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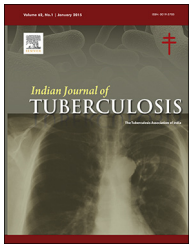

Original Article

Study of the structure and functioning of referral mechanism of patients receiving treatment and records linkage under Revised National Tuberculosis Control Programme (RNTCP) of Government of India

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ABSTRACT

Background: The reliable and successful performance of the Revised National Tuberculosis Control Programme (RNTCP) ''referral mechanism'' is profoundly important in the medical college scenario, and it is an important requirement of the programme to have feedback status report of the referred patients.

Methods: An observational study on tuberculosis (TB) patients referred from Directly Observed Treatment (DOT) Centre, Sri Venkateswara Institute of Medical Sciences (SVIMS) was conducted during the years 2010 to 2012 ($n = 622$). Subjects referred to other TUs within the District but failed to report there within 45 days constituted ''cases'' and subjects, who obtained treatment from the TUs they were referred to ''controls''. The initial information or confirmation of registration for treatment status feedback were obtained from patient/Senior Treatment Supervisor (STS)/District Tuberculosis Centre (DTC) levels respectively both before using intervention (Phase I, year 2010) and after using intervention (Phase II, years 2011 and 2012) by sending day-to-day text messaging of referral details of patients to the STS and District Tuberculosis Officer (DTO).

Results: During Phase I, the distribution of subjects ($n = 242$) in the ages ≤25, 26–50, and ≥51 years was similar in both the cases and control subjects ($p = 0.054$). Further, there was no statistically significant difference in the median age of the cases and controls [34.5 (interquartile range, IQR 31–51) vs 39 (30–54); $p = 0.319$]. There was no statistically significant difference in other parameters, such as gender distribution ($p = 0.9748$); availability of phone numbers ($p = 0.9614$); type of disease ($p = 0.8395$); and type of case ($p = 0.0793$). In Phase II, the effect of intervention on feedback related parameters showed statistically significant improvement in all the parameters such as initial feedback levels obtained within 15 days ($p = 0.0077$); within 45 days ($p < 0.0001$); above 45 days ($p < 0.0001$); registration status confirmation within 45 days ($p = 0.0343$); mismatch of feedback received by observer ($p < 0.0001$); and telephone number of patients recorded ($p < 0.0001$).

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Conclusion: Our findings suggest that text messaging reminders may be an important tool to achieve optimal feedback response in resource-limited settings.
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1. Introduction

The World Health Organization (WHO) 2015 Global TB Report states that world over, an 9.6 estimated million people were infected with TB and 1.1 million died from the disease.[1] The Government of India (GOI) launched RNTCP in 1997 and by March 2006 whole of India was covered by the programme, adopting the internationally recommended DOTS strategy[2] free of cost at their place of domicile.

There is an inbuilt referral feedback mechanism in the RNTCP for tracking patients who are referred for treatment to their place of domicile. This mechanism enables to provide feedback to the referred unit so as to ensure that the referred patients are initiated on treatment and registered under RNTCP.[3,4] RNTCP over the last decade has undertaken the unique exercise of involving medical colleges in TB control. This is the first-time a public health programme has successfully involved medical colleges in this manner.[5] Medical college teaching hospitals are tertiary care referral centres, and patients from far-flung areas are referred to these hospitals for diagnosis confirmation and expert management. Therefore, reliable and successful performance of the RNTCP ''referral mechanism'' is profoundly important in the medical college scenario than at any other peripheral health institution (PHI) under the RNTCP.

In spite of a strong structure, patients, who are diagnosed in this health system, are getting lost as the receiving units failed to provide feedback regularly. In a medical college scenario, reliable data regarding the feedback status regarding a patient referred for treatment from a medical college teaching hospital are lacking in published literature. The present study, therefore, was designed to study the performance of the existing referral mechanism under the RNTCP, identify the problems related to the same and also explore the feasibility of devising and instituting remedies for the same. The study on the present scenario would suggest linkages of referral information so as to strengthen the existing referral mechanism in vogue under RNTCP.

2. Materials and methods

All patients diagnosed to have various forms of TB at the designated microscopy centre (DMC) and Directly Observed Treatment (DOT) Centre at SVIMS, Tirupati who were referred for treatment between January 2010 and December 2012 were included in this observational study. Patients satisfying the following criteria were included in the study: patients referred from SVIMS DOT Centre to other treatment units (TUs) within the Chittoor District, patients referred to SVIMS DOT Centre from within the Chittoor District, patients from outside the Chittoor District, who fall within the catchment area of DOT Centre, SVIMS referred to SVIMS DOT Centre. Patients referred from SVIMS DOT Centre to TUs outside the Chittoor District and other States, patients opting to avail treatment at private practitioners and Non-Governmental Organizations (NGOs) in the study were excluded. The study was cleared by the Doctoral and Institutional Ethics Committees.

The study was carried out in two phases. During Phase I of the study (year 2010), all the subjects who were diagnosed at DMC, SVIMS and started on DOTS and referred to other TUs within the District but failed to report to their TUs within 45 days from the date of referral were classified as cases and all subjects, who obtained treatment from the same TUs they were referred to classified as controls.

During the entire study period, as per RNTCP norms ''referral for treatment forms'' in triplicate were used to obtain feedback using the postal system to the respective DTO (Form A), health facility where the patient is referred to (Form B) and the patient (Form C). In Phase II, (year 2011 and 2012) an intervention was designed to improve the performance of the referral feedback mechanism, and the study was conducted to assess the efficacy of this intervention. Since postal referral would take longer time, a text message using the short message service (SMS) was sent with the intention to communicate rapid and early.

2.1. *Intervention*

As an intervention, day-to-day SMS on the details of the referred patients had been sent through mobile phones to the STSs concerned and DTO on the day of referral itself, in order to reduce the communication gap and trace the patient earlier than that of postal system. In addition, monthly list of referred patients with details were sent to 'DTC-email' along with a hard copy sent through TB Health Visitor (TBHV), SVIMS every month prior to the monthly co-ordination meets as followed during the Phase I of study.

2.2. *Data collection*

The quality assurance was ensured by adopting following measures: to establish contact with the referred patient within 10 days from the date of referral, to ensure patients registered at their TU within 14 days from the date of referral, to provide feedback to the DTO on non-traceable patients, and provide correct surveillance report during the monthly meetings with STS's.

2.3. *Monitoring progress*

In addition, the method of monitoring adopted in Phase I was also followed in Phase II. On a daily basis, the DOT Centre at SVIMS, Tirupati was checked for verifying whether any postal feedback was received from the respective receiving units for

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