

## Source of retreatment cases under the Revised National TB Control Programme in Rajasthan, India, 2003

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### SUMMARY

**BACKGROUND:** Three years after state-wide DOTS coverage and achievement of global targets for detection and cure, the proportion of sputum-positive retreatment cases remained high in the north Indian state of Rajasthan.

**AIM:** To determine source, accuracy of categorisation and treatment outcomes in Category II sputum-positive retreatment cases registered from January to March 2003 in five districts of Rajasthan.

**MATERIAL AND METHODS:** Two hundred consecutive Category II sputum-positive retreatment cases were identified from the tuberculosis register and interviewed using a semi-structured questionnaire.

**RESULTS:** Categorisation was correct in 195 (97.5%) of retreatment cases interviewed. Treatment after default (TAD) comprised 84.6% (165/195) of interviewees, with

13.3% ( $n = 26$ ) relapses and 2.1% ( $n = 4$ ) failure cases. Of the TAD cases, 84.8% ( $n = 140$ ) had defaulted from previous treatment in the private sector. Only 6.1% ( $n = 10$ ) had defaulted from Category II DOTS treatment. The most unfavourable treatment outcome seen amongst interviewees was default, as also described in the national data.

**CONCLUSION:** TADs constituted the majority of interviewed retreatment cases (84.6%), and were overwhelmingly being generated by irregular treatment in the private sector. Further involvement of the private sector in the DOTS programme in Rajasthan is needed to stop the creation of further retreatment cases.

**KEY WORDS:** RNTCP; directly observed treatment; Category II retreatment cases; tuberculosis control

INDIA has the highest tuberculosis (TB) burden globally, with 1.8 million new cases occurring annually, of whom 800 000 are infectious sputum-positive cases.<sup>1,2</sup> From late 1998, the Government of India began rapid expansion of the Revised National TB Control Programme (RNTCP), achieving nation-wide coverage of the 1.1 billion population by March 2006.<sup>3</sup> The RNTCP uses the standard internationally recommended DOTS treatment categories, utilising thrice weekly intermittent short-course chemotherapy regimens, with all doses observed in the intensive phase and at least the first dose in the continuation phase.\* Category II includes sputum smear-positive retreat-

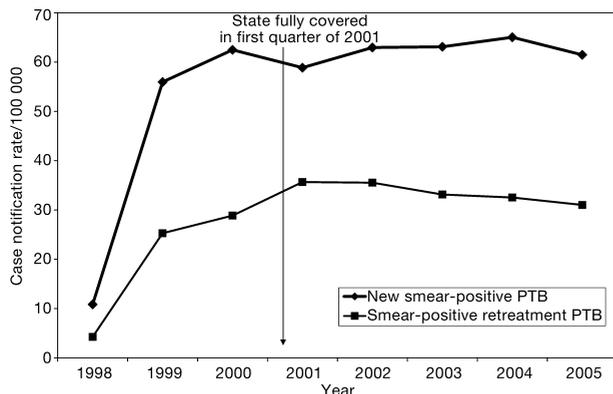
ment cases (relapses, treatment after default and failure) and 'others'.†

In Rajasthan (population 59.4 million in 32 districts), state-wide RNTCP coverage was achieved in January 2001. RNTCP policies for involvement of private practitioners and medical colleges were introduced in 2002 and 2003, respectively. Although the global targets for TB control of detecting at least 70% of infectious cases and curing at least 85%<sup>4</sup> have been achieved and maintained in Rajasthan since 2001, the caseload of smear-positive retreatment cases remains high (Figures 1 and 2), with marked variations between districts.<sup>3</sup>

Reported are findings of a study exploring source, accuracy of categorisation and treatment outcomes of a sample of RNTCP Category II smear-positive retreatment cases in Rajasthan.

\* Category I: 2H<sub>3</sub>R<sub>3</sub>Z<sub>3</sub>E<sub>3</sub>/4H<sub>3</sub>R<sub>3</sub>; Category II: 2S<sub>3</sub>H<sub>3</sub>R<sub>3</sub>Z<sub>3</sub>E<sub>3</sub>/1H<sub>3</sub>R<sub>3</sub>Z<sub>3</sub>E<sub>3</sub>/5H<sub>3</sub>R<sub>3</sub>E<sub>3</sub>; Category III: 2H<sub>3</sub>R<sub>3</sub>Z<sub>3</sub>/4H<sub>3</sub>R<sub>3</sub>. All regimens are given as thrice weekly intermittent regimens. Figure preceding regimen denotes duration in months, subscript figure denotes number of doses per week. H = isoniazid; R = rifampicin; Z = pyrazinamide; E = ethambutol, S = streptomycin.

† 'Others' includes TB patients who do not fit into any of the other case definitions, i.e., new, relapse, transferred in, treatment after default or failure.



**Figure 1** Case notification rate per 100 000 population, 1998–2005. PTB = pulmonary tuberculosis.

## METHODS

Approval for the study was obtained from the relevant departments within the Central and State Governments.

### Selection of districts

Four districts (Ajmer, Banswara, Bharatpur and Sawai-Madhopur) were randomly selected for inclusion in the study, with one other district, Dholpur (with >50% of all smear-positive cases being retreatment cases), conveniently selected.

### Selection of TB Units

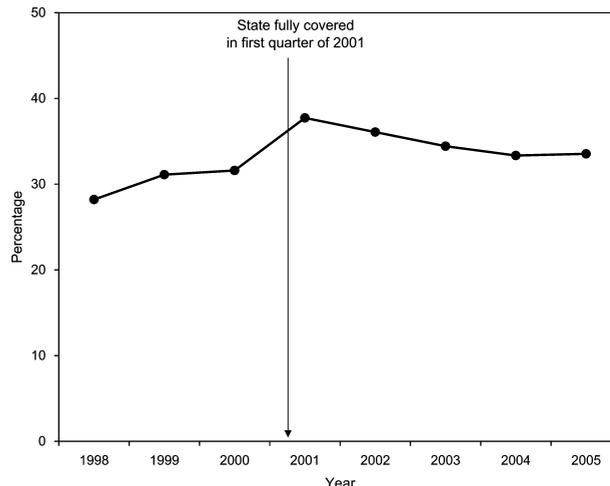
Two TB Units (TUs, sub-district supervisory units covering 500 000 population) were randomly selected from each study district. In any district with only two TUs in total, both were selected.

### Study population

Twenty consecutive Category II smear-positive retreatment cases (relapse, failure or treatment after default) (Table 1) were listed for interview from those cases registered from January to March 2003 in the RNTCP TB Register of the selected TU, starting with the first such case registered from 1 January 2003.<sup>5</sup> Patients who had died, transferred out and 'others' were excluded. A total of 40 retreatment cases were selected from each district, giving a total of 200 patients. A backup list of 20 retreatment cases was also prepared from those registered during the same period. If the required number of cases was not available in this period, cases were listed out from those registered during October to December 2002, starting from 31 December 2002 and proceeding backwards in time.

### Determining treatment outcomes

All patients who are registered for treatment under the RNTCP are given a treatment outcome as per standard RNTCP definitions (Table 1).<sup>6</sup>



**Figure 2** Proportion of smear-positive retreatment PTB cases among all smear-positive PTB cases, 1998–2005. PTB = pulmonary tuberculosis.

**Table 1** RNTCP case and outcome definitions<sup>5,6</sup>

Type of case	
New	A patient who has never had treatment for TB or has taken anti-tuberculosis drugs for less than 1 month.
Relapse	A patient declared cured of TB by a physician, but who reports back to the health service and is found to be bacteriologically positive.
Treatment after default	A patient who received anti-tuberculosis treatment for 1 month or more from any source and who returns to treatment after having defaulted, i.e., has not taken anti-tuberculosis drugs consecutively for 2 months or more and is found to be sputum smear-positive.
Failure	A smear-positive patient who is still smear positive at 5 months or more after starting treatment. Failure also includes a patient who was initially smear-negative but becomes smear-positive during treatment.
Chronic	A patient who remains smear-positive after completing a retreatment regimen.
Others	TB patients who do not fit into the above-mentioned types.
Treatment outcomes	
Cured	A patient who initially had a positive sputum smear for AFB, has completed treatment and has a negative sputum smear in the last month of treatment and on at least one previous occasion.
Treatment completed	A patient who has completed treatment but who does not meet the criteria to be classified as cured or as having treatment failure.
Died	A patient who died from any cause during the course of treatment.
Failure	A patient who has a sputum smear positive for AFB after 5 or more months of treatment, or a patient whose initial sputum was negative and who has a sputum smear positive for AFB after 2 or more months of treatment.
Default	A patient whose treatment was interrupted for 2 or more consecutive months.
Transferred out	A patient who has been transferred to other recording and reporting unit and for whom the treatment outcome is not known.

RNTCP = Revised National Tuberculosis Control Programme; TB = tuberculosis; AFB = acid-fast bacilli.

### *Tools for data collection*

#### *Review of register and reports*

The TB Registers held at the TU, in which the patient's name, category and type of disease, sputum examination results and treatment outcomes are recorded, were reviewed and data collected. To review the results of diagnostic and follow-up sputum microscopy, the TB laboratory registers at the RNTCP microscopy centres were reviewed. The reports reviewed included the TU and District level quarterly cohort reports on case finding and treatment outcomes.

#### *Interview schedule for listed patient*

Informed verbal consent was obtained from all patients interviewed. A semi-structured pre-coded interview questionnaire was developed which collected data on socio-economic status, past history of treatment and source of past treatment, anti-tuberculosis drugs taken, duration of treatment, any payments made for diagnosis and treatment under the RNTCP and treatment outcome under the RNTCP. The interviews were conducted by a team consisting of the Senior Treatment Supervisor (STS) of the local TU and the Medical Officer-TB Control (MO-TC) of another TU in the district.

#### *Interview schedule for programme staff*

A semi-structured pre-coded interview schedule was also prepared for programme staff such as Medical Officers (MOs) working at the peripheral health institutions, the MO-TCs at the TU and the District TB Officer (DTOs) at the district level. It collected data on training status, working experience in the RNTCP, knowledge about determining categorisation and types of cases, and assigning treatment outcomes to patients. The MO interviews were conducted by the visiting MO-TC, and the study coordinator interviewed the DTOs and MO-TCs. Findings from the interviews with programme staff are not reported in detail here.

#### *Data processing*

Responses from patient and programme staff interviews, along with other information, were initially compiled, coded and entered into the District TB Centre computer using MS Excel software (Microsoft Corp, Redmond, WA, USA). All district level data sets were collected by the study co-ordinator and analysis of the complete data set was performed by the study team at the central level.

Field-level activities related to the study were conducted from June to September 2004.

## **RESULTS**

A total of 200 smear-positive retreatment patients were interviewed for the study. It was possible to inter-

view only 133 (66.5%) of the cases included in the initial list. Known reasons for listed patients not being available included: death ( $n = 4$ ), migration for employment elsewhere in Rajasthan or another state ( $n = 34$ ) and inability to reach patients' homes due to heavy rains ( $n = 18$ ). Therefore 67 (33.5%) of the cases interviewed were taken from the prepared back-up list.

The overall male to female ratio was 3.3:1, varying from 2:1 in the age groups 15–24 and 25–34 years to 8:1 in the 45–54 years group, with no female case aged over 55 years. The age and sex distribution of the patients who were unavailable for interview were similar to those of the interviewees. Similar to the state's demo-geographical characteristics, 69% ( $n = 138$ ) of the interviewees were from rural areas and 31% ( $n = 62$ ) from urban areas; 67.5% ( $n = 135$ ) cases were from the plains, and 32.5% (64 tribal, 1 mountain) from tribal areas.

Among the interviewees, treatment after default (TAD) cases comprised 84.5% ( $n = 169$ ), relapse cases 13.5% ( $n = 27$ ) and failure cases 2% ( $n = 4$ ). The distribution of the 'type' of retreatment cases amongst the interviewees was similar to that seen in the total retreatment cases registered in the study districts from April 2002 to March 2003 (TAD 76% [ $n = 2600$ ], relapses 20% [ $n = 673$ ] and failures 4% [ $n = 136$ ]).

Of the 200 cases interviewed, five had no prior history of anti-tuberculosis treatment and hence had been miscategorised as retreatment cases (four TAD and one relapse), and were excluded from further analyses. A final total of 195 interviewed retreatment cases (165 TAD [84.6%], 26 relapse [13.3%] and 4 failure [2.1%]) were included in the analyses.

Of the 165 reported TAD cases, 140 (85%) were defaulters from previous treatment in the private sector (Table 2). Only 10 (6%) patients were defaulters from previous RNTCP treatment, and all of these had defaulted from a previous Category II treatment. The remaining 15 cases were defaulters from non-DOTS treatment under the earlier NTP ( $n = 8$ ), medical colleges ( $n = 4$ ) or other governmental organisations ( $n = 3$ ).

Of the 26 relapses, 24 (92.3%) were from the RNTCP (22 Category I, 2 Category II). Only two (7.7%) came from the private sector. The four failure cases came from RNTCP Category I treatment (2 cases) and from previous treatment in the private sector (2 cases).

Of the 195 smear-positive retreatment cases interviewed, an overall treatment success rate of 84% was observed,\* with 24 patients (12.3%) defaulting (Table 3). There was no difference seen among the interviewees between the outcomes of the TAD cases from the RNTCP or the private sector (Table 4).

\* Treatment success is the sum of patients who are cured and those who have completed treatment.

**Table 2** Source of RNTCP Category II retreatment cases

Type of case	RNTCP		Other sources		
	Category I <i>n</i> (%)	Category II <i>n</i> (%)	NTP <i>n</i> (%)	Private sector <i>n</i> (%)	OGS <i>n</i> (%)
TAD ( <i>n</i> = 165)	0 (0)	10 (6.1)	8 (4.8)	140 (84.8)	7 (4.2)
Relapse ( <i>n</i> = 26)	22 (84.6)	2 (7.7)	0	2 (7.7)	0
Failure ( <i>n</i> = 4)	2 (50)	0	0	2 (50)	0
Total ( <i>n</i> = 195)	24	12	8	144	7

RNTCP = Revised National Tuberculosis Control Programme; NTP = National Tuberculosis Programme; OGS = other government sector facilities; TAD = treatment after default.

**Table 3** Treatment outcomes amongst interviewees, listed cases unavailable for interview and all retreatment cases in study districts

Type of retreatment case	Treatment outcomes					
	Cure <i>n</i> (%)	Treatment completed <i>n</i> (%)	Died <i>n</i> (%)	Failure <i>n</i> (%)	Defaulted <i>n</i> (%)	Transferred out <i>n</i> (%)
Amongst interviewees (195)						
TAD ( <i>n</i> = 165)	128	6	0	8	23	0
Relapse ( <i>n</i> = 26)	25	0	0	0	1	0
Failure ( <i>n</i> = 4)	4	0	0	0	0	0
Total ( <i>n</i> = 195)	157 (80.5)	6 (3.1)	0	8 (4.1)	24 (12.3)	0
Amongst listed cases unavailable for interview						
TAD ( <i>n</i> = 61)	32	8	0	4	17	0
Relapse ( <i>n</i> = 5)	3	1	0	0	1	0
Failure ( <i>n</i> = 1)	1	0	0	0	0	0
Total	36 (54)	9 (13)	0	4 (6)	18 (27)	0
Amongst all sputum smear-positive retreatment cases registered between April 2002 and March 2003 in the five study districts						
TAD ( <i>n</i> = 1897)	1263 (67)	118 (6)	132 (7)	61 (3)	322 (17)	1
Relapse ( <i>n</i> = 281)	209 (74.3)	23 (8.2)	15 (5.3)	7 (2.5)	27 (9.6)	0
Failure ( <i>n</i> = 37)	21 (56.8)	6 (16.2)	4 (10.8)	3 (8.1)	3 (8.1)	0
Total ( <i>n</i> = 2215)	1493 (64)	147 (10)	151 (7)	71 (3)	352 (16)	1 (0)

TAD = treatment after default.

**Table 4** Treatment outcomes amongst retreatment cases interviewed by source

Type of retreatment case	Treatment outcomes			
	Cured <i>n</i> (%)	Treatment completed <i>n</i> (%)	Failure <i>n</i> (%)	Defaulted <i>n</i> (%)
From the RNTCP				
Relapse				
From Category I ( <i>n</i> = 22)	21	0	0	1
From Category II ( <i>n</i> = 2)	2	0	0	0
TAD				
From Category II ( <i>n</i> = 10)	7	0	1	2
Failure				
From Category I ( <i>n</i> = 2)	2	0	0	0
From the private sector				
Relapse ( <i>n</i> = 2)	2	0	0	0
TAD ( <i>n</i> = 140)	108	6	6	20
Failure ( <i>n</i> = 2)	2	0	0	0
From NTP and OGS				
TAD ( <i>n</i> = 15)	13	0	1	1
Total ( <i>n</i> = 195)	157 (80.5)	6 (3.1)	8 (4.1)	24 (12.3)

RNTCP = Revised National Tuberculosis Control Programme; TAD = treatment after default; NTP = National Tuberculosis Programme; OGS = other government sector facilities.

All the 200 patients reported that they had received free sputum examinations and anti-tuberculosis treatment as per the Government of India's policy to provide free TB services to all patients under the RNTCP.

All the DTOs ( $n = 5$ ), MO-TCs ( $n = 10$ ) and MOs ( $n = 32$ ) interviewed had undergone standardised RNTCP modular training. All DTOs and MO-TCs correctly described the type of cases, categorisation and treatment outcomes as defined by RNTCP. However the knowledge among the MOs varied, with only 75% (24/35) correctly defining type of retreatment case.

## DISCUSSION

Recent discussions have queried the utility of using the standard Category II retreatment regimen, especially among patients who have failed a Category I regimen.<sup>7,8</sup> In a setting such as India, where there are multiple health providers, not all of whom follow the national DOTS-based programme, there is another unanswered question: 'What is the source of Category II cases under the RNTCP?' This is an important question considering that over 400 000 smear-positive patients have been registered for RNTCP Category II treatment since 2000 (Central TB Division, unpublished data).

It has been postulated that if 70% case detection and 85% cure rates are achieved, and if even only a small proportion of prevalent cases are treated each year, there should be a resultant rapid reduction of prevalent cases being enrolled for treatment.<sup>9</sup> Rajasthan has had state-wide coverage under the RNTCP since 2001, and has maintained the global targets almost ever since; however, retreatment cases have remained at a high level over the years.

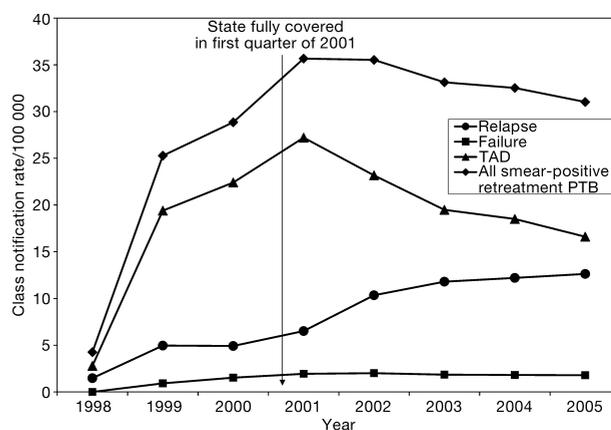
Why, with such an effective DOTS-based programme in place, has the level of retreatment cases remained unchanged? The study findings begin to unravel the complexities of the situation in the Indian context. The largest group seen were TAD cases, similar to the picture at national level.<sup>2</sup> What is most striking is that of the TAD cases interviewed, 85% were defaulters from previous treatment in the private sector and not from previous RNTCP Category I treatment.

That TB is poorly managed by the private sector in India has been exhaustively documented.<sup>10-13</sup> Recognising that successful TB control requires the commitment of the private health care sector, the RNTCP has developed and implemented guidelines for the involvement of non-governmental organisations (NGOs, 2001) and private practitioners (2002), and created a task force mechanism to involve medical colleges in the RNTCP.<sup>2,14-17</sup> The study findings suggest, however, that with such a high proportion of Category II TADs coming from previous poorly managed treatment in the private sector, ongoing public-private collaborations need to be continued and intensified. The

private sector must be further sensitised, trained and extensively involved in the programme in order to reduce the development of retreatment cases.

Although no major decrease has been seen in the overall notification rate of smear-positive retreatment cases since the study period, the proportion of TAD cases is decreasing and that of relapses increasing (Figure 3). The decrease in TAD may reflect improving case holding and increasing involvement of medical colleges, NGOs and private sector in the intervening years. The increase in relapses can be accounted by a change in the definition of 'relapse' after the study period to include cases who had completed treatment in addition to those cured,<sup>18</sup> and also by an ever growing number of new cases who have been cured or completed treatment, with the resultant larger pool out of which potential relapses may come. One limitation to the study findings is that the year of previous treatment was not documented. Another is the fact that patients were interviewed 12-15 months after initiation of treatment and this could have introduced a degree of recall bias regarding the source of treatment. It is possible that the TAD cases were poorly managed in the private sector prior to RNTCP implementation in the respective district, and this needs to be further investigated.

In the study, the largest group who had received previous RNTCP treatment were relapse cases. It is to be expected that some cases successfully treated with Category I treatment relapse.<sup>19</sup> Although most cases (24/26) were relapses from Category I, two were relapses from successful Category II treatment. This 'recycling' of Category II cases was also seen amongst those interviewees who were defaulters from previous RNTCP treatment, whereby all 10 actually defaulted from a previous Category II treatment. This recycling back into Category II is contributing to a slight over-reporting of Category II cases. RNTCP policies need to be reviewed to address this recycling issue, as guid-



**Figure 3** Smear-positive retreatment PTB case notification rates, 1998-2005. PTB = pulmonary tuberculosis; TAD = treatment after default.

ance is presently available on what to do with patients who fail Category II treatment, but not for those who return after default or relapse from previous Category II treatment.

This is important, as not only do TADs form the largest registration group among Category II cases, but also default is the most common unfavourable outcome reported among Category II cases, at around 15% nationally.<sup>2</sup> Although the success rate observed amongst the interviewees was higher (84%) than that reported for smear-positive retreatment cases overall in the study districts (74%), default still remained high, at 12.3%. The overall district result, with 16% default, is in line with that reported from state and national levels. It should be noted that the higher success rates seen among the interviewees are artificial due to initial exclusion of deaths, transfers and 'others' from the study group. In addition, treatment outcomes for those patients who could not be interviewed were different from those interviewed, with more defaulters, mainly due to migration for employment (Table 3). With the recycling of Category II cases, TAD cases comprising the largest Category II registration group and the high default rates from Category II treatment, the highest priority is to reduce defaulting among Category II cases.

Many of the patients who were unavailable for interview had migrated for employment. Could this phenomenon also be occurring during Category II treatment and partially explain the high default rate seen among Category II patients? This is another area that the programme urgently needs to examine in more detail.

Among the 200 'retreatment' cases interviewed, only five patients appeared to have been miscategorised into Category II when they had no history of previous treatment. While the knowledge of the DTOs and MO-TCs was good, 12.5–25% of the MOs interviewed were not clear about one or other of the programme definitions or treatment guidelines. It is important that staff involved in RNTCP activities be knowledgeable about RNTCP policies and guidelines. Staff need to be reminded that all cases that fail Category I treatment need to be re-registered immediately for Category II treatment. Furthermore, staff identified during supervision as having deficiencies in their understanding or knowledge of RNTCP policies and guidelines should receive retraining as a priority.

Caution should nevertheless be taken before extrapolating the findings of the study to other areas of India. Further studies need to be conducted across the country to ascertain the pattern of source of retreatment cases in the other states.

## CONCLUSION

Retreatment cases remained high in Rajasthan 3 years after state-wide coverage and targets for case detec-

tion and cure achieved. Of the Category II patients interviewed, 85% were treatment after default cases. Of these, 85% were defaulters from previous treatment in the private sector. Recycling of relapses and defaulters from Category II also contributed to keeping the retreatment caseload high. Further sensitisation, training and involvement in the RNTCP of the private sector in Rajasthan are essential to prevent the creation of further retreatment cases.

## Acknowledgements

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## References

- 1 World Health Organization. WHO Report 2006. Global tuberculosis control: surveillance, planning, financing. WHO/HTM/TB/2006.362. Geneva, Switzerland: WHO, 2006.
- 2 Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India. TB India 2005: RNTCP status report. Frontline TB care providers working towards freedom from TB. New Delhi, India: CTD, 2005.
- 3 Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India. TB India 2006 RNTCP status report. New Delhi, India, CTD, 2006. <http://www.tbcindia.org> Accessed May 2006.
- 4 World Health Organization. Forty-fourth World Health Assembly. Resolutions and decisions. Resolution WHA 44.8. WHA44/1991/REC/1. Geneva, Switzerland: WHO, 1991.
- 5 Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India. Technical guidelines for tuberculosis control. New Delhi, India: CTD, 1997.
- 6 Khatri G R, Frieden T R. Controlling tuberculosis in India. *N Engl J Med* 2002; 347: 1420–1425.
- 7 Espinal, M. Time to abandon the standard re-treatment regimen with first-line drugs for failures of standard treatment. *Int J Tuberc Lung Dis* 2003; 7: 607–608.
- 8 Quy H T W, Lan N T N, Borgdorff M W, et al. Drug resistance among failure and relapse cases of tuberculosis: is the standard re-treatment regimen adequate? *Int J Tuberc Lung Dis* 2003; 7: 631–636.
- 9 Frieden T R. Can tuberculosis be controlled? *Int J Epidemiol* 2002; 31: 894–899.
- 10 Uplekar M. Involving private health care providers in delivery of TB care: global strategy. *Tuberculosis* 2003; 83: 156–164.
- 11 Prasad R, Nautiyal R G, Mukherji P K, Jain A, Singh K, Ahuja R C. Treatment of new pulmonary tuberculosis patients: what do allopathic doctors do in India? *Int J Tuberc Lung Dis* 2002; 6: 895–902.
- 12 Uplekar M, Juvekar S, Morankar S, Rangan S, Nunn P. Tuberculosis patients and practitioners in private clinics in India. *Int J Tuberc Lung Dis* 1998; 2: 324–329.
- 13 World Health Organization. The behaviour and interaction of TB patients and private for-profit health care providers in India: a review. WHO/TB/97.223. Geneva, Switzerland: WHO, 1997.
- 14 Murthy K J, Frieden T R, Yazdani A, Hreshikesh P. Public-private partnership in tuberculosis control: experience in Hyderabad, India. *Int J Tuberc Lung Dis* 2001; 5: 354–359.

- 15 Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India. Involvement of non-governmental organizations in the Revised National Tuberculosis Programme. New Delhi, India: CTD, 2001.
- 16 Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India. Involvement of private practitioners in the Revised National Tuberculosis Programme. New Delhi, India: CTD, 2002.
- 17 Tonsing J, Mandal P P. Medical colleges' involvement in the RNTCP: current status. *J Indian Med Assoc* 2003; 101: 164-166.
- 18 Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India. Technical and operational guidelines for tuberculosis control. New Delhi, India: CTD, 2005.
- 19 Balasubramanian R. Fully intermittent six month treatment regimen for pulmonary tuberculosis in south India. *Indian J Tuberc* 1991; 38: 51-53.

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## R É S U M É

**CONTEXTE :** Dans l'Etat de Rajasthan au Nord de l'Inde, 3 ans après une couverture de l'ensemble de l'Etat par le DOTS et après la réalisation des objectifs globaux pour la détection et la guérison, la proportion de cas de retraitement à bacilloscopie positive reste élevée.

**OBJECTIF :** Déterminer la source, la précision de la répartition des cas et les résultats du traitement dans des cas de retraitement à bacilloscopie positive et de Catégorie II enregistrés entre janvier et mars 2003 dans cinq districts du Rajasthan.

**MATERIEL ET METHODES :** On a identifié 200 cas consécutifs de retraitement à bacilloscopie positive et de Catégorie II dans les registres tuberculose et on les a interrogés en utilisant un questionnaire semi-structuré.

**RÉSULTATS :** La catégorisation a été correcte dans 195 (97,5%) des cas de retraitement interviewés. Le traite-

ment après abandon (TAD) représentait 84,6% (165/195) des interviewés, les rechutes 13,3% ( $n = 26$ ) et les échecs 2,1% ( $n = 4$ ). Parmi les cas de TAD, 84,8% ( $n = 140$ ) avaient abandonné un traitement antérieur dans le secteur privé. Seulement 6,1% ( $n = 10$ ) avaient abandonné le traitement DOTS de Catégorie II. Le résultat de traitement le plus défavorable observé parmi les interviewés a été l'abandon, comme décrit également dans les données nationales.

**CONCLUSION :** Les TAD constituent la majorité des cas de retraitement interviewés (84,6%) et ont été générés de façon massive par un traitement irrégulier dans le secteur privé. Une implication ultérieure du secteur privé dans le programme DOTS du Rajasthan est indispensable pour arrêter le développement de futurs cas de retraitement.

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## R E S U M E N

**MARCO DE REFERENCIA :** En el estado nórdico de Rajasthan en la India, la proporción de casos bacilíferos en retratamiento sigue siendo alta, 3 años después de la cobertura a escala estatal con la estrategia DOTS y del logro de las metas globales de detección y curación.

**OBJETIVO :** Determinar el origen, la precisión de la categorización y el desenlace terapéutico de los casos bacilíferos de segunda categoría en retratamiento registrados entre enero y marzo de 2003 en cinco distritos de Rajasthan.

**MATERIAL Y MÉTODOS :** Se escogieron 200 casos consecutivos bacilíferos de Categoría II en retratamiento, a partir del registro de tuberculosis y se entrevistaron mediante un cuestionario semiestructurado.

**RESULTADOS :** En los casos de retratamiento entrevistados, la categorización fue correcta en 195 (97,5%) ; el

84,6% ( $n = 165$ ) correspondió a casos de tratamiento tras abandono ; el 13,3% ( $n = 26$ ) a recaídas y el 2,1% ( $n = 4$ ) a fracasos. De los casos posteriores a abandono, el 84,8% ( $n = 140$ ) había abandonado un tratamiento previo en el sector privado. Sólo un 6,1% ( $n = 10$ ) había abandonado un tratamiento DOTS de Categoría II. El desenlace terapéutico más desfavorable observado en los entrevistados fue el abandono, como se describe también en los datos nacionales.

**CONCLUSIÓN :** La mayor parte de los casos en retratamiento entrevistados correspondió a casos de retratamiento tras abandono (84,6%) y en su gran mayoría provenía de un tratamiento irregular recibido en el sector privado. Se requiere mayor participación del sector privado en el programa DOTS en Rajasthan, a fin de evitar la creación de más casos de retratamiento.

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