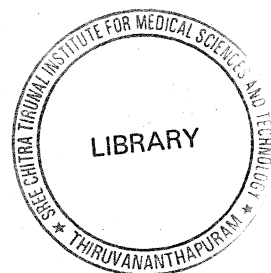


**Survey of knowledge, attitude and practices for Tuberculosis
and RNTCP among private practitioners in Hooghly, West
Bengal, India, 2008.**

BY

Kisalay Datta

(MAE – FETP Scholar, 2007-2008)



**DISSERTATION PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF MASTER
OF APPLIED EPIDEMIOLOGY (M.A.E.)
OF**

**SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND
TECHNOLOGY, THIRUVANANTHAPURAM – 695011, INDIA**

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AYAPAKKAM, CHENNAI-77, INDIA

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DECEMBER 2008

CERTIFICATION

This is to certify that this dissertation, entitled '**Survey of knowledge, attitude and practices for tuberculosis and RNTCP among private practitioners in Hooghly, West Bengal, India, 2008**', submitted by Dr. Kisalay Datta, in partial fulfillment of the requirements for the degree of Master of Applied Epidemiology, is the original work done by him .

Dated 31.1.08



Director

National Institute of Epidemiology

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Dated:

KISALAYDATTA

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Abbreviation

DALYs: Disability Adjusted Life Years

RNTCP: Revised National Tuberculosis Control Programme

PPs: private practitioners

TB: Tuberculosis

CME: Continuing Medical Education

IMA: Indian Medical Association

DMA: Delhi Medical Association

MoH: Ministry of Health

NIE: National institute of Epidemiology

ICMR: Indian Council of Medical Research

CTD: Central TB Division

GLTRA: German Leprosy TB Relief Association

PPM: Private Public Mix

DTC: District TB centre

DOTS: Directly observed treatment (short course chemotherapy)

DTO: District Tuberculosis Officer

MDR-TB: Multi-Drug Resistant TB

ACDR: Annualised case detection Rate

NSPCDR: New sputum case detection Rate

WHO: World Health Organization

SEARO: South East Asia Regional Office

Section- A

Dissertation

Abstract:

Introduction: India accounts for one fifth of global incidence of TB, two-thirds of the cases in South- East Asia. In Hooghly district of West Bengal, India, the new sputum smear positive and the total case detection rate are much less than the national and state average. Poor involvement of private practitioners (PPs) in the Revised National Tuberculosis Control Programme (RNTCP) may be one of the important causes of this problem. We studied the knowledge, attitudes and practices of private practitioners and the reasons for their non-involvement in RNTCP.

Methods: We conducted a cross-sectional analytical study among 260 allopathic private practitioners treating TB patients in Hooghly district. We used pre-designed pre-tested questionnaires. We compared various proportions using chi-square test.

Result: Only 29 (11%) private practitioners were involved in RNTCP in the district. 176 (68%) PPs preferred chest x-ray over sputum examination for diagnosis. 70 (27%) PPs prescribed alternate day regimen. 172(75%) PPs expressed no faith in RNTCP. 11% said that the incentives were inadequate, while 89% opined that maintenance of documents was too difficult. 98% PPs wanted appreciation by the government. 62% uninvolved PPs wanted to get involved in RNTCP if their suggestions could be implemented.

Conclusion and Recommendation: The knowledge and involvement of PPs in RNTCP in Hooghly district was very low. Regular training, CMEs, greater interaction with programme officers and adequate incentives in different PPM schemes, can improve involvement of PPs in the national programme for control of TB.

Key words: Tuberculosis, RNTCP, private practitioners

Introduction:

India accounts for one fifth of global incidence of tuberculosis (TB), two-thirds of total cases in South-East Asia and tops the list of 22 high burden countries.¹ There are more than 1.8 million new cases of TB in India every year and 3.8 million TB patients at any time.² TB is a major cause of mortality in India with more than 400,000 deaths every year.³ The Indian Revised National Tuberculosis Control Programme (RNTCP) began large-scale nationwide implementation of the World Health Organization's global TB control strategy in 1998 and by 2006, the programme was implemented in all the 633 districts of the country.⁴

In India, private practitioners (PPs) are widely distributed both in rural and urban areas.^{3,5} The private sector accounts for 82% of all out patient visits at the all India level, with no significant variations by income group.^{6,7} Suspected TB patients also first approach private sector. Private practitioners in India treat over half of the TB cases. TB patients detected and treated in private sector are often not notified to public authorities and therefore not recorded in official statistics.^{3,5} For the RNTCP to broaden its reach and have maximal impact, the involvement of private practitioners in the programme assume great importance. Several studies in India and elsewhere have convincingly showed that involvement of PPs in RNTCP is associated with improved the case notification and good treatment outcomes.^{3,4} However, in many parts of India, the private sector has

still remained alienated from DOTS implementation. As a result, case detection has remained low in many of these regions. Few studies also have reported a gross lack of knowledge of PPs about diagnosis and treatment. Case management practices in the private sector overly rely on X-ray for diagnosis as well as monitoring of treatment, and the use of sputum microscopy is low, ranging between 12 and 50%. Treatment of TB patients is often based on unproved and untested regimens.⁸

In Hooghly district of Indian state of West Bengal, RNTCP was started as a pilot project in 1995 covering a population of 0.45 million. In spite of the adequate infrastructure and programme being in place for more than 13 years, the district is still lagging behind in achieving the case detection objective. During 2006, the new sputum smear positive and the total case detection rates in the district were 47/100,000 and 111/100,000 respectively as against the target of 53/100,000 and 142/100,000 population. These rates were also lower than state figures of 65/100,000 and 137/100,000 population.⁹ PPM project is still in its initial phase in the district and poor involvement of PPs could be one of the important reasons for low case detection.

With this background, we conducted a study among PPs in Hooghly district to (1) assess their knowledge, attitudes and practices about diagnosis and management of tuberculosis and RNTCP (2) estimate their involvement in RNTCP and know the reasons for non-involvement.

Methods:

Study population: We conducted a cross-sectional analytical study covering all the 695 allopathic physicians in Hooghly registered with the district branch of Indian Medical Association (IMA) during May and December 2008. Private practitioners of other systems of Indian medicine were excluded.

Sample size and sampling procedure: Assuming 50% of private practitioners (PPs) had adequate knowledge towards RNTCP, $\pm 5\%$ of the confidence interval, 95% confidence co-efficient and non-response level of 5% we calculated the sample size as 260. We randomly selected 260 private practitioners from the list of registered allopathic physicians in the district.

Data collection: With the help of District TB officer (DTO), consultant of German Leprosy and TB Relief Association and district IMA officials, we organized three Continuing Medical Education (CME) programmes at Chinsurah, the district headquarter, Arambag sub-division and Serampur sub-division. We invited the randomly sampled PPs to attend these CME programmes. We used a self-administered, pre-tested, structured questionnaire to collect the data. The questionnaire had two parts: the first part covered information regarding training received under RNTCP, investigations prescribed for diagnosis of TB, treatment regimens used including provision of treatment under supervision and health

education given to the TB patients. The second part sought information about their involvement in RNTCP, reasons for non-involvement and recommendations for involving the PPs in the programme.

Operational definition: We considered a PP as involved in RNTCP if he/she was officially registered in any of the five schemes of the programme and was practicing according to programme guidelines.¹⁰

Human subject protection: The study protocol was approved by the institutional ethics committee of National Institute of Epidemiology, Chennai. We obtained written informed consent from all the PPs before administering the questionnaire. Participation of the PPs was voluntary.

Data analysis: We analyzed the data using Epi-Info software (version 3.3.2). We calculated the proportions of different variables. We compared the proportion of involved and uninvolved PPs according to knowledge and practice parameters using chi-square test. We considered statistical significance at $p\text{-value} < 0.05$.

Results:

Out of the 260 PPs selected, 174 (67%) attended the CME while the rest were contacted in their clinics. All the PPs completed the questionnaire.

General characteristics: Of the total PPs interviewed, 184 (71%) were males, 194 (75%) were in the age group of 30-50 years, 134 (51%) were practicing for less than five years and 136 (52%) had post-graduate medical qualifications. Two hundred forty two (93%) PPs were seeing TB patients on a regular basis (Table-1).

Knowledge about DOTS: Fifty-seven (22%) PPs had attended modular training on RNTCP while 198 (76%) PPs were sensitized in different workshops. Seventy (27%) PPs said that DOTS was based on scientific evidence and was adequate for treating pulmonary and extra-pulmonary TB patients (Table-2).

Practices regarding management of TB patients: 176 (68%) PPs preferred chest x-ray for diagnosis of pulmonary TB, 45 (17%) preferred sputum examination whereas 23 (9%) preferred both for investigation of a suspected pulmonary TB patient. 49 (19%) believed that sputum test is more reliable than chest x-ray. 45 (17%) informed that they referred TB suspects to government hospital for diagnosis. Out of all the PPs, 190 (73%) preferred daily regimen for treating their TB patients. All were using different combinations of two or more of the five first-line drugs, namely streptomycin, isoniazide, rifampicine, ethambutol and pyrazinamide. Only 55 (21%) were using five-drug regimen. 70 (27%) PPs believed that anti-tuberculosis drugs can be given intermittently and that such regimen was better than daily regimen, considering its cost, side effects and ease of administration. Majority of the PPs (236, 91%) informed that they would

advise chest x-ray while the rest preferred sputum test for monitoring the treatment of TB patients.

PPs advised TB patients about covering mouth while coughing and maintaining good hygiene (38%), taking the treatment regularly (17%), not smoking during treatment (17%), good diet (21%) and safe disposal of sputum (12%). Only 34(13%) PPs advised sputum positive patients to take special care of children below 6 years who come in their contact and to take INH chemoprophylaxis (Table-2).

Involvement in RNTCP: Only 29 (11%) PPs were officially registered in the scheme-1 of RNTCP. As per the scheme, PPs referred TB suspects to public health facilities for diagnosis. Significantly higher proportion of involved PPs were sensitized about the programme and attended CME programmes conducted by IMA. Significantly higher proportions of uninvolved PPs were using chest x-ray for monitoring their TB patients. Higher proportion of involved PPs had knowledge about investigation of suspected patients as well as treatment regimen as prescribed in RNTCP. This difference was not statistically significant (Table- 3).

Reason for non- involvement in RNTCP: The common reasons cited by 231 PPs for their non-involvement in the national programme included supervision by government machineries not acceptable (91%), difficulty in maintaining

documents of TB patients (89%), increase in workload if involved in RNTCP (79%) and no faith on government health system (75%) and Un-involved PPs also felt that they would loose non-TB patients attending their clinics (92%) or money (20%) while 40% felt that the quality of TB drugs given under the programme is not good. 83% informed that nobody from the programme approached them to get involved (Table-4).

Suggested recommendations to increase involvement of PPs: 62% of the un-involved PPs were willing to get involved in RNTCP. Un-involved PPs opined that involvement could be increased by regular interaction with DTO and key programme functionaries (98%), recognition or appreciation by government (98%) and provision of exclusive staff for PPM project (87%). Only 13% mentioned about timely payment to involved PPs under different RNTCP schemes (Table-5).

Discussion:

Involvement of PPs in TB control programme plays a crucial role in increasing case detection and improving treatment outcomes. Since a large proportion of TB patients in India is first seen by PPs and are treated by them, TB control programme in a given area cannot achieve a major success unless public-private mix is a success.¹¹ The findings of our study indicated that in Hooghly district, the involvement of private sector was minimal. Their knowledge about RNTCP was inadequate. They over-relied on x-rays for diagnosis of tuberculosis as well as

treatment monitoring. Most of them were using daily regimen for treating the TB patients while very few prescribed five-drug regimen. Only one fourth of PPs attended a modular training programme in RNTCP. It is therefore necessary to increase awareness of the PPs about RNTCP and make efforts to involve them in the programme in order to have maximal impact on TB control in the district.¹²⁻

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RNTCP recommends examination of three sputum samples for diagnosis of TB. Patients on treatment need to be monitored by sputum examination at the end of intensive and continuation phase of the treatment.¹ In Hooghly, two thirds of PPs stated that X-ray was their preferred investigation for diagnosis while only one fourth appreciated the importance of three sputum examinations. Even for monitoring of TB patients on treatment, most of the PPs preferred X-rays. Except for a study conducted in New Delhi, most of the studies conducted in India reported the over-reliance of PPs on x-rays.^{13, 14, 22} The excessive use of x-rays in Hooghly district could either be due to lack of awareness among the practitioners or lack of faith in the results of sputum examination in local laboratories.

Supervised, intermittent treatment is well established in the treatment of TB under the programme.¹³ Majority of the PPs in the district prescribed daily regimen and used different combinations of the five first-line drugs. Similar findings were reported by various studies conducted in India.^{13, 15, 22} A study in Maharashtra reported that many PPs prescribed inappropriate TB drugs and they were not providing supervised treatment²⁰. A study conducted in Delhi found only

29% of the PPs were using the regimen recommended by the RNTCP and only 8% knew the correct dosage combination of anti-tubercular treatment.¹³ A study in Maharashtra also showed that 100 private practitioners prescribed 80 different regimens, most of which were both inappropriate and expensive²⁰. It also seen in a study conducted in New Delhi.¹³ Incorrect regimen and indiscriminate use of anti-TB drugs could lead to drug resistance.²³ Use of daily regimen also increases the cost of treatment and chances of adverse effects and reduces the compliance of patients as against the intermittent regimen.¹³

Very small proportion of PPs in Hooghly was involved in RNTCP. The knowledge about investigation of suspected patients as well as treatment regimen was not different among involved and un-involved PPs. This could possibly be due to two reasons. Firstly, all of the involved practitioners were registered in scheme-1 of RNTCP in which PPs refer suspected TB patients to designated microscopy centers for diagnosis. Secondly, only a small proportion of involved PPs were trained in RNTCP, however, as per RNTCP guidelines, PPs have to undergo a two-day modular training after getting involved. It is thus necessary to make organized efforts to increase the awareness of PPs about RNTCP.

The low new sputum positive and annualized case-detection rates in the district could be on account of the low involvement of PPs. The commonest reasons cited by PPs for their non-involvement was related to their faith in the government health system and their apprehension that the work load would

increase. Many PPs also felt that non-TB patients would not attend their clinics if they come to know that TB patients are being treated in their clinics. Involving PPs in the programme is a challenge in the district and programme managers need to make a sustained effort towards involving them. They need to build a mutual trust with the PPs, educate them about different schemes of programme and clarify their doubts in order to increase their participation in the programme. Several PPs suggested that such a trust could be built by frequent contact by DTO and other key programme functionaries. A large proportion of PPs in the district wanted to be a part of RNTCP. This willingness could be utilized properly for building public private partnership for control of tuberculosis in Hooghly. Their involvement in the programme would also increase their awareness about recommended investigations for diagnosis of cases and their appropriate management.

Several public private mix (PPM) projects conducted in India and elsewhere have revealed that involvement of PPs in TB control is possible.^{4, 12-21, 26-29} All three stakeholders' i.e. patients, PPs and programme managers gain by this collaboration. The patient gains by a more definitive diagnosis, receiving correct treatment, free drugs at a place of their choice and better follow-up. PPs gain by improving their knowledge and skills, not only in TB control but possibly in other diseases as well. The programme manager's main gain is an increase in case detection under the DOTS strategy, enhancing the possibility of achieving the

targets set under the RNTCP. However, sustained efforts and committed programme managers is the key for a successful PPM project.

The main limitation of our study was that we used self administered questionnaire to collect data regarding knowledge, attitude and practices of PPs and their involvement in RNTCP. Though we could not validate their responses about their knowledge, attitude and practices in RNTCP, information about their involvement was cross checked with the RNTCP records. Before the CME, we informed about the objective of our survey and ensured their confidentiality.

In conclusion, the involvement of PPs in RNTCP in Hooghly district was low. Their knowledge about use of sputum microscopy for diagnosis of TB as well treatment monitoring as well as treatment regimen was inadequate. Based on these findings we can propose certain recommendations for increasing awareness about RNTCP among the PPs as well as involving them in the programme. First, organized efforts are needed to increase the awareness of PPs about RNTCP. Second, in order to increase the involvement of PPs in the programme, DTO need to maintain regular contact with them, explain about different schemes of the programme and remove the apprehension that their involvement will increase their workload. Deploying exclusive staff and developing partnership with local NGOs would also help to increase the involvement of PPs in the programme.

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Table-1: General characteristics of the private practitioners (n=260) in Hooghly district, West Bengal, India, 2008

General characteristics	n	%
Age		
<30 yrs	11	4
30-50 yrs	194	75
>50 yrs	55	21
Sex		
Male	184	71
Female	76	29
Practicing experience (yrs)		
<5	134	51
5-10	66	26
>10	60	23
Educational qualifications		
MBBS	124	48
MBBS with post-graduate diploma	58	22
MBBS with post-graduate degree	76	29
MBBS with super-specialization	2	1

Table 2: Knowledge, attitude and practices of private practitioners (n=260) about TB and RNTCP, Hooghly, West Bengal, India, 2008

Knowledge, attitude and practices	#	%
Training and sensitization about DOTS		
Underwent modular training in RNTCP	57	21
Attended RNTCP sensitization workshops	198	76
Academic knowledge by literature or journal review	167	64
Knowledge about DOTS		
DOTS is based on scientific evidence	70	27
DOTS drug regimen is adequate for pulmonary and extra-pulmonary TB	70	27
DOTS is cost-effective, has less side effects and easy to administer	70	27
Alternate day regimen has same efficacy as daily regimen	70	27
Three samples of initial sputum test necessary	68	26
Attitudes about DOTS		
PPs were officially registered in the scheme-1 of RNTCP	29	11
Timing of DOTS is not convenient for TB patient	224	86
Treating TB patients is more popular in private sector	242	93
Quality of TB medicine supplied in the programme is not good	104	40
Preferred investigation for diagnosis of TB		
Chest x-ray alone	176	68

Sputum examination	45	17
Both sputum test and chest x-ray	23	9
No preference	16	6
Referred TB cases to Govt. sector	45	17
Sputum test is more reliable for diagnosis	49	19
Treatment of TB patients		
Treats TB patients regularly	242	93
Prescribe daily regimen	190	73
Treatment regimen followed		
1. INH+ Rifampicine	103	40
2. INH+ Rifampicine+Pyrazinamide	87	33
3. INH+ Rifampicine+ Ethambutol	15	6
4. INH + Rifampicine+ PZA+ Ethambutol+ streptomycin	55	21
Treatment monitoring		
Monitoring of patients by sputum test	24	9
Monitoring of patients by chest x-ray	236	91
Health education of TB patients		
Covering the mouth while coughing	98	38
Regarding good hygiene	99	38
Good diet	55	21

Regular treatment	45	17
Not smoking during treatment	45	17
Proper and safe sputum disposal	30	12
Not taking alcohol during treatment	23	9
Chemo-prophylaxis of contacts below 6 years of age	34	13

Table-3: Knowledge of PPs about TB and RNTCP according to involvement in Scheme 1 of RNTCP, Hooghly, West Bengal, India, 2008

Characteristics	Frequency of characteristics				Chi square	P-value
	Among involved (n=29)		Among uninvolved (n=231)			
	#	%	#	%		
Trained in RNTCP	5	17	52	23	0.16	0.68
Sensitized in RNTCP	29	100	169	76	8.79	<0.00
Knowledge of DOTS	10	35	58	25	0.73	0.39
Attended CME programmes organized by IMA	5	17	40	19	35.74	<0.00
Three sputum samples necessary for diagnosis	10	35	58	25	0.73	0.39
Preferred chest x-ray for diagnosis	24	83	152	66	2.66	0.10
Prescribing daily regimen	25	86	165	71	2.15	0.14
Monitoring of patients on treatment by chest X-ray	5	17	231	100	200.85	<0.00

Table-4: Reason for non-involvement of private practitioners in RNTCP (n=231), Hooghly, West Bengal, India, 2008

Reasons for non- involvement	#	%
Will loose non-TB patients if officially involved in RNTCP	212	92
No supervision by Govt. machineries is acceptable	210	91
Maintaining documents of TB patients is a problem	205	89
No one approached for involvement	192	83
PPs will have to be answerable to the Govt health system	182	79
Workload will be more if get involved in RNTCP	182	79
No faith on the government health system	172	75
De-motivation because no. of patients will come down if get involved in RNTCP	121	52
Will loose money if officially in RNTCP	45	20
Health staff do not visit	29	13
Incentives in different schemes is inadequate	25	11

Table-5: Suggestions of uninvolved private practitioners (n=231) for their better participation and future involvement in RNTCP, Hooghly, West Bengal, India, 2008

Suggested recommendations	#	%
Recognition or appreciation by the Govt. sector	227	98
IMA-Govt. collaboration is necessary for better pursuance	227	98
Frequent contact with DTO and key persons of RNTCP to increase mutual trust	227	98
Exclusive staff for PPM project for better implementation	200	87
Timely and automatic payment to private practitioners in different schemes	30	13
Regular CME by IMA	28	12
Willing to get involved in RNTCP in future	144	62

APPENDIX

1. Data collection instruments
2. Patient information sheet and Informed consent form

1. Data collection instruments

'Data Collection instrument' for Prevalence of knowledge, attitude and practices of private practitioners in RNTCP, Hooghly, West Bengal, India, 2008

Form-A:

Identification particulars of the Private Practitioners:

Name:	Serial number:
Address:	Affiliation:
Phone No: Residence No (Land): Mobile no:	Remarks:

Name of the Private Practitioner

Signature of Private Practitioner

Name of interviewer

Signature of interviewer

Form-B:**Interview schedule of Private Practitioners:**

1. Serial Number	
Demographic and educational details	
2. Sex 1. Male 2. Female	3. Age in years 1. <30 Years 2. (30- 50) Years 3. >50 Years
4. Qualification	1. MBBS 2. MBBS with Diploma 3. MBBS with Degree 4. MBBS with super-specialization
5. How long have you been Practicing?	1. <5 years 2. 5-10 years 3. > 10 years
Training, Sensitization and Recognition	
6. Did you get any type of RNTCP training? If trained How many times	1. Yes 2. No
7. Is this was modular training?	1. Yes 2. No
8. Did you ever attend any sensitization Workshop in RNTCP?	1. Yes 2. No
9. Do you read different RNTCP literature on RNTCP?	1. Yes 2. No
10. Do you have knowledge of DOTS Strategy?	1. Yes 2. No
11. Do you think IMA-Govt. collaboration is necessary for better pursuance?	1. Yes 2. No
12. Do you think regular CME should be organized for the programme?	1. Yes 2. No

13. What is your opinion regarding recognition	2.Certificate of appreciation
14. Do you think appreciation is necessary for good performance?	1.Yes 2.No
Regarding investigation	
15. Do you see TB patients on a regular basis?	1.Yes 2.No
16. What are the investigations you prefer for TB?	1. Blood 2.Sputum 3. X-ray. 9. sputum& x-ray 4.No preference
17.Do you think sputum microscopy is reliable for diagnosing TB?	1.Yes 2.No
18.Do you think three sample sputum Tests are Initially necessary for Diagnosis of TB?	1.Yes 2.No
19.Is chest x-ray more reliable Investigation than sputum test?	1.Yes 2.No
20.Do you think three or four times sputum test is necessary during Follow-up?	1.Yes 2.No
Regarding Treatment and DOTS therapy and attitude regarding DOTS Therapy:	
21. Which regimen you prescribe?	1.Daily regimen 2.Alternate day regimen
22. Is there any scientific basis of DOTS?	1.Yes 2.No
23.Is there adequacy of DOTS drug regimen for Pulmonary and Extra-Pulmonary TB?	1.Yes 2.No.

24. What combination of drugs are you using for treating TB patients?	2.INH+Rifampicine+Pyrizinamide 3. INH+Rifampicine+ Ethambutol 4..INH+Rifampicine+Pyrizinamide+Ethambutol	
25. Do you depend on alternate day regimen for treating TB patients?	1.Yes	2.No
26.Do you think quality of TB drug Supplied by the govt. sector is good?	1.Yes	2.No
27. Do you have faith on government Health system regarding treatment of TB patients?	1.Yes	2.No
28. Do you think treating TB patient in private sector is more popular with the patients than public sector?	1. Yes	2. No
29. Do you think timing of DOTS is not Convenient for the patients in public sector? If Yes, State reason	1.Yes	2.No
30.Will loose money if officially get involved in RNTCP	1.Yes	2.No
Supervision, monitoring and compilation of reports:		
31. Maintaining documents of TB patients is possible for you?	1. Yes	2. No
32.Do govt. health staff Visit you?	1.Yes	2.No
33. Do you think contact with DTO should be more intensified?	1.Yes	2.No
34. Do you think supervision by govt. machinery is acceptable?	1.Yes	2.No
35.Did anybody from approach you to Involve in RNTCP?	1. Yes	2. No

36. Did you refer any TB patient to the Government health system?	1. Yes	2. No
37. How long you are referring?	1. < 1 years	2. > 1 years
38. Do you refer now? If No, Why you are not referring now?	1. Yes	2. No
39. Did you get any feedback from The referral centre?	1. Yes	2. No
Other factors related regarding involvement in RNTCP		
40. Are you involved in RNTCP?	1. Yes	2. No
41. Do you think you will loose other patient if you get involved in RNTCP?	1. Yes	2. No
42. Do you think Grant-in aid is Inadequate in PPM?	1. Yes	2. No
43. Do you have financial Expectation from government?	1. No expectation (service to poor) 2. No profit no loss	
44. Do you think timely and automatic payment is necessary for treating TB patients from govt. sector?	1. Yes	2. No
45. Do you think accessibility of patients is more in the private sector?	1. Yes	2. No
46. Do you think de motivation takes place due to fewer patients?	1. Yes	2. No
47. Do you think there should be exclusive staff for PPM project?	1. Yes	2. No
48. Do you think mutual trust should be developed by repeated discussions between PPs and DTO?	1. Yes	2. No
49. Are you still involved in RNTCP?	1. Yes	2. No

50. What are the reasons for which you withdrawn from PPM programme?	2. Grant is meager.	
51. Do you think workload will be more if you involve in TB?	1.Yes	2.No
52. Do you think that you will have to be answerable to the Govt health system?	1.Yes	2.No
53. Do you emphasize patients regarding regular treatment	1.Yes	2.No
54. Do you emphasize patients regarding good diet	1.Yes	2.No
55. Do you emphasize patients regarding proper sputum disposal	1.Yes	2.No
56. Do you emphasize patients regarding covering the mouth while coughing	1.Yes	2.No
57. Do you emphasize patients regarding no alcohol during treatment	1.Yes	2.No
58. Do you emphasize patients regarding no smoking during treatment	1.Yes	2.No
59. Do you emphasize patients regarding good hygiene	1.Yes	2.No
60. Do you emphasize patients to avoid pollution	1.Yes	2.No
61. Do you mention special care of contacts below 5 years of age	1.Yes	2.No
62. Do you want to get involved in RNTCP in future?	1. Yes	2. No
63. What is your suggestion regarding involvement in RNTCP?		

Name of interviewer

Signature of interviewer with date

Form-C:

Lists of dummy table

Table 1: General characteristics of private practitioners, Hooghly, West Bengal, India, 2008

Table 2: Prevalence of knowledge, attitude and practices of private practitioners in RNTCP, Hooghly, West Bengal, India, 2008

Table 3: Characteristics of private practitioners involved and uninvolved in RNTCP, Hooghly, West Bengal, India, 2008

Table 1: General characteristics of private practitioners, Hooghly, West Bengal, India, 2008

Characteristics		#	Total	(%)
Age	XX	XX	XX	XX
	XX	XX	XX	XX
Sex	Male	XX	XX	XX
	Female	XX	XX	XX
Duration of practices	< 5 years	XX	XX	XX
	5-10 years	XX	XX	XX
	> 10 years	XX	XX	XX
Qualification (MBBS)	Alone	XX	XX	XX
	With Diploma	XX	XX	XX
	With Degree	XX	XX	XX
	With super speciality	XX	XX	XX

Table 2: Knowledge, attitude and practices of private practitioners about TB and RNTCP, Hooghly, West Bengal, India, 2008

Characteristics		#	Total	(%)
Knowledge	Modular training	XX	XX	XX
	Sensitized	XX	XX	XX
	Academic knowledge by literature or journal review	XX	XX	XX
	Knowledge of DOTS	XX	XX	XX
	Regular CME by IMA	XX	XX	XX
	RNTCP treatment regimen is rationale	XX	XX	XX
Attitude	DOTS is scientifically based therapy	XX	XX	XX
	Recognition or appreciation by the Govt. sector	XX	XX	XX
	Chest x-ray is better than sputum test	XX	XX	XX
	Follow-up sputum is necessary	XX	XX	XX
	3 samples of initial sputum test necessary	XX	XX	XX
	Quality of TB medicine is good	XX	XX	XX
	Any financial loss if refer TB cases to Govt sector?	XX	XX	XX
	Financial expectation from government	XX	XX	XX
	Timely and automatic payment is necessary for	XX	XX	XX
	treating TB patients from govt. sector			

Attitude	Alternate day regimen can not cure TB cases	XX	XX	XX
	Faith on the Govt health system	XX	XX	XX
	Timing of DOTS is not convenient for the patients	XX	XX	XX
	Official involvement in the programme in different scheme	XX	XX	XX
	Incentive in different schemes should be lucrative	XX	XX	XX
	Future involvement in RNTCP	XX	XX	XX
	Private chamber having shortage of space for treating TB patients	XX	XX	XX
	Maintaining documents of TB patients is a problem	XX	XX	XX
	contact with DTO should be more intensified	XX	XX	XX
	Supervision by govt. machinery is not acceptable	XX	XX	XX
	Accessibility of patients is more in the private sector?	XX	XX	XX
	De motivation takes place due to fewer patients	XX	XX	XX
	There should be exclusive staff for PPM project	XX	XX	XX
	Mutual trust should be developed by repeated discussions?	XX	XX	XX
	Workload will be more if you involve in TB	XX	XX	XX
	Answerable to the Govt health system	XX	XX	XX

Seeing TB patients on a regular basis	XX	XX	XX
Sputum test is reliable for diagnosis	XX	XX	XX
Referred TB patients to govt. health system	XX	XX	XX
Prescribing daily regimen	XX	XX	XX
Prescribing alternate day regimen	XX	XX	XX
Adequacy of DOTS drug regimen For Pulmonary and Extra-Pulmonary TB	XX	XX	XX
Practice			
Combination of TB drugs used			
1. INH+ Rifampicine	XX	XX	XX
2. INH+ Rifampicine+Pyrazinamide	XX	XX	XX
3. INH+ Rifampicine+ Ethambutol	XX	XX	XX
4. INH + Rifampicine+ PZA+ Ethambutol	XX	XX	XX
Feedback from the referral centre?	XX	XX	XX

Table 3: Knowledge, attitude and practices of PPs about TB and RNTCP among involved and uninvolved PPs, Hooghly, West Bengal, India, 2008.

Characteristics	Frequency of characteristics				χ^2	P-value
	Among involved (n=XX)		Among uninvolved (n=XX)			
	#	%	#	%		
Trained in RNTCP	XX	XX	XX	XX	XX	XX
Sensitized in RNTCP	XX	XX	XX	XX	XX	XX
Recognition or appreciation by the Govt. sector	XX	XX	XX	XX	XX	XX
Depending on T/t regimen(daily)	XX	XX	XX	XX	XX	XX
Depending on T/t regimen (Alternate)	XX	XX	XX	XX	XX	XX
DOTS is scientifically based therapy	XX	XX	XX	XX	XX	XX
Sputum test is reliable for diagnosis	XX	XX	XX	XX	XX	XX
Chest x-ray is better than sputum test	XX	XX	XX	XX	XX	XX
Follow-up sputum is necessary	XX	XX	XX	XX	XX	XX

3 samples of initial sputum test necessary	XX	XX	XX	XX	XX	XX
Quality of TB medicine is very good	XX	XX	XX	XX	XX	XX
Alternate day regimen can not cure TB cases	XX	XX	XX	XX	XX	XX
Any financial loss if refer TB cases to Govt sector?	XX	XX	XX	XX	XX	XX
Faith on the Govt health system	XX	XX	XX	XX	XX	XX
Incentive in different schemes should be lucrative	XX	XX	XX	XX	XX	XX
De motivation takes place due to fewer patients	XX	XX	XX	XX	XX	XX
Workload will be more if you involve in TB	XX	XX	XX	XX	XX	XX
Answerable to the Govt health system	XX	XX	XX	XX	XX	XX
Supervision by govt. machinery is not acceptable	XX	XX	XX	XX	XX	XX

2. Patient information sheet and informed Consent form to estimate the knowledge, attitude and practices of private practitioners in RNTCP, Hooghly, West Bengal, India, 2008

Greetings,

I am _____ and was working as District TB officer, Hooghly, to look into factors that may not put you at risk for interaction with me for poor involvement of private practitioners in RNTCP or help you for the future benefit of the study. We are doing this research as a response to the poor case detection in TB in Hooghly district between January and December in the year 2007. Since TB is a major public problem in Hooghly, it is also being looked at. The National Institute of Epidemiology, Chennai working with us on this investigation.

To find out why there is low case detection in TB, we need to ask few questions to the private practitioners who treat TB patients but not documented in the programme record. Thus, between _____ and _____, we will be asking the questions to all the Allopath private practitioners treating TB patients excluding practitioners in other medical system. We would like to maintain confidentiality asking these few questions to you once. Answering these questions would take about 30 minutes of your time. Taking part in this survey is voluntary. No compensation will be paid to you for taking part in this study. You can choose not to take part. You can choose not to answer a specific question. You can also

stop answering these questions at any time without having to provide a reason. This will not affect the relationship between you and the RNTCP and government health services in Hooghly district or anywhere or any other rights. There is no specific benefit for you if you take part in the survey. However, taking part in the survey may be of benefit to the community, as it may help us to understand the problem, its causes and potential solutions. When the results will have been analyzed, a report will be shared with all the participants and the local health officials concerned with public health, so that the right measures can be taken to involve more private practitioners in RNTCP resulting increased case detection in TB in Hooghly as well as in the state of West Bengal. Information we will collect in this survey will remain between you and public health authority of the district and the principal investigator. We may ask questions about various specific things you do. This does not mean that we think that these things you do would put you at risk for your profession. We will not write your name on the questionnaire. We will only use a code instead. Only the concerned doctor will know the key to this code. Identification particulars of the participants will be kept under lock and key and destroyed after the project work. If you wish to find out more about this survey before taking part, you can ask me all the questions you want. You can also contact Dr.Kisalay Datta MAE-FETP Scholar (VIIth Cohort) (phone No.- 9434202573) principal investigator of this survey attached to the National Institute of Epidemiology, Chennai, or Dr.Tarun Sarkar, District TB officer, Hooghly, who will be happy to give you more details. If you accept we will go ahead with the interview now.

Consent:

I have read the foregoing information. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this study and understand that I have the right to withdraw from the study at any time without in any way it affecting my further medical care services.

Name of the study participant

Signature of the study participant-

Name of the witness

Signature of the witness

Name of the Interviewer

Signature of the interviewer

Section- B

Review of Literature

Review of Literature for Survey of knowledge, attitude and practices for tuberculosis and RNTCP among private practitioners:

We reviewed different literature using manual and computerized methods to identify a set of potentially useful articles and books from National Institute of Epidemiology, Chennai, All India Institute of Hygiene & Public Health, Kolkata. We collected records from offices of department of health. We developed questions of the research and for further research. We searched PubMed (www.pubmed.gov), MEDLINE important sources. After reviewing all relevant literature available and studied, we constructed the outline of the review of literature.

1. Background:

- Tuberculosis is a specific Infectious disease caused by tubercle bacilli of Mycobacteriaceae family - Mycobacterium tuberculosis (MTB). The disease primarily affects the lungs and causes pulmonary tuberculosis. It can also affects intestine, meninges, bones and joints, lymph glands, skin and other tissues of the body. The disease is usually chronic with varying clinical manifestations. Tuberculosis remains the primary killer of adults in developing countries despite the existence of cost – effective tools that can cure the disease.^{1, 2, 3}

2. Problem statement:

World: Tuberculosis is a major challenge to public health and continues to remain one of the most serious health and developmental problems the world over. Millions of people get infected with the TB bacillus and millions more die of

the disease every year in the world. About one third of the world's population or 2 billion is infected by Mycobacterium Tuberculosis .There are approximately world wide 9.2 million new cases occurred in 2006 and 1.7 million people died from TB in 2006. TB kills 4400 people everyday. TB accounted for a loss of 46.5 million DALYs globally. It was 3.4% of the total DALYs loss in the world. 95 % of TB cases and 98 % of TB deaths are in developing countries. 75 % of TB cases in developing countries are in the economically productive age group (15-50 Years). Every year 4.9 lack new MDR-TB cases occur, causing 1.3 lack deaths.⁴

5

India: TB is one of the leading causes of mortality in India - killing 2 persons every three minutes, nearly 1,000 every day and 400,000 people each year.¹ TB is a major cause of childhood morbidity and mortality in India. India accounts for one fifth of global incidence of TB, two-thirds of the cases in South- East Asia and tops the list of 22 high burden countries.² Currently incidence of TB is based on the ARTI survey done by the TRC, Chennai and NTI, Bangalore. It is envisaged to measure ARTI gap every 2-3 years gap to measure the progress of achieving MDG goals and impact of DOTS in the country.⁴ There are more than 1.8 million new cases of TB in India every year and 3.8 million TB patients at any time. Over 0.6 million Indians are unaware that they suffer from TB. India saw TB case detection rates increase by 10%-12% in 2001-2005. It fell to 5% in 2006.⁶ It is estimated that about 6-8% of all new TB cases are in the paediatric age group.⁶⁻⁸ 5% of all new cases are MDR in India. TB can be expected to develop in more than 50% of those who encounter HIV.⁹ Spread of TB is deeply

connected with poverty in India.⁹ In India, TB causes huge economic loss with about 17 crore (170 million) workdays lost due to the disease. The annual economic cost of tuberculosis to the Indian economy is at least US\$ 3 billion (more than Rs. 13,000 crore). Till 2nd quarter, 2008, 1287469 lives saved in RNTCP.⁵

The private health sector is the first point of contact for most TB patients in India. It is estimated that most of these patients spend up to 4-6 weeks before they are diagnosed and treated. TB cure rates for patients who remain with private providers are low. However patient look to the private sector for personalized services at the more convenient time of the day, often they prefer private doctors to the free services offered by the public health sector.¹⁰⁻¹² Disproving popular belief, it has been shown that people from the poorest section of society also complete their treatment in the private sector, at the cost of Indebtedness. The introduction of RNTCP in India provided a unique opportunity for Private Public Partnership (PPP). Collaboration between the Indian Revised National Tuberculosis Control Programme and private practitioners in India improved the case notification of tuberculosis while maintaining good treatment outcomes. In 2007, 17283 PPs are officially providing RNTCP service under different schemes.^{12, 13, 14}

West Bengal: West Bengal has new sputum smear positive case notification rate of 87% and cure rate of the above more than 85%, though the level of performance is not uniform throughout the state. Low case detection rate (ACDR and NSPCDR) is observed in few districts like North and South 24 Paraganas,

Howrah, Hooghly and East-Midnapur. High default rate in some of the districts in the retreatment sputum positive cases is a matter of concern.¹⁵ Involvement of private practitioners is very limited which may influence low TB case detection. Up to 31st March, 2008 as a whole 258 private practitioners are involved in different private practitioner's schemes (State 1st quarterly report 2008).¹⁵

3. The control of Tuberculosis:

The history of tuberculosis (TB) control provides a fine example of the role of understanding basic public health principles in controlling a devastating communicable disease. The remarkable strides made in the last 50 years owe much to this co-coordinated approach, and have culminated in the development of the DOTS strategy.⁴

Principles of TB control: The basic principle of TB control is extremely simple; prevent transmission of the infectious agent causing disease. People with TB of the lungs produce tiny droplets of TB bacteria into the air, whenever they cough, sneeze, talk or even breathe. These droplets can infect other people and give them TB. A person with infectious TB of the lungs can infect 10- 15 people a year. There are therefore, three opportunities for interrupting transmission of the TB bacillus; at the source, in the air, and at destination. All current strategies to control TB work at one of these points.¹

National Tuberculosis Programme (NTP): The National Tuberculosis Programme has been in operation since 1962. It is essentially a permanent countrywide programme, integrated with the general health services at both the rural and urban levels.¹

The long-term goal of the NTP is "to reduce the problem of tuberculosis in the community sufficiently quickly to the level where it ceases to be a public health problem".¹

The short-term objectives were: (1) to detect maximum number of TB cases among the outpatients attending any health institutions with symptoms suggestive of tuberculosis and treat them effectively, (2) to vaccinate newborns and infants with BCG and (3) to undertake the above objectives in an integrated manner through all the existing health institutions in the country.

The Revised National Tuberculosis Control Programme (RNTCP): The Govt of India, WHO and World Bank together reviewed the NTP in the year 1992. Based on the findings of that review a revised strategy for NTP was evolved.¹

The five major components of DOTS are: (1) administrative and political commitment to sustained TB control activities, (2) case detection by quality sputum smears microscopy among symptomatic patients self-reporting to health services, (3) standardized regimens of six to eight months treatment at least for all confirmed sputum smear positive cases, with directly observed treatment (DOT) for the initial two months, (4) a regular, uninterrupted supply of all essential anti-TB drugs and (5) a standardized recording and reporting system that allows assessment of treatment results for each patient and of the TB control programme overall.

The revised strategy has been introduced in the country as a Pilot Project since 1993. During Phase-I it has covered 2.35 million people, phase II 13.85 million people, and now in Phase III, it is envisaged to extend the project area covering

a total of 271.21 million people. The objective of RNTCP is (1) achieve & maintain 85% cure rate of newly detected sputum positive cases and (2) to achieve & maintain detection of at least 70% of new smear positive cases. Presently the programme has entered in its second phase and the aims are 1) to consolidate the gain of 1st phase 2) widen the services in respect of activity and accessibility and 3) to sustain the effects.¹ RNTCP has been recognised for the fastest expansion of DOTS in the world, with over 55-fold expansion in RNTCP coverage since 1998, leading to total coverage of the country in March 2006. Since inception of RNTCP, more than eight million patients have been initiated on treatment, resulting in saving more than 1.4 million additional lives. In 2007 alone, more than 6.48 million TB suspects have been examined. More than 1.47 million patients have been initiated on treatment. During the year 2007, new sputum positive case detection rate of 70% and treatment success rate of 86% was achieved. Diagnostic facilities have been established in 12,000 laboratories throughout the country. As a result, the proportions of sputum positive cases confirmed in the laboratory are now double that of the previous programme and are on par with international standards. RNTCP has successfully involved 261 medical colleges, over 2900 NGOs, 17000 Private Practitioners and over 150 corporate sector health units. Quality Assurance protocol for smear microscopy has been implemented in all the states. DOTS Plus services for the management of MDR-TB patients have been rolled out in the states of Gujarat and Maharashtra in March, 2007 and the first patients were initiated on treatment in

August, 2007. Since then, 65 MDR-TB cases have been initiated on treatment in Gujarat and 24 in Maharashtra.⁵

The LRS Institute has been recently involved in a multi-organizational effort to carry out a public-private mix project in identified areas of Delhi with the help of the Delhi Medical Association, which was responsible for identification of PPs under the project. Says Dr V K Arora, director, LRS Institute of Tuberculosis and Allied Sciences, "Separate models were developed, in which the PPs either performed diagnosis only or instituted treatment as well. The LRS Institute sensitized the PPs and other staff engaged in delivering management to TB patients as per the recommendations under DOTS program. It was found that during the 16-month project run, the incremental case notification due to PPs was 47 per cent for new cases of TB and 29 per cent for new sputum positive cases. The treatment success rate was 81 per cent for the latter category, which was not significantly different from observed 86 per cent in public sector. This shows that the PPs can be made to participate in RNTCP in conjunction with the public health sector.¹⁶" Collaboration between the Indian RNTCP and private practitioners in India improved the case notification of tuberculosis while maintaining good treatment outcomes.¹⁰ India has the largest collection of such experiences of public-private mix, few of which to date have been reported.¹⁷ The six public-private mix projects in India that primarily involved private practitioners were evaluated for a median of 18 months (range 15-30 months). During this time period, 10,985 new cases of tuberculosis on the basis of sputum smears positive for acid fast bacilli were reported in the project areas, of which 1631 (15%) were

from the private sector. This represented 2-26% of case notifications for each of those individual projects. In each of the five projects involving private practitioners with data available from before and after implementation of a public-private mix. Project, the average quarterly number of positive case notifications increased by between 12% and 98% after initiation of the project.¹⁰

4. Important Milestones in PPM DOTS⁶:

RNTCP was started as pilots PPM model in Hyderabad.

1. 1998 RNTCP scaling up initiated
2. 2000-2003 PPM models in Delhi, Kannur, Kollam, Mumbai, Tea-gardens of north-east started
3. 2002 Private Practitioners (PP) Schemes published
4. 2003 PPM DOTS activities initiated in many districts
5. Early 2000 135 million population covered by RNTCP
6. 2001 Schemes for involvement of NGOs published
7. End 2001 450 million populations covered
8. 2003 Intensified PPM scaling up begins in 14 urban sites
9. Sept 2004 906 million population covered by RNTCP.

5. Process of PPM:

Process included: (1) Orientation of Programme staff, (2) Listing of health care providers, (3) Prioritization of providers by patient load, (4) Orientation of providers, (5) Training of providers, (6) Training of Programme staff on specially designed surveillance system, (7) Recruitment and training of additional PPM

field staff, and (8) Involvement of health providers under Programme guidelines and schemes, using existing Programme funds.⁶

6. Private practitioners (PPs) and RNTCP:

Private Practitioners (PPs) are generally the first point of contact for significant proportion of patients with tuberculosis. All PPs can support and encourage effective tuberculosis control by: (1) ensuring prompt referral of patients with cough for 3 weeks or more for sputum or smears, (2) providing reassurance that tuberculosis can be cured; giving only RNTCP recommended drug regimens, (3) starting treatment with Rifampicine-containing regimens only if it can be ensured that treatment can be completed under observation, (4) encourage willing practitioners to participate in the programme with signed schemes under this policy. A copy of the agreement should be sent to the STO and CTD. A mechanism for PPs to report problems to the MC/TU/DTC should be established, (5) periodic review meetings with PPs should be undertaken. Meetings, CMEs, trainings etc could also be organized at the PPs clinic where feasible. PPs who have contributed positively to the programme should be felicitated in an appropriate public forum, (6) detailed advertisement in newspaper calling for applications from PPs interested in participating in the programme. Professional associations should also be involved in the process of reviewing applications, (7) stress the need for intensive Inter Personal Communication (IPC) in the management of TB patients, (8) the different schemes apply for collaboration between Private Practitioners and the government in the TB control activities. This also contains guidance offered to RNTCP areas in order to improve

coordination and communication with the private health sector. The schemes are applicable in all States and Union Territories (UTs) of India where the RNTCP is in operation.

In addition, some PPs may opt to: (1) Serve as treatment provider for patients who prefer to receive treatment observation from them; (2) Have their laboratories included in the quality control network of the RNTCP; (3) Serve as a microscopy centre for the RNTCP, either providing services which are free to the patient and reimbursed by the DTCS, or which are paid for by the patient but whose quality and reporting is ensured by the DTCS. The DTO should systematically monitor and periodically assess the effectiveness of efforts to involve the private sector in the district. This can be determined by tracking the number of patients referred from private practitioners to the RNTCP, and the proportion of such patients who are referred prior to initiation of anti-tuberculosis treatment. This can be done on a sample basis. Activities which are found to be fruitful should be encouraged and expanded whenever possible. ^{6, 25}

7. Involvement of private practitioners in RNTCP:

Public-private mix has been defined by WHO as strategies that link all healthcare entities within the private and public sectors (including health providers in other governmental ministries) to national tuberculosis programmes for expansion of DOTS activities.²⁵

We defined a private sector notified patient as a patient diagnosed as having tuberculosis or referred by the private health sector, which was subsequently recorded (registered) by the Indian tuberculosis programme as a tuberculosis

case.⁶ All other patients registered as having tuberculosis were defined as public sector notified patients. We defined private provider administered DOT as the administration of directly observed anti tuberculosis treatment to a patient registered as having tuberculosis by a private health provider (including community volunteers supervised by private providers). Public sector administered DOT was defined as the administration of directly observed antituberculosis treatment to a patient registered as having tuberculosis by the public sector tuberculosis programme. We used standard WHO definitions for treatment outcomes. A treatment success was defined as a new patient with sputum positive for acid fast bacilli that achieved cure or completed treatment. For each public-private mix project we calculated quarterly case notification rates by dividing the number of new case notifications of sputum positive for acid fast bacilli by the estimated population of the project area. To calculate the mean annual case notification rate for each project, quarterly rates were multiplied by 4 and averaged. Population estimates were taken from the 2001 census, or local government estimates if census data were unavailable.^{24, 26}

8. Schemes for private practitioner's involvement in RNTCP:

Scheme 1: Referral. Persons suspected of having TB are referred by the PP to a RNTCP designated microscopy centre (DMC) for smear microscopy examination. If smear-negative and further care is required, the patient is to be referred back to the PP for non-TB care.

Scheme 2: Provision of treatment observation. PP or staff provided by the PP is to provide DOT for patients, ensure follow-up sputum collection and late

patient retrieval. RNTCP records are to be maintained by the PP and must permit on-site monitoring by RNTCP supervisory staff as per RNTCP guidelines.

Scheme 3A: Designated paid microscopy centre – microscopy only. A private health facility with its own laboratory can function as an RNTCP DMC and charge service fees. The DTC will provide training and supervision of the laboratory technician and other staff. An annual Review of approval will be made.

Scheme 3B: Designated paid microscopy centre – microscopy and treatment. As in Scheme 3A, but in addition the private health facility can serve as a treatment centre. Service fees may be charged, but not for the anti-TB drugs administered. Diagnosis, categorization, treatment, record keeping and supervision must follow RNTCP guidelines. In addition, PPs must complete an RNTCP modular training. Address verification must be ensured by the PPs before the start of treatment. The DTC will provide training and supervision of the quality of care provided by the private health facility, and will assist in the retrieval of late patients. An annual review of approval will be made.

Scheme 4A: Designated microscopy centre – microscopy only. A private health facility with its own laboratory can function as an RNTCP DMC that provides free services. The required laboratory materials for microscopy services are provided to the DMC by the RNTCP. The PPs must ensure that RNTCP policy is followed, that a TB Laboratory Register is maintained, and patients informed about the availability of free drugs under RNTCP and/or are

referred for treatment at a RNCTP DOT centre. The DTC will provide training and supervision of the laboratory technician and other staff. An annual review of approval will be made.

Scheme 4B: Designated microscopy centre – microscopy and treatment. A private health facility can serve as both an approved RNTCP DMC and treatment centre. Diagnostic and treatment services are provided free of charge, and the required laboratory materials are provided to the DMC by RNTCP. PPs must complete RNTCP modular training. Address verification must be ensured by the PPs before the start of treatment. The DTC will provide training and supervision of the quality of care provided by the private health facility, and will assist in the retrieval of late patients. An annual review of approval will be made²⁷.

The private sector continues to rely on x-rays for diagnosis as well as monitoring of treatment, and the use of sputum microscopy ranges between 12 and 50 %. Many Private Practitioners do not disclose the diagnosis of TB to their patients. Subsequently treatment completion in the private sector ranges between 5% and 59%. The six public-private mix projects were initiated in 2003 which primarily involved private practitioners. This was evaluated for a median of 18 months. In each of the five projects involving private practitioners with data available from before and after implementation of a public-private mix project, the average quarterly number of positive case notifications increased by between 12% and 98% after initiation of the project. Limit the adverse

effects of incomplete, irregular and inappropriate treatment received by patients in the private sector²⁵.

9. SWOT analysis of involvement of private practitioners in RNTCP:

Strengths: (1) Located close to patients, (2) Patients seek services despite cost (3) could improve treatment adherence (4) Enjoy the confidence of patients

Apparent weaknesses or constraints: (1) Reluctant to do sputum examinations (2) Can not trace defaulters (3) Records maintenance is poor (4) Do not use recommended drug regimens

However, there are opportunities: (1) to increase and speed up case finding, (2) improve treatment outcomes through enhanced patient acceptance, (3) share the service delivery load with front line health staff and build a degree of long term Sustainability in disease control ^{25,28}.

10. Expected Outcomes of collaboration between IMA and Public sector RNTCP:

Recognizing the fact that NGOs and private practitioners play an active role in health promotion in the community and that many patients seek treatment from and through them, and realizing their involvement in the RNTCP as an important factor to help reach global targets for case detection, the Ministry of Health and Family Welfare brought out guidelines for the involvement of NGOs and private practitioners under various schemes in 1999 and 2002 (*Central TB division 1999, 2002*). The objective was to provide uniformity in diagnosis, treatment and monitoring through a wider programme base so as to maximize cure and stop the

spread of TB. The district level health officials and the members of the district TB Control Society (DTCS) were to play key role in fostering such partnerships.

Outcomes at the National Level: At this level, an IMA National TB Cell will be established along with a national office at IMA headquarters in Delhi.

^{30,31}Outcomes are: (1) conduct a two-day national workshop at the start of the project followed by annual review workshops of the same duration for the state and national IMA leaders. The expected outcomes of the workshops are: [1st quarter of each financial year for 5 years starting 2007], (2) motivate, educate and give direction to state IMA leaders, (3) develop state-wise action plans with time-lines, (3) review annually the progress of the project, (4) update leaders on RNTCP and DOTS, Link with CTD, headed by the Deputy Director General (TB), (5) in all matters concerning the project and also to deal with functional and technical issues arising from time to time, (6) publish a quarterly newsletter dedicated to TB and post these to all members of the IMA Publish articles on TB in the quarterly IMA journal that are relevant to RNTCP and DOTS and showcase good practices in the management of the disease, (7) reproduce and distribute IEC kits to targeted medical practitioners, (8) participate in World TB day activities at the national level and (9) participate in, and contribute to, RNTCP national review meetings and conferences. ³¹

Outcomes at the State Level: At this level, an IMA State TB Cell will be established along with a state TB office at the state IMA headquarters. The UT of Chandigarh will be clubbed with the state of Punjab.³¹ Outcome are (1) conduct a two-day state workshop at the start of the project followed by annual review

workshops of the same duration for the branch (district level) IMA leaders, (2) motivate, educate and give direction to IMA local branch leaders, (3) develop district-wise action plans with time-lines, (4) update the leaders on RNTCP and DOTS, (5) link with the State TB Cell of the public sector, headed by the State TB Officer, in all matters concerning the project and also to deal with functional and technical issues arising from time to time, (6) coordinate sensitization of private practitioners in the state, (7) facilitate the monitoring and evaluation of those practitioners involved in the programme, (8) guide and direct the local IMA branches in their efforts to conduct CMEs for their members, (9) help organize the training of medical practitioners at the district level in close coordination with and the support of state and district RNTCP officials and (10) assist in carrying out advocacy through involvement at the state level in World TB Day activities.

Outcomes at the District Level: At this level, an IMA District TB Cell will be formed. As the IMA does not have offices at the district level – it has local branches (often several in a district) that do not necessarily conform geographically to RNTCP districts. The outcomes at district level are (1) sensitize district level IMA leaders and prominent medical practitioners, (2) conduct CMEs at the branch level, (3) conduct training in batches of 20 to 30 private providers with the assistance of DTO and other RNTCP officials and consultants, where available, (4) involve PPs in RNTCP and facilitate their accreditation and certification, (5) facilitate M & E activities and provide feedback to the IMA State TB Cell, (6) take part in review meetings of the RNTCP in the district and (7)

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participate in March 24th activities and advocate RNTCP-DOTS to the medical fraternity in general.³¹

Monitoring and Evaluation of the project: The RNTCP IMA collaborative activities would be regularly reviewed and monitored at the state and national levels during the state/national level workshops. Besides providing technical support and facilitate organization of trainings and CMEs in the districts, the technical consultants recruited for the project, would monitor and evaluate progress in planned activities³⁰⁻³³.

11. Different Studies of PPM project regarding knowledge, attitude and practices of PPs, high TB case notification rate and high treatment outcome when PPs are involved in RNTCP:

Knowledge, attitudes and practices for tuberculosis among general practitioners in New Delhi: Random survey among 204 private practitioners have been done in Delhi in 1995 where it shows that 12% private practitioners, prescribing sputum examination for diagnosis of TB in suspected cases and 89.5% recommended X-ray for diagnosis of TB. 187 Private Practitioners are prescribing 102 of different TB drug regimen. Only 29.4% Private Practitioners are prescribing TB drug regimen as per schedule recommended by RNTCP. 51.3% Private Practitioners were over treating their patients. Only 23.5% Private Practitioners were prescribing sputum examination before end of treatment. 35.5% Private Practitioners were dependant on X-ray clearance with clinical improvement for TB. PPs are not maintaining any records of treating TB

patients. 19.5% of PPs emphasized the importance of regular treatment for their patients. It must be emphasized that keeping records of TB patients, defaulter retrieval and treatment of defaulters could help in improving TB results. . More emphasis is required in training of RNTCP for Private Practitioners for better collaboration between private practitioners and Govt health system.^{11,19}

Improved tuberculosis case detection through public-private partnership and laboratory-based surveillance:

Efforts to intensify global tuberculosis (TB) control are limited by difficulties in coordinating with private doctors. More than half of Indian TB patients initially consult a private provider. In one district, the governmental TB control programme offered training in microscopy to all large private sector laboratories, and educated private physicians on the importance of microscopy for TB diagnosis. Of 2328 pulmonary TB patients registered from July 2001 to December 2002, 404 (17%) were detected in the private sector. The annual new AFB-positive case notification rate increased by 21%, from 27.8/ 100 000 in 2000 to 33.5/100 000 in 2002. Surveillance at private laboratories found an additional 260 non registered AFB-positive patients. This public-private partnership substantially increased TB case detection and established a sustainable framework for private sector involvement in TB control. In the setting of a strong public sector programme, the combination of active surveillance of private laboratories along with physician sensitisation is a promising approach to improve TB case detection.¹⁷

Control of tuberculosis in an urban setting: public-private partnership: To implement and evaluate a public-private partnership and to deliver the

internationally recommended strategy DOTS for the control of tuberculosis (TB) in Lalitpur municipality, Nepal, it was estimated that 50% of patients with TB are managed in the private sector. A local working group developed a public–private partnership for control of TB, which included diagnosis by private practitioners, direct observation of treatment and tracing of patients who missed appointments by nongovernmental organizations, and provision of training and drugs by the Nepal National TB Programme (NTP). In the first 36 months, 1328 patients with TB were registered in the public–private partnership. Treatment success rates were >90%, and <1% of patients defaulted. Case notification of sputum-positive patients in the study area increased from 54 per 100 000 to 102 per 100 000. The numbers of patients with TB started on treatment by private practitioners decreased by more than two-thirds, the number of private pharmacies that stocked anti-TB drugs by one-third, the number of pharmacies selling anti-TB drugs by almost two-thirds, and sales of anti-TB drugs in pharmacies by almost two-thirds. Private practitioners were happy to refer patients to the public–private partnership. Not all private practitioners had to be involved many patients bypassed private practitioners and went directly to free DOTS centres. A combination of the strengths of private practitioners, nongovernmental organizations, and the public sector in a public–private partnership can be used to provide a service that is liked by patients and gives high rates of treatment success and increased rates of patient notification.²⁰

Involvement of private practitioners in tuberculosis control: The RNTCP in India covered 70% of the population in 2003. However, the private sector, where

a large proportion of tuberculosis (TB) patients are seen, does not have sufficient involvement in the programme. The objective of the study was to test the feasibility of involving private practitioners (PPs) in the RNTCP for identification and management of TB cases.³⁵ Private practitioners in Ballabgarh Block, Haryana, were identified and invited for training in RNTCP guidelines. They referred TB suspects for confirmation of diagnosis to a nearby public facility. Patients could subsequently choose to return to their referring doctor or to the government facility. Patients and doctors were interviewed at the end of the project to assess their perceptions. Of 146 PPs, 72% were trained in RNTCP guidelines and 14 agreed to provide directly observed treatment (DOT). During the study period (May 2001– December 2003) 113 patients initiated treatment, leading to an incremental gain of 11.5% in case finding. The cure rate among the 113 sputum positive patients was 73%, and the default rate was 11.5%. Involvement of private practitioners in TB control is possible and results in benefits for all.³⁵ It is feasible to involve PPs in the RNTCP, especially for case identification for subsequent treatment under the programme rather than as DOT providers. All three stakeholders stand to gain by this collaboration. The patient gains by a more definitive diagnosis, receiving correct treatment, free drugs at a place of their choice and better follow-up. The government's main gain is an increase in case detection under the DOTS strategy, enhancing the possibility of achieving the targets set under the RNTCP.²¹

Cost and cost-effectiveness of PPM-DOTS for tuberculosis control: Many TB cases are detected and treated in private sector, but are not notified to public

authorities and therefore not recorded in official statistics. To increase case detection rates, improve successful treatment rates and reduce out-of-pocket expenditures by patients, it is necessary to involve the private practitioners in DOTS implementation. From the late 1990s, WHO has developed a strategy called "Public-Private Mix DOTS" (PPM-DOTS), which is based on field projects in diverse settings. It consists of DOTS implementation in the private sector, with free drugs and financial support provided by the government and strengthened collaboration between public and private providers through improved referral and information systems. By 2003, pilot projects had shown that PPM-DOTS could improve case detection and treatment outcomes. In both Delhi and Hyderabad, higher numbers of cases were notified and successfully treated when PPM-DOTS was implemented, including new smear-positive cases. The successful treatment rate was close to or exceeded the WHO target of 85%. The PPM-DOTS project in Hyderabad successfully treated 40% and 85% more cases than public sector DOTS and non-DOTS treatment in the private sector, respectively. In Delhi, the PPM-DOTS project increased the number of patients successfully treated by 69% compared to non-DOTS treatment in the private sector. The corresponding figures for new smear-positive cases were 83%, 88% and 65%, respectively.¹⁸

The private-public divide: impact of conflicting perceptions between the private and public health care sectors in India: India's private health care sector manages half the nation's tuberculosis (TB) patients, accounting for an estimated sixth of global TB cases. While several studies have demonstrated

private physicians' dubious diagnosis and treatment styles and lack of cooperation with public physicians. Using a detailed questionnaire to randomly survey private and public practitioners in Ahmadabad, Gujarat, India, we quantified perceptions held by each sector. Study Design was cross-sectional survey of private and public physicians. Significant conflicts in perception were found regarding interpretation of general facts, attitudes towards each sector, and effectiveness and social implications of DOTS. We also found that such differences in perception were likely to result in mistrust, differing views on reform propositions, conflicting mindsets about social agendas, and unwillingness to cooperate. Data suggested that reconciliation is attainable by obtaining and distributing unbiased, evidence based information and exposing physicians to both private and public health care sectors in a professional setting. The most often recurring instances of misperceptions and distrust between the two sectors were those pertaining to the effectiveness of DOTS, the role of DOTS on social dynamics, the use of second-line drugs, and the referral and care of patients. We found that private physicians have many reservations about both the fundamental tenets and practical implementation of the DOTS strategy. These include the effectiveness of intermittent treatment, use of sputum examinations for monitoring TB treatment, discrimination toward sputum smear-negative patients, and the creation of social stigma.⁹

Involving Private Medical Practitioners in TB control: Experiences in Public-Private Partnerships:

Nepal: The national TB control programme in Nepal extended the DOTS strategy to 75% of the country by end 2000. With cure rates well over 85%, it was appropriate to focus on the private sector before the HIV epidemic and the development of multi-drug resistance became major concerns. Indirect evidence has shown that case detection in the public sector is around 50%, with nearly 70% of anti-tubercular drug inputs being accounted for by the private sector.²²

MahavirTrustHospital, Hyderabad: In a joint effort between the Government and the private sector, a charitable specialty trust hospital, Mahavir Hospital in Hyderabad, India undertook a project involving individual private practitioners in the DOTS programme. This project, started in 1995, currently covers a population of 500 000 in the city. Following a basic situation analysis where it was found that up to 80% of patients were seeking treatment in the private sector and that most private facilities were not following national guidelines for either diagnosis or treatment. A campaign was launched to inform local physicians about DOTS and to create a mechanism for referral of TB patients with the assurance that the private practitioner would continue to be the patient's primary care-giver. The results of this programme have been outstanding. Nearly two-thirds of the patients were referred by the private practitioners in the project area and women accounted for nearly half of all smear-positive cases. National goals of 75% case-finding and a cure rate of more than 85% among new smear-positive patients have been achieved. This experience shows that a strategy of

collaboration between the public and private sectors is feasible and cost-effective.²²

Tuberculosis Research Centre – ACT and Private Practitioners: An initiative named ACT (Advocacy for Control of TB) in Chennai, India to involve private practitioners in TB control was launched by REACH (Resource Group for Education and Advocacy for Community Health) together with the Tuberculosis Research Centre (TRC), the Corporation of Chennai, private practitioners and patients. The objectives of this project were to develop a model to induct private practitioners into the RNTCP, identify modalities to link private practitioners with the public health care system, identify sustainable approaches and determine ways to upscale the model. The target groups were individual doctors in private clinics, group practice, or in corporate hospitals and institutional intermediaries. Doctors willing to participate in the programme were identified through questionnaires and at their monthly association meetings. Doctors were sensitized and then informed about the policies and practices of the RNTCP and ACT organized training workshops in the components of the RNTCP and DOTS methodology. The staffs of 30 private laboratories were also trained by TRC, Chennai. 83 doctors joined the programme and the agreed inputs for them to participate including documents, case records and information materials for the patients and DOTS providers were provided. Drugs were procured from the Chennai Corporation and ACT contributed social workers and programme coordinators, while training were done by the faculty of the TRC. The lessons learnt from this programme are that it is possible to induct private health care

providers into public health programmes if an intermediary organization will coordinate between the local health authority and the community to ensure a mechanism to provide technical support and monitoring.^{22,23}

Delhi Medical Association: The Delhi Medical Association, a branch of the IMA, is responsible for CME and community intervention programmes through over nine thousand members who are practitioners of the allopathic system of medicine in the city of Delhi. Recognizing the potential resources and infrastructure within the private sector in the city of Delhi, the DMA initiated private-public partnership models for a comprehensive collaborative strategy for TB control. A MOU was drafted and signed between the officials of the Government of India, the DMA and the District Tuberculosis Units (DTUs). The objectives were to impart training to private practitioners on the RNTCP and encourage referral, create a network of medical establishments and nursing homes in Delhi for diagnosis of cases and treatment through DOTS and to increase awareness of tuberculosis among the lay population. Three models were developed after extensive discussions in workshops, with experts in the field and DMA TB Cell members, keeping in mind overall feasibility. Several levels of health professionals including 700 doctors were trained at two specialty hospitals and two DTUs. Anti-tuberculosis drugs and microscopes were provided to these centres. Regular monitoring of the designated microscopy and DOTS centres was undertaken by the project team staff in coordination with Government staff. Specific concerns and constraints were addressed during evaluator visits by high level officials of the Government of India and WHO. It

was seen that the private sector continues to rely on x-rays for diagnosis as well as monitoring of treatment, and the use of sputum microscopy ranges between 12 and 50%.^{22,24}

Delhi TB Association: Recognizing the importance of the role of the private practitioners in Delhi, which has a population of an estimated two million requiring health care for tuberculosis, the Delhi TB Association has also made attempts to involve general practitioners in the city of Delhi in the RNTCP. The strengths of the private practitioners in terms of their proximity to and of greater acceptance by their patients resulting in better adherence to treatment needed to be built on. Concomitantly their reluctance to use microscopy as the primary tool for diagnosis, disregard for recommended treatment regimens, poor documentation of outcomes and inability to trace defaulting patients needed to be addressed. In order to effectively involve them, access to information on the RNTCP, addressing doubts on technical issues, training workshops and orientation meetings with experts and programme managers could be held through coordination with local IMA branches. However, it was felt that formats for recording should be simplified and support for record-keeping and default tracing provided. Reassurance that they would not lose their clients must be provided by national programme staff. GP clinics could be used to increase access to DOTS while private practitioners could be instrumental in creating socially supportive environments to counter the stigma attached to STI and TB.²²

Sri Lanka: The country with a population of 19 million, has a well-established public health infrastructure including primary health care services which are

provided free of cost. However, open economic policies have led to a vibrant and rapidly expanding private health care sector. While tuberculosis is notifiable, the national tuberculosis programme has briefed private practitioners on DOTS and the patients are now being referred by them to the public sector. However many private practitioners continue to treat TB patients without reporting them to the national programme.²²

Treatment outcomes with private provider administered directly observed treatment, Public-private collaboration improves tuberculosis control: In nine (75%) of 12 public-private mix projects with available data on treatment outcome, private provider administered directly observed treatment met or exceeded the Indian tuberculosis programme target of 85% treatment success. In two projects where treatment outcomes of public sector administered and private provider administered directly observed treatment were compared, no significant differences were found. These findings highlight the feasibility of building public-private collaborations and the considerable potential they hold for improving tuberculosis control in India. Concomitant efforts by the Indian tuberculosis programme to increase case detection through educational campaigns and improvement of public sector clinical services likely also played a part. Indeed, national case notification rates from areas without public-private mix projects increased over the same general period as the evaluated projects, as would be expected in the setting of an expanding tuberculosis programme making active efforts to improve case detection.²⁹

12. Intensified Scaling up of PPM:

The expansion of the RNTCP has been steadily progressing and is on target to achieve nation-wide coverage of the country by 2005. During the last few years, the Central TB Division has made serious efforts to convince different stakeholders in health care about the need for them to adopt the DOTS strategy. The provision of standardized TB care, free-of-charge, to TB patients through all health care sectors, known as Public-Private Mix in TB control (PPM DOTS), has been identified and accepted as the strategy to achieve this. As a result of this strategy, the efforts to involve all relevant health sectors became part of the routine activities of RNTCP districts across the country. However, case detection rates have remained low in many districts, especially in large urban areas with inadequate public health infrastructure and a large private health sector. As a response to this situation, the Central TB Division decided to pilot "intensified PPM scaling-up" in selected urban areas of the country. Fourteen pilot cities were selected for the intensified PPM scaling-up initiative. The cities were Ahmadabad (Gujarat), Bangalore (Karnataka), Bhopal (Madhya Pradesh), Bhubaneshwar (Orissa), Chandigarh (union territory), Chennai (Tamil Nadu), Delhi, Jaipur (Rajasthan), Kolkata (West Bengal), Luck now (Uttar Pradesh), Patna (Bihar), Pune (Maharashtra), Ranchi (Jharkhand), and Thiruvananthapuram (Kerala). This initiative was implemented in 12 cities in September 2003.²⁷

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