

Assessment of Adherence to International Standards for Tuberculosis Care among Private Practitioners of Delhi

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Abstract

Context: Tuberculosis (TB) is among the top ten causes of mortality, and to control this growing burden of disease, it is imperative that all TB patients receive the same quality of care, based on the best evidence available. The best practices for TB as enshrined in the International Standards of TB Care (ISTC) if adhered to can expedite the efforts to control TB. **Aims:** The aim of the study was to evaluate the current practices for diagnosis and treatment of TB among the private medical practitioners against benchmark practices in ISTC and to assess the factors associated with adherence to ISTC. **Subjects and Methods:** A cross-sectional study was conducted among fifty private practitioners (PPs) of Delhi over a period of 3 months. Data collection was done using a structured pro forma, and interviews were conducted privately in the PPs' office. The key outcome variable was the proportion of practitioners adhering to the ISTC standards of diagnosis (standards: 1–6) and treatment (standards: 7–13). **Results:** Among fifty practitioners, 42% were found to be adherent, while 58% were found to be non-adherent. Significant association was found between gender and any form of training/sensitization received in the Revised National Tuberculosis Control Program (RNTCP) ($P < 0.05$). **Conclusion:** As the adherence to the ISTC care among the PPs was poor, there is a need to train and give incentives to participating PPs in timely and regulated way. PPs play a key role in diagnosing and treating TB patients, and hence, timely training and orientation in RNTCP and standard treatment for TB care are essential and should be key priority areas.

Keywords: Adherence, International Standards of Tuberculosis Care standards, private practitioners, tuberculosis

INTRODUCTION

Tuberculosis (TB) is among the top ten causes of mortality worldwide. In 2017, the global incidence of TB was estimated to be 10 million.^[1] Since the past 5 years, TB has surpassed HIV/AIDS in becoming the leading cause of death from a single infectious agent.^[2] India accounts for one-fourth of the global TB burden.^[1,3] In 2017, the number of incident cases of TB was 211 per 100,000, and the number of deaths due to TB was 435,000.^[3,4]

Revised National Tuberculosis Control Program (RNTCP) is one of the largest national programs in India which provides free health-care services for TB patients. In spite of this government program, almost 85% of the patients having symptoms related to TB in urban India visit private practitioners (PPs) for their health-care needs,^[5,6] and roughly, half of them (50%) ultimately receive treatment for TB outside the program.^[7,8]

To control this growing burden of disease, it is imperative that all TB patients receive the same quality of care, based

on the best evidence available. The best practices for TB are enshrined in the International Standards of TB Care (ISTC). These standards were first published in 2006 followed by the second edition in 2009, and the third edition was released recently on World TB day 2014.^[9] Based on the ISTC, several countries have drafted country-specific adaptations, including the Standards for TB Care in India.^[10]

In spite of this, there is rampant usage of inappropriate diagnostic procedures and treatment practices for TB among the PPs in India. Furthermore, adherence to the ISTC continues to be low among them,^[7,8,11-13] thereby causing delays in the diagnosis of TB and continuing disease transmission and development of resistance to existing drugs.^[8,12,14] The study

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was thereby planned to evaluate the current practices for diagnosis and treatment of TB among the private medical practitioners against benchmark practices articulated in the ISTC and to assess the factors associated with adherence with ISTC.

SUBJECTS AND METHODS

This cross-sectional study was conducted among the PPs of Delhi. The sample size for the present study consisted of 50 PPs practicing allopathic medicine. PPs observing >10 patients per day and those who gave consent were included for the study, while those who refuse to participate were excluded. The data collection was carried out over 2 months (the summer vacation time was utilized for data collection).

After obtaining consent, the interview was conducted privately in the PPs' office. The diagnostic and therapeutic practices for TB were assessed, and the key outcome variable was the proportion of practitioners adhering to the ISTC standards of diagnosis (standards: 1–6) and treatment (standards: 7–13).^[10]

The questionnaire consisted of both vignettes and open and closed-ended questions. Vignette questions were provided to the practitioners in the form of case narration, and their response was compared to the expected standard response. If it was found to be the same, it was recorded as correct, and if the answer deviated from the principles in the standards, it was recorded as incorrect. Questions for the assessment of diagnostic practices which were part of standards 3–5 and assessment of treatment practices which were part of standards 11 and 12 were vignette based.

Operational definition

Adherent to the International Standards of Tuberculosis Care

The criteria for classifying PPs into adherent and nonadherent to ISTC standards were whether they followed three selected and core ISTC standards (use of cough for 2 weeks for identifying pulmonary TB suspects; sputum microscopy for diagnosing pulmonary TB; and use of the 6–9-month fixed-dose combination regimen for treating TB). Any practitioner who was adhering to all the three ISTC standards was labeled as “adherent with ISTC,” while others were classified as “non-adherent.”^[12]

Method of data analysis

Data entry was done in SPSS version 22 (IBM Corp., Armonk, NY, USA). Frequency and percentage distribution were used to analyze demographic data. Proportions were compared using frequency distributions and Chi-square test or Fisher's exact test. The value of *P* was calculated at 95% confidence intervals and was considered as statistically significant if ≤ 0.05 .

Ethical consideration and consent

Informed consent was obtained from all the participants, and the confidentiality and privacy of the participants was

maintained. Ethical clearance was obtained from the institute before beginning the study.

RESULTS

As observed in the study, 60% were general physicians. About

Table 1: Private practitioners adhering to the International Standards of Tuberculosis Care diagnostic practices

Diagnostic practices	Number of respondents	Number adhering to ISTC standards, n (%)
Standard 1: Cough of 2 weeks to suspect TB	50	43 (86)
Standard 2: Two sputum smear sample examination for the diagnosis of pulmonary TB	50	38 (76)
Standard 3: Extrapulmonary TB diagnosis based on appropriate investigations	50	27 (54)
Standard 4: Sputum microbiological examination in those with radiological findings suggestive of TB	50	18 (36)
Standard 5a: Diagnose sputum smear-negative pulmonary TB based on both sputum microscopy and X-ray	50	22 (44)
Standard 5b: Use of the right trial antibiotic	50	35 (70)
Standard 6: Diagnose pediatric TB based on at least three of five recommended approaches	22	10 (45)

TB: Tuberculosis, ISTC: International Standards of TB Care

Table 2: Private practitioners adhering to International Standards of Tuberculosis Care treatment practices

Treatment practices	Respondents (n)	Number adhering to ISTC standards, n (%)
Standard 7: Adopt methods to ensure adherence to treatment	50	29 (58)
Standard 8: Prescribe standard TB treatment regimen	50	34 (42)
Standard 9: Practice DOT or foster adherence with treatment supporter or other enablers	50	0
Standard 10: Follow-up cases with sputum microscopy	50	32 (64)
Standard 11: Prescribe culture and drug susceptibility testing for previously treated TB cases	50	24 (48)
Standard 12: For diagnosed DR TB, prescribe standardized regimen, or individualized TB treatment regimen based on availability of drug susceptibility testing	50	11 (22)
Standard 13: Maintain the patient clinical record	50	38 (76)

TB: Tuberculosis, ISTC: International Standards of TB Care, DOT: Directly observed treatment, DR: Drug resistant

Table 3: Practitioners adherent to International Standards of Tuberculosis Care standards (n=50)

Characteristic	Adherent to ISTC (standard 1+2+8), n (%)
Adherent	21 (42)
Nonadherent	29 (58)

ISTC: International Standards of Tuberculosis Care

Table 4: Characteristics of private practitioners in relation to compliance with three selected core International Standards of Tuberculosis Care standards

Characteristic	Number (percentage column-wise)		P (CI), OR
	Adherent to ISTC (n=21)	Nonadherent (n=29)	
Gender			
Male	18 (85)	16 (55)	0.032
Female	3 (15)	13 (45)	(1.17 - 20.26), 4.875
RNTCP training/sensitization			
Yes	10 (48)	5 (17)	0.0299
No	11 (52)	24 (73)	(1.20 - 15.84), 4.364
Specialty			
MBBS	13 (62)	17 (59)	1.000
Specialist	8 (38)	12 (41)	(0.363 - 3.62), 1.147
Years of practice			
<20	14 (67)	15 (51)	0.387
>20	7 (33)	14 (49)	(0.58 - 5.97), 1.867

ISTC: International Standards of Tuberculosis Care, RNTCP: Revised National Tuberculosis Control Program, OR: Odds ratio, CI: Confidence interval

16% were pediatrician, 6% were pulmonologists, 4% were surgeons, and 14% were gynecologists. In the study, 68% were male and 32% were female. Among the practitioners, 18% had <10 years of experience, 40% had 10–20 years of experience, 24% had 21–30 years of experience, and 18% had 31–40 years of experience.

Among the practitioners, 20% were observing <20 patients per day, 32% were observing 20–30 patients per day, and 48% were observing >30 patients per day. More than half of the practitioners (54%) were seeing less than 5 TB patients per month while one-fourth of practitioners (24%) were seeing 5-10 TB patients per month and 22% practitioners were seeing more than 10 TB patients per month.

Tables 1 and 2 show PPs adhering to ISTC for the diagnosis and treatment. It was observed that 86% were adhering to standard 1, 76% to standard 2, 54% to standard 3, 36% to standard 4, 44% to standard 5, and 45% to standard 6. About 58% were adhering to standard 7, 42% to standard 8, 64% to standard 10, 48% to standard 11, 22% to standard 12, and 76% to standard 13. None of them were adhering to standard 9. On analyzing the adherence as per definition,

42% were found to be adherent, while 58% were found to be non-adherent [Table 3].

Table 4 shows an association between adherence to ISTC standards and various independent variables. A significant association was found between gender and any form of training/sensitization received in RNTCP ($P < 0.05$).

DISCUSSION

The study information is based on the information collected from fifty doctors of Delhi. Based on the data collected with the help of a self-prepared questionnaire, following findings have been observed. It was found that maximum number of doctors, i.e. 60%, were general physicians and 30% were specialists. As per gender and age distribution, 68% were male, while 32% were female. Majority were <55 years of age. A study by Achanta *et al.* in Andhra Pradesh also has 70% respondents as males and majority below 60 years of age.^[12]

As per the study, 18% had <10 years of experience, while 82% had >10 years of experience. The respondents in a study in Kerala had also majority of respondents having >10 years of experience.^[13,15] As reported in the study, 48% of PP were observing more than thirty patients per day and 22% were observing more than ten TB patients in a month.

When asked whether they received any form of training or sensitization in RNTCP, 30% said that they had gone for some form of training, while 70% did not have any training. While assessing the treatment and diagnostic practices followed by PPs as per the ISTC, it was observed that 86% were adhering to standard 1, 76% to standard 2, 54% to standard 3, 36% to standard 4, 44% to standard 5, and 45% to standard 6. While assessing the adherence of respondents to treatment practices based on the ISTC, 58% were found to be adherent to standard 7, 42% to standard 8, 64% to standard 10, 48% to standard 11, 22% to standard 12, and 76% to standard 13. None of them were adherent to standard 9. Only 42% of practitioners were adherent to ISTC standards (1 + 2 + 8), while 58% were found to be nonadherent. A study done by Achanta *et al.* in Andhra Pradesh found that only 28 (14%) PPs were compliant with these three selected core ISTC standards.^[12]

Table 4 shows the relationship between the characteristics of practitioners and compliance with each of the standards and all three ISTC standards together. Male practitioners and those who were sensitized to RNTCP guidelines showed a higher level of compliance with all three standards as compared to females and those who were not sensitized. Similar findings were also found by Achanta *et al.*^[12]

Limitations

Only those PPs who were reporting in Nikshay gave consent to participate in the study, and hence, it is prone to selection bias. The data collection on diagnostic and treatment practices for TB was self-reported by the PPs and may differ from their actual practice. Furthermore, there could be a response bias.

CONCLUSION

As per the study, the adherence to ISTC care among the PPs was poor. Hence, there is a need to train and give incentives to participating PPs in a timely and regulated way. As TB elimination remains as a big challenge and PPs play in a key role in diagnosing and treating them, timely training and orientation in RNTCP and standard treatment for TB care are essential and should be key priority areas.

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Conflicts of interest

There are no conflicts of interest.

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