

## Awareness about the Notification of Tuberculosis among Private Practitioners in Madurai District: A Cross Sectional Study

Jayapriya B<sup>1</sup>, Balamurugan PV<sup>2</sup>, Hareesh A<sup>3</sup>

<sup>1</sup>Government Medical College, Dindigul

<sup>2,3</sup>Government Sivagangai Medical College, Sivagangai

---

Received: 30-12-2022 / Revised: 11-01-2023 / Accepted: 10-02-2023

Corresponding author: Jayapriya B

Conflict of interest: Nil

---

### Abstract

**Introduction:** Tuberculosis (TB) notification is defined as the process of reporting diagnosed TB cases to relevant health authorities, whom in turn report them to the World Health Organization (WHO) through National TB Programmes (NTPs). While TB cases detected in the public sector health facilities generally get notified, a large proportion of cases that are detected and treated in the private sector do not get notified. Increasing the awareness about notification of TB will increase the notification by private sector including practitioners, labs and pharmacies. This study is aimed at assessing the awareness of private practitioners about recent developments in the notification of TB and to educate them regarding the RNTCP guidelines.

**Materials and Methods:** This is a descriptive cross-sectional study. Two hundred allopathic doctors, irrespective of their field of practice, both private practitioners and Govt. doctors with private practice were included in the study. A self-administered validated semi structured questionnaire was given to the participants to assess their awareness about the notification of TB. After collecting the answered questionnaire, the participants were given a pamphlet with RNTCP guidelines about notification and the provisions that are available for TB patients and the facilitating practitioners.

**Results:** Nearly 95% of the study participants and all participants of Medicine and its allied specialities were aware about the notification of Tuberculosis. Majority of the participants correctly pointed out the benefits of notification i.e., contact screening, monetary benefit to the patient and improvement in the uniformity and quality of treatment. Only 27.5% were aware about NIKSHAY app. Only 31% were aware about the monetary benefit to the practitioner upon notification. Only 10 (5%) respondents had a fear of breach in the confidentiality of the patient and 12 (6%) respondents lacked time. Some of them didn't know whom to notify. At the end of the study, the details of whom to notify in Madurai district and the benefits of notification were given to the participants as a pamphlet.

**Conclusion:** The first step towards better management of TB is to notify the cases to RNTCP. Increasing the awareness about various aspects of case notification will go a long way in achieving the goals of RNTCP. At the end of the study, the participants understood the importance of notifying cases.

**Keywords:** Tuberculosis, Notification of Tb, RNTCP guidelines.

---

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

---

## Introduction

Tuberculosis (TB) is the leading cause of death from curable infectious diseases [1]. It poses a major threat in developing countries.

In a low resource country like India, the private sector dominates the public sector in case of health care. In Tuberculosis management too, private sector domination is observed. It takes an average of three consultations before the diagnosis of TB is made and in 70% of the patients the first health contact was with a private practitioner [2]. Fifty percent of the cases reaching RNTCP are treated in the private sector before reaching it [3].

DOTS was launched in 1997 and the whole country was covered in 2006. But only 23% of the patients receive treatment under DOTS. The attributing reasons may be easy accessibility, convenient timings and shorter waiting periods in the private sector. Nevertheless, this leads to long health system delays and considerable health expenditures for the patients, [4] as the diagnostic and treatment patterns in the private sector varies considerably from the national programmes [5]. Also nearly 60% of TB patients getting treatment at private clinics lack compliance to the TB treatment and retrieval of default cases by the private practitioners are also not done [6]. This inadequate treatment leads to amplification of drug resistance.

Even though TB has been declared as a notifiable disease in 2012, the notification rate was only 14.8/100,000 population in 2015[7]. If the notification of tuberculosis is improved, it may help in breaking the barrier between public and private sector. Though many studies are available on the assessment of the knowledge of private practitioners on the diagnosis and treatment of tuberculosis, not many studies are available on the awareness about notification of tuberculosis among private practitioners. Hence it is the need of the hour to assess the knowledge of private practitioners about the notification pattern. It is

also in our curiosity to understand their attitude towards notification and how it affects the patient's privacy.

Hence, this study was aimed at assessing the knowledge of private practitioners about the notification of Tuberculosis and to educate them the guidelines of RNTCP regarding notification. This is our attempt to reduce the health care delay, out of the pocket expenditure of the patients and to increase the awareness of private practitioners in TB notification.

## Objectives of the study

**Primary objective:** To assess the awareness of private practitioners about recent developments in the notification of TB

**Secondary objective:** To educate the private practitioners regarding the RNTCP guidelines.

## Materials and Methods

This study is a cross-sectional, descriptive study. The study was conducted in the private clinics and hospitals present in Madurai district. The study population comprised of Private practitioners i.e., of individual private practitioners, corporate sector and practitioners of both the government and private sector, of allopathic field irrespective of their speciality of practice. The study was conducted between April 2018 to May 2018. The sample size of the study was 200 doctors from Madurai district which is divided into four administrative zone from each of which fifty private practitioners were chosen by random sampling method.

## Ethical consideration

Ethics approval was obtained from the Institutional Ethics Committee, Government Sivagangai Medical College, Sivagangai, Tamil Nadu State, India. Written informed consent was obtained from healthcare providers prior to data collection.

## Selection criteria:

**Inclusion criteria**

1. Allopathic doctors - irrespective of their field of practice.
2. Private practitioners and Govt. doctors with private practice

**Exclusion criteria**

Doctors of other medical fields like Siddha, Homeopathy, Unani, etc.

**Methodology**

Initially an informed consent was obtained from the participant after which, a self-administered validated semi-structured questionnaire was given to the participant (Annexure 1). A briefing about the questionnaire was done and instructions to fill up the questionnaire were given. To reduce the fear of inhibition due to disclosure of their identity, the doctors were asked not to mention their name or any other personal information. They were instructed to completely fill the entire questionnaire, which contained multiple choice questions, with single correct option and multiple correct options and return back the filled questionnaire to the investigator immediately. After collecting the answered questionnaire, the private clinicians who participated in the study were given a pamphlet (Annexure 2) with RNTCP guidelines about

notification and the provisions that are available for TB patients and the facilitating practitioners. The questionnaire was prepared with reference from Revised National Tuberculosis Control Programme (RNTCP) – Guidelines for TB Control in India.

**Observation and Results**

Data was collected from 200 private practitioners, out of which 126 (63%) were male and 74 (36%) were female. The participants were divided into categories of medical, surgical, OG, orthopaedic and pre/para clinical faculties to assess their knowledge about notification of TB. Most of the participants were working in both private and public sector.

Twenty-four (12%) of them has not seen any TB patients in their practice in the past one year and 46 (23%) participants, mostly medicine faculties have seen more than five patients. Seventy-two of them has come across the drug regimen for TB only during their UG days and has not got updated. Seventy-four (37%) has read or heard about TB treatment in CMEs or some other means which includes post graduation entrance exam preparation coaching notes, in journals, for teaching purpose and online.

**Table 1: Background of the participants**

	Frequency (%)
Gender:	
Male	126 (63%)
Female	74 (37%)
Speciality	
Medicine and allied specialities	72 (36%)
Surgery and allied specialities	48 (24%)
Obstetrics and Gynaecology	18 (9%)
Orthopaedics	16 (8%)
Pre/Para clinical and MBBS	48 (24%)
Type of clinical practice	
Only Private practice	36 (18%)
Both private and public sector	164 (82%)
No. of TB patients treated in the last year in private practice	

Zero	24 (12%)
< 2	63 (31.5%)
2 – 5	67 (33.5%)
> 5	46 (23%)
Updating of knowledge about TB treatment	
During UG days	72 (36%)
During PG days	54 (27%)
Recently in a CME	59 (29.5%)
Others	15 (7.5%)

**Table 2: Knowledge about TB notification**

	Frequency (%)
Aware that TB is notifiable	
Yes	190 (95%)
No	10 (5%)
Should notify even if the patient/relatives disagree	
Yes	137 (68.5%)
No	14 (7%)
Not sure	49 (24.5%)
Notify even if lab/pharmacy has notified	
Yes	141 (70.5%)
No	11(5.5%)
Not sure	48 (24%)
Minimum details needed to notify	
Patients contact number and address	73 (36.5%)
Aadhar no. / ID proof	4 (2%)
Both	73(36.5%)
Not sure	50 (25%)
Knowledge of notification App.	
Aware of Nikshay app	55 (27.5%)
Not sure	145 (72.5%)
Available options for notification methods	
Correct response	163 (81.5%)
Incorrect response	37 (18.5%)
Monetary benefit to patients	
Correct response	64 (32%)
Incorrect response	38 (16%)
Not sure	98 (49%)
Monetary benefit to notifying doctors	
Correct response	54 (27%)
Incorrect response	10 (5%)
Not sure	136 (68%)
Further treatment of the notified patients	
Either Govt. or Pvt. Sector	84 (42%)
Only Govt. Sector	21 (10.5%)
Not sure	95 (47.5%)

**Table 3: Attitude towards notification**

Notification is needed	
Yes	198 (99%)
No	2 (1%)
Why notification is necessary	
Will improve quality & uniformity of treatment	16 (8%)
Patient gets monetary benefits directly	8 (4%)
Contact screening can be done	1 (0.5%)
All of the above	175 (87.5%)
Patients will be benefitted	
Yes	200 (100%)
Monetary benefits will improve notification	
Yes	144 (72%)
No	56 (28%)

**Table 4: Practice of notification of TB**

Practice	
Notified all TB patients	83 (41.5%)
Notified some	88 (44%)
Never notified	29 (14.5%)
Notified to whom	
Never notified	41 (20.5%)
District TB officer	85 (42.5%)
Local Govt. Health authorities	74 (37%)

In case not notified, reasons for not notifying,

Responses	Frequency (%)
Case not encountered	22 (11%)
Lack of time	12 (6%)
Lack of trust in Govt. sector	2 (1%)
Did not know whom to notify	11 (5.5%)
Fear of breach in the confidentiality	10 (4.5%)
Does not follow the RNTCP regimen	00 (0%)
Did not do sputum examination	21 (10.5%)
Referred the case to the Govt. sector	31 (34%)

### Feedback for the study:

All the doctors who participated felt that the study was useful. All the participants had said that they will notify TB patients hereafter and 153 (76.5%) have said that they will spread the information to their friends.

### Discussion

In this study the responses to a semi-structured validated questionnaire regarding the various

aspects of notification of tuberculosis cases as per the RNTCP regimen was collected from 200 private practitioners (126 male practitioners and 74 female practitioners) of allopathy.

While we look at the distribution of the number of the TB cases they had met in the past year, 46 (23%) met more than 5 cases, of whom majority i.e., 28 were from department of General Medicine. This is because TB cases

are regularly being handled by the general practitioners.

In our study to evaluate awareness, it has been observed that nearly 95% of the study participants were aware about the notification of Tuberculosis. In a previous study done in 2017 in Hubballi city, India only 79% of the private practitioners were aware that TB is a notifiable disease [8]. The difference between these studies may be inferred as increased awareness among private practitioners over a period of 2 years. Similarly, in another study done among private practitioners it was found that 88% of them were aware that TB is a notifiable disease in spite of poor reporting rate [9]. Of those who were unaware that TB is a notifiable disease, one belonged to the department of orthopaedics, 5 surgeons and the remaining 4 were from pre/paraclinical departments. All the practitioners of the medicine and its allied specialities were aware that TB is a notifiable disease. The main reason behind this could be general practitioners are the ones who regularly meet TB patients while majority of surgeons admitted that they either refer the case to the department of medicine or cases like abdominal TB were not fresh cases that ought to be notified.

All the study participants except two, felt TB notification is necessary and a majority of them correctly pointed out all the reasons mentioned in the study tool as benefits of notification. The reasons mentioned in the study tool i.e., the questionnaire were, contact screening can be done, monetary benefit to the patient and will improve the uniformity and quality of treatment. While some general practitioners (3.5%) found that only benefit of notification was availing the monetary benefit. Two obstetricians felt that TB notification was unnecessary as this was an unnecessary burden to the practitioner.

When questioned whether monetary benefit to the practitioner will improve notification, only 72 % of them felt it would while the rest felt

irrespective of whether they get the monetary benefit or not, it is the duty of the practitioner to notify.

Only 27.5% were aware about NIKSHAY, this is in accordance with the previously mentioned study, in Hubballi city in which 28% of them were aware about the mobile app available [8]. This is because the mobile app has been developed very recently. In a recent study, it was found that only a few practitioners found NIKSHAY portal to be easy while no one remembered getting any training in this regard [10]. There are frequent updates in the usage of the portal and the mobile app, hence, there must be better training programmes to help the physicians getting acclimatised to the usage of such portals. An immediate update should be given to all private practitioners in this regard as this is the easiest way to notify and at the end of the study, in the pamphlet issued to the participant we had given the instructions to register in NIKSHAY. When we look at the specialities, it is found only 5% of the surgeons were aware about NIKSHAY which was the lowest.

Also only 31% of the entire study population were aware about the monetary benefit available to the practitioner upon notification, in which only 14.28% of the surgeons had the knowledge about this which is the lowest. Proper knowledge on the schemes brought about by the government is essential for the public to reap the benefits. It is also found that none of the doctor received this monetary benefit even upon notification.

So far only 41.5% of the private practitioners who participated in the study have notified all the TB cases. Majority, 42.5% of the total study participants have notified to District TB Officer. From 2012, TB became a notifiable disease and any practitioner who fails to notify shall be booked under section 269 and 270, but so far the act has not been strictly implemented. Though general practitioners were very well aware about the various aspects

of notification, only 53.4% of the male general practitioners, and only 28.57% of the female general practitioners had notified all the TB cases. This is very less and the other specialities were performing even poorer.

A question regarding the reasons for not notifying, with multiple correct options was given. Out of the responses submitted by the participants, a majority (68 responses, 34%) had referred the case to the government sector. This is good as any case referred to the government sector gets automatically notified under RNTCP. This shows the better trust in the government sector by the private practitioners but in the long run this shall not always be the better solution as private sector dominates health care in India and it shall also equally take part in the eradication of TB. Followed by that, 21 responses (10.5%) were that they hadn't gone for sputum examination. This needs to be addressed and all practitioner should be updated about the diagnostic tools available for TB. As our study included participants from all the specialities of practice, 22 responses were that the cases were not encountered. 11 responses were they did not know whom to notify. However, at the end of the study, we had provided the details of whom to notify in Madurai district. In Chennai, among the reason for not notifying, lack of time and concerns regarding the confidentiality of the patient were reported [11]. While in our study, only 10(5%) respondents had a fear of breach in the confidentiality of the patient and only 12(6%) respondents lacked time.

### Conclusion

Private practitioners lack adequate knowledge towards the basic aspects of notification including the monetary benefits available to the patients as well as the practitioners. The system of notification implemented in 2012 is not yet fully functional. This study is an attempt to educate all the participants regarding the seriousness of the issue, benefits of notification, whom to notify and how.

### References

1. Dye C. Global epidemiology of tuberculosis, *Lancet* 2006; 367; 938 - 940.
2. Pantoja A et al. Economic evaluation of public-private mix for tuberculosis care and control, India. Part I. Socio-economic profile and costs among tuberculosis patients. *International Journal of Tuberculosis and Lung Disease*, 2009. 13(6): 698-704.
3. Sachdeva KS, Kumar A , Dewan P , Kumar A , Satyanarayanan S . New vision for revised national tuberculosis control programme (RNTCP) Universal Access – reaching the unreached “*Indian J Med Res* 2012; 135; 690 – 4 (pmc free article) (Pubmed)
4. Tamhane A , Ambe G , Vermund S H , Kohler, C L , Karande A , Sathiakumar N Pulmonary tuberculosis in Mumbai , India. Factors responsible for patient and treatment delays .*Int J prev Med* 2012 Aug ; 3(8) : 569- 80
5. WHO. Public-Private Partnerships for TB Control - World Health Organization. Report of a Regional Meeting Chennai, 7-9 August 2001
6. World Health Organization. Global Tuberculosis Control Report 2015 (WHO/HTM/TB/2015.22). Geneva, World Health Organization, 2015.
7. Satyanarayana S, Nair SA, Chadha SS, Shivashankar R, Sharma G, Yadav S, et al. From where are tuberculosis patients accessing treatment in India? Results from a cross-sectional community based survey of 30 districts. *PLoS One* 2011;6:e24160
8. TB Notification from Private Health Sector in Delhi, India: Challenges Encountered by Programme Personnel and Private Health Care Providers Mahasweta Satpati,1 SharathBurugina Nagaraja,2 Hemant Deepak Shewade,3 PrabhakaranOttapura Aslesh,4 Blesson Samuel,5 Ashwani Khanna,6 and Sarabjit Chadha3

9. Philip S, Isaakidis P, Sagili KD, et al. "They know, they agree, but they don't do"-the paradox of tuberculosis case notification by private practitioners in Alappuzha district, Kerala, India. PLoS One 2015;10: e0123286.
10. TB Notification from Private Health Sector in Delhi, India: Challenges Encountered by Programme Personnel and Private Health Care Providers Mahasweta Satpati,<sup>1</sup> Sharath Burugina Nagaraja,<sup>2</sup> Hemant Deepak Shewade,<sup>3</sup> Prabhakaran Ottapura Aslesh,<sup>4</sup> Blesson Samuel,<sup>5</sup> Ashwani Khanna,<sup>6</sup> and Sarabjit Chadha<sup>3</sup>
11. Thomas BE, Velayutham B, Thiruvengadam K, Nair D, Barman SB, Jayabal L, et al. Perceptions of private medical practitioners on tuberculosis notification: A study from Chennai, South India. PLoS One 2016;11:e0147579.



**ANNEXURE I****Awareness about notification of TB among private practitioners****QUESTIONNAIRE FOR THE PARTICIPANT**

1. Are you practising under the government sector or private sector?
  - a) Only Private
  - b) Both Govt. and Private sector
  
2. How many Tuberculosis cases did you see in the past 1 year?
  - a) Zero
  - b) Less than two
  - c) Two to five
  - d) More than 5
  
3. Are you aware that Tuberculosis is a notifiable disease?
  - a) Yes
  - b) No
  
4. When did you last read/heard about the drug regimen for Tuberculosis?
  - a) During my UG days
  - b) During my PG days
  - c) Recently in a CME
  - d) Others
  
5. Suppose a patient or his relative does not want to disclose the name and identity, is it required to notify such a case?
  - a) Yes
  - b) No
  - c) Not sure
  
6. If a pharmacy/lab have notified a Tuberculosis case then should the doctor notify the same?
  - a) Yes
  - b) No, it is not necessary
  - c) Not sure
  
7. What is the mobile app available for notification of TB?
  - a) Nikshay
  - b) BHIM
  - c) Umang
  - d) Startup India
  - e) Not sure
  
8. Which of the following is NOT an option available for notification of tuberculosis?
  - a) Hard copy by post, courier or by hand to the nodal officer
  - b) Email patient details to the nodal officer
  - c) Uploading information directly on to the online portal
  - d) Informing the patient to register by himself

9. What are the minimum details required to notify a TB case?
  - a) Phone number and residential address of the patient
  - b) Aadhar number / Any valid ID proof
  - c) Both a&b
  - d) Not sure
  
10. How much money is given to the TB patient after notification monthly for nutritional support?
  - a) Rs.500 per month
  - b) Rs. 750 per month
  - c) Rs. 1000 per month
  - d) Not sure
  
11. What is the monetary benefit for the doctors on notification of tuberculosis case ?
  - a) Rs. 250 per case on notification and then monthly till treatment completion
  - b) Rs. 100 per case on notification and then monthly till treatment completion
  - c) Not sure
  
12. Do the patients treated under private sector need to get drugs from government sector after notification?
  - a) They can get drugs from govt or private sector
  - b) They should compulsorily get free drugs from govt. sector
  - c) Not sure
  
13. Do you think notification of TB is necessary?
  - a) Yes
  - b) No
  
14. If Yes, why do you think TB notification is necessary in India?
  - a) Will improve the quality and uniformity of treatment of TB patients
  - b) Patients get monetary benefit directly
  - c) Contact screening can be done
  - d) All of the above
  
15. If No, why do you think TB notification is not necessary?
  - a) Unnecessary burden to the practitioners
  - b) Breach in the confidentiality of the patient
  - c) No benefits to the patient
  - d) All of the above
  
16. Do you think the patients are benefited because of notification?
  - a) Yes
  - b) No
  
17. Do you think that the monetary benefit to private practitioners for notification of TB will improve the notification rate?

- a) Yes
  - b) No
18. Regarding notification of TB patients in your private/govt. practice,
- a) I have notified all TB patients
  - b) I have notified some of my TB patients
  - c) I have never notified any of my TB patients
19. To whom did you notify the diagnosed TB case?
- a) District TB officer
  - b) Local Govt. health authorities
  - c) Not Applicable
20. If you have not notified any pts, for what reasons you didn't notify? (Tick one or many)
- a) Case not encountered
  - b) Lack of time
  - c) Lack of trust in Govt. sector
  - d) Didn't know whom to notify
  - e) Fear of breach in confidentiality of the patient
  - f) Because I don't follow the RNTCP regimen
  - g) Because I didn't do sputum examination
  - h) I refer the patient to the nearby Govt. hospital.

**ANNEXURE II**  
**NOTIFICATION OF TUBERCULOSIS IS MANDATORY. ARE YOU AWARE?**  
**Frequently Asked Questions**

- ✓ **Why is it needed to notify TB case?**
  - To know the burden of the disease and understand its distribution among different age and gender groups.
  - To ensure uniform treatment
  - To help patients to complete the treatment
  - To take public health measures
- ✓ **How to notify TB case?**
  1. Submission of hard/soft copy of the TB notification form to the district Tb Nodal Officer by post, by courier, by hand or e mail or authorized mobile.
  2. Uploading of information directly on the Nikshay portal <http://nikshay.gov.in>
- ✓ **Whom to notify in Madurai?**

Dr. S. Zufire Hassan Mohammed Khan, District TB Officer, Deputy Director of Medical Services (TB), District TB Centre, Villani Salai, Usilampatty, Madurai-625 532  
Telephone No.: 04552-250700
- ✓ **Minimum information needed to notify TB case?**
  - Patient name, Age, Sex, Aadhaar/Driving license number, Address and phone no.
  - Other info required:  
Basis of diagnosis: Microbiologically-confirmed TB case / Clinical TB case  
Patient category: New / Recurrent TB case / Treatment change  
Site of disease: Pulmonary / Extra-pulmonary only  
Rifampicin resistance: Resistant / sensitive / not available (& other drug resistance pattern by laboratories)
- ✓ **How to register private clinic / hospital for notification of Tuberculosis?**

Download registration form from <http://tbcindia.nic.in>. or avail from the nodal officer or else during the first notification the health establishment will be **registered** automatically.
- ✓ **What are the benefits for the practitioners through notification?**

Rs 250/- on notification of a TB case diagnosed as per Standards for TB Care in India  
Rs 250/- on completion of every month of treatment  
Rs 500/- on completion of the entire course of TB treatment.
- ✓ **What are the benefits for the patient?**

Rs. 500/- per month through Direct Benefit Transfer (DBT) till the duration of treatment for nutrition support.  
Earlier treatment & Ensure complete cure  
Contact investigation,  
Chemoprophylaxis for the households,  
Treatment support (if required),  
Comorbidity testing and drug susceptibility testing
- ✓ **For further information**  
<http://104.211.89.157/NikshayReports/Home/DtosDirectory#>

BETTER THE NOTIFICATION, BETTER THE MANAGEMENT!  
 PUT YOUR HANDS TOGETHER IN ERADICATING TUBERCULOSIS  
 Thank you for participating in the study!