pISSN: 0976 3325 eISSN: 2229 6816

Original Article

SOURCE OF LATEST ANTI-TB TREATMENT AMONGST RE-TREATMENT TB CASES REGISTERED UNDER RNTCP IN GUJARAT

P Dave[1], K Rade[2], KR Pujara[3], R Solanki[4], B Modi[5], PG Patel[6], P Nimavat[7]

[1]Additional Director (Public health), [2]WHO-RNTCP Consultant, Office of Joint Director-TB, [3]CMO-TB, State TB Cell (RNTCP), Commissionerate of Health, Dr. Jivraj Mehta Bhavan, Gandhinagar, Gujarat [4]Professor, Department of Pulmonary Medicine, B.J. Medical College, Ahmedabad, Gujarat. [5]Assistant Professor, Department of PSM, Government Medical College, Rajkot, Gujarat [6]Director, STDC, [7]MO, STDC, Civil Hospital Campus, Ahmedabad, Gujarat

Correspondence:
Dr. Rajesh Solanki,
Professor, Department of Pulmonary Medicine, B.J. Medical College, Ahmedabad - 380016, Gujarat
Email ID: rns04sec@yahoo.co.in Phone: 079-22681033 Mobile: 09825319344

ABSTRACT

Introduction: Despite sustained performance in case detection and success rate under Revised National TB Control Programme for >5 years, higher proportion of re-treatment cases has been observed amongst smear positive cases in Gujarat.
Objective: To find out the source of re-treatment TB cases registered for treatment under DOTS under RNTCP to indirectly estimate role of private sector in treating TB patients.
Methods: Cross-sectional study. Review of records and reports & data from TB treatment cards was compiled and analyzed (Secondary data source)
Results: Proportion of re-treatment cases having latest type of anti-TB treatment under DOTS were 63% as compared to 37% of non-DOTS regimens. Amongst those who had received DOTS as latest treatment re-treatment registration as relapse was highest with 58% while it was Treatment After default with 44% as highest proportion amongst those with non-DOTS as latest anti-TB regimens. There was high correlation between the type of registration of re-treatment in the year 2010 and the outcomes reposted for year 2009 cohorts under DOTS for treatment after default and failures. There is a definite negative correlation between ratio of DOTS : non-DOTS as latest regimen history amongst the re-treatment TB cases registered and the New Smear Positive TB case registrations.
Conclusion: Though RNTCP has achieved programme objectives at state level since more than 5 years in Gujarat, there exists a huge case load of Tuberculosis in private sector. Higher proportion of relapse registrations from DOTS sources can be attributed to high number of patients successfully treated on previous occasions. Default still is the major concern in non-DOTS regimens.

Keywords: DOTS, RNTCP, private sector, source of anti-TB treatment

INTRODUCTION

Tuberculosis is a communicable disease with highest burden in India comprising more than 5th of global disease burden i.e. 1.98 million out of 9.4 million new cases annually. In India, more than 40% of population is infected (prevalence of infection) with Mycobacterium tuberculosis the most important causative agent for the disease. It is estimated that there are 3.3 million prevalent case of all forms of TB disease (smear positive PTB, smear negative PTB and Extra-Pulmonary TB). It is also estimated that about 2,76,000 people die due to TB annually in India (mortality).[1] Approximately 75 new smear positive PTB cases (incident cases) occur per lakh population per year nationally based on national survey on Annual Risk Tuberculosis Infection (ARTI) while in west zone which

includes Gujarat state around 80 new smear positive TB cases expected per lakh population. As a policy for TB control National TB Programme in India implemented for three decades from 1962 to 1992 was reviewed during 1992.[2] DOTS strategy was piloted in India including a site at Mehsana in Gujarat and was accepted and implemented as Revised National TB Control Programme since 1997. Gujarat achieved state-wide coverage for DOTS implementation in 2004 and has achieved twin objectives of case detection of atleast 70% of the smear positive pulmonary TB cases and success rate of atleast 85% amongst such patients with treatment of DOTS. However proportion of re-treatment smear positive pulmonary TB cases out of all smear positive TB cases registered for treatment under RNTCP has remained on higher side in Gujarat as compared to the national average.

OBJECTIVES

To find out the source of re-treatment TB cases registered for treatment under DOTS under RNTCP to indirectly estimate role of private sector in treating TB patients.

MATERIALS & METHODS

A Cross-sectional study was carried out through review of records, TB treatment card of all re-treatment TB cases registered in the year 2010 (from 1st January 2010 till 31st December 2010) under Revised National TB Control Programme in the state of Gujarat. Initially all 30 District TB Officers through out Gujarat were trained in ensuring correct recording and reporting of source of previous (including latest) anti-treatment for all TB patients registered for treatment under RNTCP in the districts. DTOs further carried out sensitizations of the Medical Officers to write correct source of latest anti-TB treatment. All 134 Senior Treatment Supervisors (STS) in the state were sensitized to confirm that the previous source of treatment in all registered re-treatment TB cases were is recorded in the treatment cards and if not they made patient home visit and noted the same compiled at TU level on quarterly basis in the given format. It was further compiled at the district level and state level on quarterly basis.

The data was entered in MS-Excel and also the number of TB cases and outcomes of the cohorts of patients registered in 2009 were also entered per district and data was analysed at state level to estimate the contributions from different sectors. Win-PEPI software was used for statistical tests. Since 2005 on an average 80,000 TB patients are registered for treatment under RNCP annually which includes around 5-6 thousands treated by private sector under RNTCP.[3] However there is still a considerable number of TB patients which are treated in private sector outside RNTCP and quite a few remain undiagnosed and untreated. But reliable source of information for all such TB patients treated outside RNTCP do not exist. Some guesstimates are made based on the pharmaceuticals sales but these may not be converted in number of patients due to variety of practices and differences across the state in terms of regimens, duration, adherence & compliance, availability and affordability etc. So, this study indirectly estimates the proportion of burden catered by private sector outside RNTCP using the estimate of disease prevalence and notification rate under RNTCP, proportion of private sector contribution in TB treatment under RNTCP and correlating it with the cross-sectional data review of private sector proportion as a source of latest h/o anti-TB treatment amongst the re-treatment TB cases registered for cat II treatment under RNTCP and regressing with concerned independent variables and normal probability of this proportion in the model.

RESULTS & DISCUSSIONS

A total of 22,573 TB cases were registered as re-treatment cases under DOTS in RNTCP cat II regimen in 2010 in Gujarat. Source of latest previous anti-TB treatment episode could not be ascertained in 39 cases and were included in 'other sources'. The logical construct and conceptual framework of the study analysis is based on certain assumptions (tested as facts for strength of association using correlation). There was high correlation between the type of registration of re-treatment in the year 2010 and the outcomes reposted for year 2009 cohorts under DOTS for treatment after default and failures (Pearson's correlation coefficient 0.843 & 0.871 respectively). There is a definite negative correlation between ratio of DOTS : non-DOTS as latest regimen history amongst the re-treatment TB cases registered and the New Smear Positive TB case registrations (Pearson's

correlation coefficient - 0.321 respectively). Proportion of re-treatment cases having latest type of anti-TB treatment under DOTS were 63% as compared to 37% of non-DOTS regimens. Amongst re-treatment registration as relapse proportion of h/o DOTS as latest regimen was highest (58%) while amongst Treatment After defaults latest h/o non-DOTS regimen was highest (44%). Difference between h/o DOTS & non-DOTS as the latest regimen amongst different types of re-treatment TB cases was statistically significant.

Table 1: H/O DOTS & non-DOTS in different types of re-treatment TB cases registered under RNTCP cat II regimen in Gujarat in 2010

Type of re-treatment cases	h/o DOTS	h/o non-DOTS	Total
Relapse	8205 (57.9%)	1343 (16%)	9548 (42.3%)
Treatment After Default	2449 (17.3%)	3691 (44%)	6140 (27.2%)
Treatment After Failure	875 (6.2%)	36 (0.4%)	911 (4%)
Others re-treatment	2641 (18.6%)	3333 (39.7%)	5974 (26.5%)
Total	14170 (100%)	8403 (100%)	22573 (100%)

Chi-square tests (DF = 3): Pearson chi-sq.= 4881 P < 0.001

Table 2: Source of previous treatment in different types of re-treatment TB cases registered under RNTCP cat II regimen in Gujarat in 2010

Type of re-treatment cases	General Health Service	Medical Colleges	NGOs	ESI health facilities	Private sector	Other / unknown	Total
Relapse	8145 (58.1%)	79 (22.2%)	335 (30.3%)	30 (21.3%)	852 (13.1%)	107 (24.1%)	9548 (42.3%)
Treatment After Default	2354 (16.8%)	137 38.5%)	403 (36.5%)	48 (34%)	3034 (46.7%)	164 (36.9%)	6140 (27.2%)
Treatment After Failure	867 (6.2%)	8 (2.2%)	4 (0.4%)	2 (1.4%)	29 (0.4%)	1 (0.2%)	911 (4%)
Others re-treatment	2664 (19%)	132 (37.1)	362 (32.8%)	61 (43.3%)	2583 (39.8%)	172 (38.7%)	5974 (26.5%)
Total	14030 (100%)	356 (100%)	1104 (100%)	141 (100%)	6498 (100%)	444 (100%)	22573 (100%)

Chi-square tests (DF = 15): Pearson chi-sq.= 5018 P < 0.001

Source of previous treatment from General Heath service facilitates had highest registrations as Relapse (58%) while the source of Private sector had highest proportion of Treatment After Default (46%) under re-treatment registration. Proportion of Treatment After Failures as type of registration amongst re-treatment cases was least in all sources of previous treatment averaging 4% but was negligible in all others sources except in general health service facilities which can be attributed to comparatively stronger follow up system with bacteriology in RNTCP.

Source of previous treatment gives the fair idea about current (or recent) practices in different sectors. Almost 1/3rd of cat II registrations are ailing form private sector as previous treatment and the difference amongst all sources for practice of DOTS differ significantly and is highest in general health system facilities as expected to be around 95% but is least (6%) in private sector. This also is comparable with 6-8% of the proportion of all TB patients treated under RNTCP by private sector.[4,5,6]

Also important sources such as medical colleges seem to catch up with DOTS implementation over a period and 1/3rd of non-DOTS may be attributed to uninvolved specialties, special needs of drug resistant cases etc which are usually expected to be in much higher proportion amongst cohorts of TB patients at medical colleges.

Table 3: Source of previous treatment tabulated by latest type of regimen amongst re-treatment TB cases registered under RNTCP cat II regimen in Gujarat in 2010

Latest h/o previous treatment	Govt. Health Service	Medical Colleges	NGOs	ESI health facilities	Private sector	Other / unknown*	Total
DOTS	13253 (94.5%)	221 (62.1%)	215 (19.5%)	45 (31.9%)	401 (6.2%)	35 (7.9%)	14170 (62.8%)
non-DOTS	777 (5.5%)	135 (37.9%)	889 (80.5%)	96 (68.1%)	6097 (93.8%)	409 (92.1%)	8403 (37.2%)
Total	14030 (100%)	356 (100%)	1104 (100%)	141 (100%)	6498 (100%)	444 (100%)	22573 (100%)
Percentage across all sources	62.2%	1.6%	4.9%	0.6%	28.8%	2.0%	100.0%

Chi-square tests (DF = 5): Pearson chi-sq.= 16453 P < 0.001

Table 4: Linear regression (ANOVA): Dependent variable-'Proportion of patients with latest h/o treatment from Private sector' out of all re-treatment TB cases registered under RNTCP cat II regimen in Gujarat in 2010

Variables	P-value
Intercept (independent variables)	
Proportion of patients treated by Private sector under RNTCP DOTS (year 2010)	0.24
Ratio of DOTS : non-DOTS history of anti-TB treatment amongst registered re-treatment cases	0.01
Proportion of re-treatment out of all smear positive pulmonary TB cases	<0.001
NSP defaulted 2009 cohort	0.45
NSP failed 2009 cohort	0.52

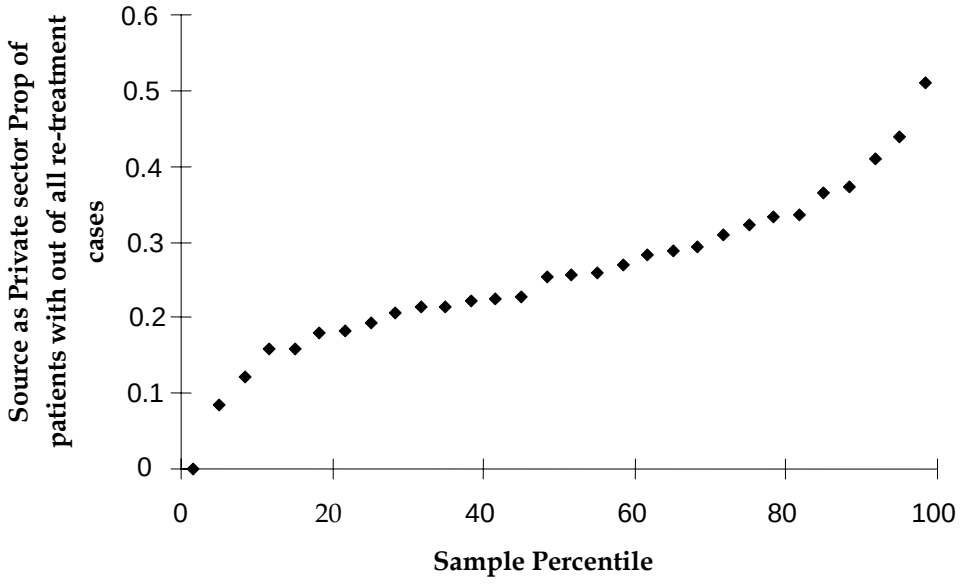

Figure 1: Normal probability Plot of the dependent variable: Proportion of patients with latest h/o treatment from Private sector out of all re-treatment TB cases registered under RNTCP cat II regimen in Gujarat in 2010

High proportion of cases were treated by NGOs and ESI health facilities using non-DOTS regimens to the tune of 80% & 68% even when RNTCP has devised and revised schemes for NGOs for implementation of DOTS on one side and DOTS is a national policy more than a decade old for implementation by ESI health facilities. Linear regression model suggest

Dependent variable - (Proportion of patients with latest h/o treatment from Private sector out of all re-treatment TB cases registered under RNTCP cat II regimen) is statistically significantly dependent on at least two important variables for the RNTCP districts; viz: 'Proportion of re-treatment out of all smear positive pulmonary TB cases' which is one of the important monitoring indicators in RNTCP. And secondly 'Ratio of DOTS : non-DOTS history of anti-TB treatment amongst registered re-treatment cases' more importantly with negative (coefficient) relation in equation implying that chances private sector landing up as re-treatment case in RNTCP decrease with overall increase in DOTS : non-DOTS ratio amongst re-treatment. Normal Probability Plot suggests that 90 percentile of the observations for districts for Proportion of patients with latest h/o treatment from Private sector out of all re-treatment TB cases registered under RNTCP cat II regimen assumes the value around 0.4, thereby meaning the proportion of private sector is can be estimated at around 40% in Gujarat, which is comparable with similar estimation by NFHS-3.[7, 8]

CONCLUSION & RECOMMENDATIONS

This study showed that despite high case detection rate of >75%, still there is huge private sector yet to be covered under RNTCP DOTS strategy in Gujarat catering up to 40% of total case load. IMA-GFATM-PPM Project may be a good platform to consolidate involvement of Private practitioners in the state to accept and implement DOTS. Also all NGOs treating TB cases need to fully involve in RNTCP through different schemes under programme for implementation of DOTS strategy. ESI being the government body must take up the matter on priority basis to fully implement DOTS strategy in the sector.

ACKNOWLEDGEMENT

Authors are thankful to all Districts TB Officers & RNTCP - Senior Treatment Supervisors of Gujarat who promptly reported and monitored data collection on a regular basis and all Medical Officers of Gujarat who meticulously extracted and recorded history of previous anti-TB treatment all re-treatment TB cases registered in year 2010.

REFERENCES

1. Managing the Revised National Tuberculosis Control Programme in your area, Training course module 1-4, Central TB Division, New Delhi, April 2005. 19
2. RNTCP Training Module for private practitioners, Central TB Division, New Delhi, June 2006. 3
3. TB Gujarat, Annual status report -2010, State TB Cell, Gandhinagar, Gujarat, March 2010.
4. Vineet Bhatia, Enhancing private sector contribution to TB Care in India, January 2010
5. Mukund Uplekar, Gender and Tuberculosis Control: Towards a Strategy for Research and Action, WHO/CDS/TB/2000.280
6. Dilip Malvankar, How many rupees worth of medicine does one need? Comparison of medicine budgets in PHCs and expenditure on medicines for government employees. IIM Ahmedabad, W.P.No.99-01-03 January 1999.
7. Private sector in health care delivery in India, Report of National Macroeconomics and health. 2005.
8. Revised schemes for NGOs and private Providers, Central, TB Division, New Delhi, August 2008.