

**IMPLEMENTATION OF DOTS AS PER REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME (RNTCP) IN DADRI REGION OF UTTAR PRADESH**Smriti Ojha^{1*}, Hina Chadha¹, Seema Mahor¹ and Sarita Prajapati¹

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ABSTRACT

DOT (Directly Observed Treatment) against tuberculosis under the guidance of the revised national tuberculosis control programme (RNTCP) has already covered 450 million population of the country and has succeeded in achieving an overall cure rate of 80% for new smear-positive tuberculosis (TB) cases. For more than a decade, designated microscopy health centers and medical hospitals have been providing diagnostic services, treatment, referral for treatment, recording and reporting data, carrying out advocacy for RNTCP and conducting operational research relevant to RNTCP. Health centers are also contributing to diagnosis and treatment of human immunodeficiency virus (HIV)-TB co-infection and development of laboratory infrastructure for early diagnosis of multidrug-resistant and/or extensively drug-resistant TB (M/XDR-TB) and DOTS-Plus sites for treatment of MDR-TB cases. It tries to evoke a uniform consciousness among treating doctors both at government and private levels to follow a uniform diagnostic algorithm and treatment protocols which is very much readily available under RNTCP-DOTS throughout our nation. The objective of the study is to overview the guidelines put by RNTCP in various health centers of Dadri region of Uttar Pradesh for the evaluation and treatment of suspected TB cases.

KEYWORDS: DOT, Tuberculosis, Dadri, RNTCP.**INTRODUCTION**

Tuberculosis (TB) is a major public health problem in India.^[1] India accounts for one-fifth of the global TB incident cases. Each year nearly 2 million people in India develop TB, of which around 0.87 million are infectious cases. It is estimated that annually around 330,000 Indians die due to TB.^[2] Since 1993, the Government of India has been implementing the WHO-recommended DOTS strategy via RNTCP. The revised strategy was pilot-tested in 1993 and launched as a national programme in 1997. By March 2006, the programme was implemented nation-wide in 633 districts, covering 1114 million (100%) population. Phase II of the RNTCP started from October 2005, which is a step towards achieving the TB-related targets of the Millennium Development Goals. Since 2006, RNTCP is implementing the WHO recommended "Stop TB Strategy", which in addition to DOTS, addresses all the newer issues and challenges in TB control.^[3,4]

The objectives of RNTCP are

- To achieve and maintain at least 85% cure rate amongst New Smear Positive (NSP) pulmonary TB cases.
- To achieve and maintain at least 70% detection of such cases.

RNTCP program provides, free of cost, quality anti-tubercular drugs across the country through the numerous Primary Health Centres and the growing number of private-sector DOTS-providers. Tuberculosis is an infectious disease caused by T.B bacteria (*Mycobacterium tuberculosis* and *Mycobacterium Bovis*) that primarily affect the lungs but it can also affect organs in the central nervous system, lymphatic system, and circulatory system among others. Tuberculosis mostly affects young adults, in their most productive years. However, all age groups are at risk. Over 95% of cases and deaths are in developing countries. People who are co-infected with HIV and TB are 21 to 34 times more likely to become sick with TB (see TB and HIV section). Risk of active TB is also greater in persons suffering from other conditions that impair the immune system.^[5,6] About half a million children (0-14 years) fell ill with TB, and 64 000 children died from the disease in 2011. Tobacco use greatly increases the risk of TB disease and death. More than 20% of TB cases worldwide are attributable to smoking.^[7]

MATERIALS AND METHODS**Study area and population**

The study was conducted in Dadri a medium sized town of district Greater Noida, Uttar Pradesh, India. The RNTCP has been operational in Dadri region and a

survey was carried out by direct interview with patients and doctors of few private and government hospitals. 414 Patients of both sex were interviewed randomly from a age group of 10 to more than 70 years old. Doctors from 10 private hospitals and 2 government hospitals were also randomly interviewed about same.

Findings

Recommended treatment

Standardized treatment regimens are one of the pillars of the DOTS strategy Isoniazid, Rifampicin, Pyrazinamide,

Ethambutol, and Streptomycin are the primary antitubercular drugs used. Most DOTS regimens have thrice-weekly schedules and typically last for 6 to 8 months, with an initial intensive phase and a continuation phase.^[8]

Based on the nature/severity of the disease and the patient's exposure to previous anti-tubercular treatments, RNTCP classifies tuberculosis patients into two treatment categories.

Table 1: Recommended Treatment for TB.^[11,12]

New	Previously treated
New sputum smear-positive, New sputum smear-negative, New extrapulmonary tuberculosis, Others	Sputum smear-positive relapse, Sputum smear-positive failure, Sputum smear-positive treatment after default, others#
$2H_3R_3Z_3E_3 + 4H_3R_3$	$2H_3R_3Z_3E_3S_3 + 1H_3R_3Z_3E_3 + 5H_3R_3E_3$
2 months Intensive phase + 4 months continuation phase Four drugs at Thrice-weekly Schedule for 2 months Intensive phase & Two drugs at Thrice-Weekly Schedule for remaining 4 months continuation phase.	3 months Intensive phase + 5 months continuation phase Five drugs at Thrice-weekly Schedule for initial 2 months followed by Four drugs for next 1 month Intensive phase. Three drugs at Thrice-weekly Schedule for remaining 5 months continuation phase.

H: Isoniazid (600 mg), R: Rifampicin (450 mg),
Z: Pyrazinamide (1500 mg), E: Ethambutol (1200 mg),
S: Streptomycin (750 mg).

1. Patients who weigh 60kg or more receive additional Rifampicin 150mg.
2. Patients who are more than 50 years old receive Streptomycin 500mg. Patients who weigh less than 30kg receive drugs as per Pediatric weight band boxes according to body weight.

1.1. Symptoms and diagnosis methods

Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight

loss, fever and night sweats. Many countries still rely on a long-used method called sputum smear microscopy to diagnose TB. Trained laboratory technicians look at sputum samples under a microscope to see if TB bacteria are present. With three such tests, diagnosis can be made within a day, but this test does not detect numerous cases of less infectious forms of TB.

Diagnosing MDR-TB (see Multidrug-resistant TB section below) and HIV-associated TB can be more complex. A new two-hour test that has proven highly effective in diagnosing TB and the presence of drug resistance is now being rolled-out in many countries.^[9,10]

Table 2: Categories Of Cases And Treatment Regimens Under Rntcp.^[13-14]

Category	Characteristic of TB Cases	Intensive phase	Continuation phase
Category-I Red box	New sputum smear- positive seriously ill, sputum smear- negative, seriously ill, extra-pulmonary	2 (HRZE)3	4 (HR)3
Category-II Blue box	Relapse failure treatment after default	2 (SHRZE)3 followed by 1 (HRZE)3	5 (HRE)3
Category-III Green box	Sputum smear-negative not seriously ill, extra-pulmonary	2 (HRZ)3	4(HR)3

H: Isoniazid (600 mg), R: Rifampicin (450 mg), Z: Pyrazinamide (1500 mg), E: Ethambutol (1200 mg),
S: Streptomycin (750 mg)

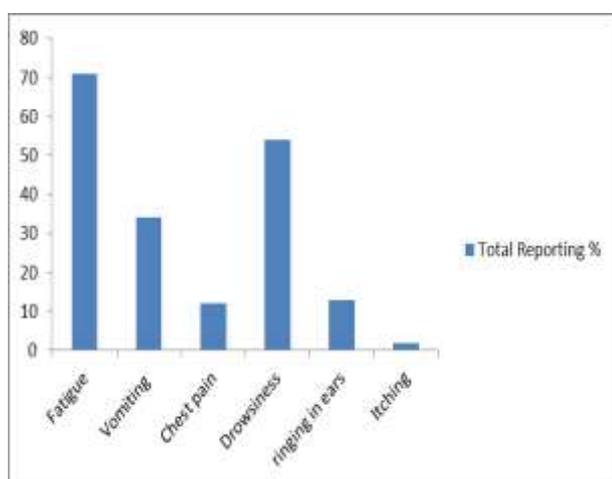
Out of 12 hospitals, 486 patients presented to these hospitals during the study period. About all these was free availability of drugs in only 2 primary hospitals. Sufficient information education & communication is provided only in the 2 primary hospitals. Being, tertiary care centre, many patients were referred to primary DOTS centres as per RNTCP guidelines as such only 414 patients with TB had gone treatment at primary

health centres during this study period. Most percent of patients preferred government hospitals because of their financial constraints. The treatment outcome is tabulated in the table 3.

Table 3: Treatment outcome in 414 patients at DOTS center.

S. No.	Evaluation Parameter	No of Patients	Number %
1	Registered Culture case	414	100
2	MDR-TB	57	14
3	Cured	289	70
4	Failed	9	2
5	Default	21	5
6	Died	17	4
7	Continuous treatment on DOTS	21	5

Patients were also interviewed regarding the side effects of the treatment. This report is presented in the figure 1. Fatigue was found to be the most common side effect among TB patients as per the survey report. Vomiting and gastrointestinal upset was also compliant in a significant percentage. About 94% patients were satisfied with the therapy.

**Figure 1. Side effect report of TB patients**

DISCUSSIONS

With the data procured from the various hospitals, we came to the inference that primary health centres of Dadri Area of west U.P. were following RNTCP guidelines. In addition to this, we observed that there was rise in MDR-TB case & awareness by the trained staff. So, a powerful TB control programme such as RNTCP is required to combat resurgent of TB due to HIV, multi drug therapy. Majority of patients were symptomatically improved within two months of treatment, this improved patient satisfaction. No cost treatment in primary health centres also improved patient's satisfaction.

The findings of the study showed that most % of patients know that TB is a curable disease, although many of them were not aware about RNTCP, by government of India. Majority of patients were also aware about duration of treatment and method of treatment. Knowledge about the side effects and consequences of incomplete treatment was not among all patients. This study emphasises for continuing education programme for TB patients, to teach them more about DOTS and consequences of incomplete treatment.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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