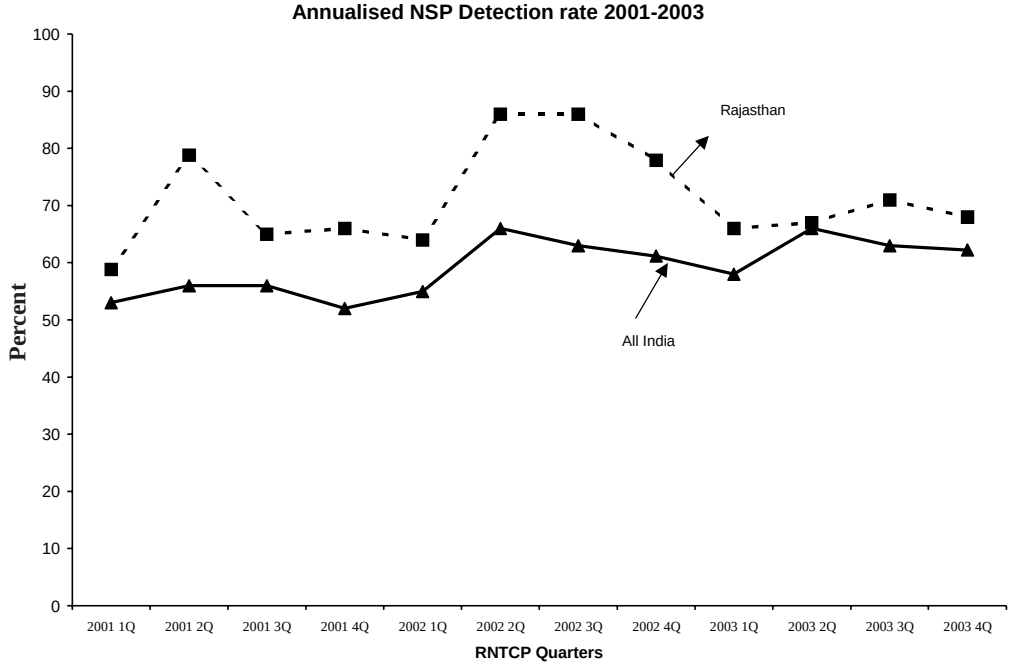


Fig. 3

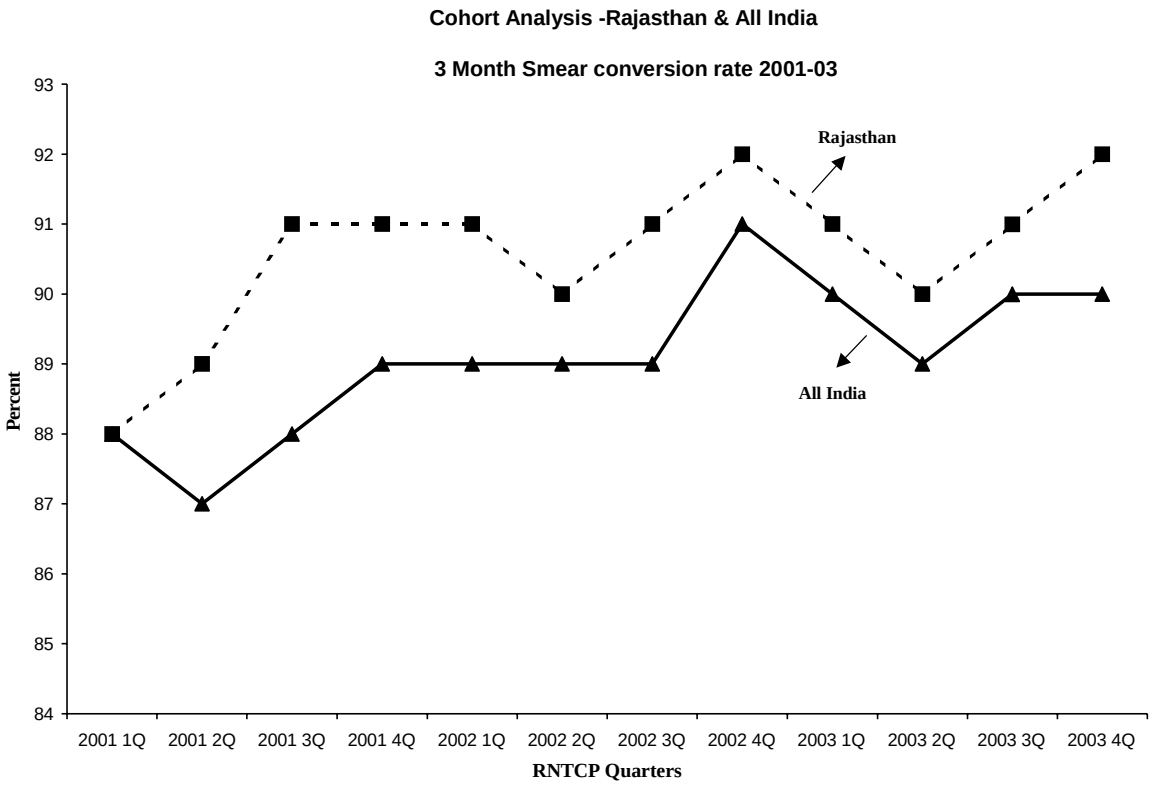
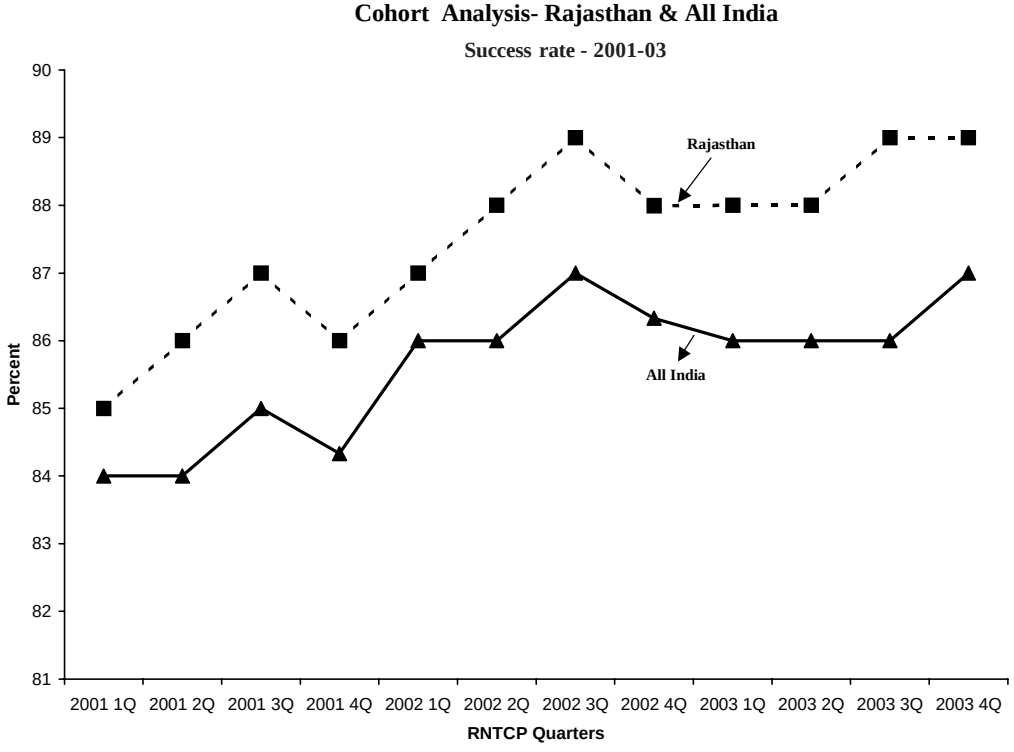

Cohort Analysis -Rajasthan & All India
3 Month Smear conversion rate 2001-03
Rajasthan
All India
Percent
RNTCP Quarters
93
92
91
90
89
88
87
86
85
84
2001 1Q
2001 2Q
2001 3Q
2001 4Q
2002 1Q
2002 2Q
2002 3Q
2002 4Q
2003 1Q
2003 2Q
2003 3Q
2003 4Q

Fig. 4


Cohort Analysis- Rajasthan & All India
Success rate - 2001-03
Rajasthan
All India
Percent
RNTCP Quarters
90
89
88
87
86
85
84
83
82
81
2001 1Q
2001 2Q
2001 3Q
2001 4Q
2002 1Q
2002 2Q
2002 3Q
2002 4Q
2003 1Q
2003 2Q
2003 3Q
2003 4Q