

**REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAM (RNTCP):
MANAGEMENT STRUCTURE, IMPLEMENTATION AND PERFORMANCE**

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EXECUTIVE SUMMARY:

T. B. is the oldest disease which has shown its presence and deadly effects in past as well as present century. This Disease is also known by the name of phthisis (consumption) if left untreated. This disease has also been mentioned in our Vedas and Ayurvedic Samhitas as the Kshaya Rog. As per the gathered data 1/3 of the world population is infected by M. Tuberculi. Globally in 2010 (8.8 million) T.B. cases occurred out of this 59% cases occurred in Asia and the second most effected region was Africa accounting for about 26% of the cases. Together Asia and Africa region accounted for about 85% of the total cases out of 8.8 million. Twenty-two high burden countries (HBCs) accounted for 81% of all estimated cases worldwide as seen in the data; India is the highest T. B. burden carrying country in the world according for about 26% T. B. cases. It is estimated that the prevalence of TB infection (latent infection) in India is about 40%. Currently, about one person dies of TB every 2 minutes. Approximately, 75 new sputum smear positive cases occur per 100,000 populations per year in India. India initiated National Tuberculosis Control Program (NTCP) in 1962. After reviewing NTCP and realizing its shortcomings, the Government of India evolved and adopted a revised strategy - the directly observed treatment short course (DOTS) - under Revised National Tuberculosis Control Program (RNTCP) with the goal of reducing TB burden and the twin objective of 70% case detection and 85% cure rates. RNTCP was launched in 1993, in a phased manner to be evolved through pilot phase (1993-1996), DOTS intensification phase (1997-2006), Stop TB strategy (2007-2011), and currently the Universal Access or National Strategic Plan (2012-2017).

RNTCP has been progressing successfully toward its goal and achieving its objectives since 2007. This addresses the Millennium Development Goal (MDG) and target to be achieved by 2015 and the Stop TB Partnership targets to be achieved by 2015 and by 2050. More than 14.2 million T. B. patients have been treated under RNTCP and 2.6 million lives have been saved by using DOTS strategy throughout the country. There is another challenge which is emerging as MDR TB and the unregulated and underutilized vast private sector using anti-TB regimes different from those under RNTCP pose additional challenges in the control of tuberculosis. RNTCP has successful partnerships with Indian Medical Association (IMA), Catholic Bishops' Conference of India (CBCI) and Foundation for Innovative New Diagnostics (FIND), World Vision and The UNION. From strengthening notification from private sector, scaling up diagnosis for drug resistance TB, engagement of communities and Community Systems Strengthening, partners have complemented RNTCP's efforts towards universal access to TB care. Involvement of more than 360 medical colleges in RNTCP is through DMCs, DOT Centers and DRTB Centers. This review is undertaken in order to understand Management structure, Implementation, Performance, Components, Achievements of RNTCP program in India from 1997 to 2014. This study is conducted covering literature review & secondary data analysis from government documents, official Statistics, technical reports, journals, review articles, reference books, to understand the programme management, programme components and its implementation processes.

1. BACKGROUND:

T. B. is the oldest disease which has shown its presence and deadly effects in past as well as present century. This Disease is also known by the name of phthisis

(consumption) if left untreated. This disease has also been mentioned in our Vedas and Ayurvedic Samhitas as the Kshaya Rog. The set of cause or the manner of the causation of the disease (T. B.) was argued until the discovery of the bacillus in 1882 by Robert Koch's. Effective drugs for the treatment of tuberculosis were accessible during the middle of last century. But the mortality rates in Europe and United States began to decline decades before the introduction of anti-microbial drugs. This decline in mortality rates occurred due to improvement in socio-economic conditions of the people living in these countries thereby achieving recognition of the fact that T. B. and poverty are closely related. TB also accounts for nearly 1.7 million deaths annually. Due to population growth, along with failure to cure high proportion of sputum smear positive cases. Taking entire world into consideration if the current epidemiological tendencies of the disease (T.B.) follows then it is estimated that by the end of year 2000, 88 million new cases of T.B. and 30 million deaths due to T.B. will occur in this decade alone. However this situation can be altered and multi-drug resistant T.B. can be prevented in the entire world, if efficacious T.B. control programs are implemented. Due to failure of NTCP in India and promotion of global tuberculosis program has urged the government of India to come up with RNTCP with the components of DOTS short course directly observed treatment. This program clearly indicates the commitment of Government of India in controlling the spread of T.B. across the country, with its two important elements: First is good equality diagnosis and record is treatment. The national T.B. programme defines the precedences of anti TB mensurates, as per local conditions. In 1951, Surveillance and monitoring project was setup by WHO to access the performance of national T.B. programs along with the assignment of implementation of DOTS, strategy in 75 countries and out of these 39

countries have implemented the strategy country wide. In 1995, 32, 97, 688 cases of tuberculosis were of which 35% were sputum smear. The sputum smear positivity was found to be 54% where new scheme was under carrying out as against 35% in non-strategy area. Further, of the patients registered for treatment in 1994 that used dots scheme, 92% were analyzed for final result and it was found that 75% were do bide successfully as compared to 42% in non-scheme area, bespeaking the success potential of dots strategy. The revised national T.B. control programme was began in Bharat in 1993 as pilot scheme (phase I) at five layers in the country so that it can achieve a cure rate of more than 90 per cent. By these consequences, the scheme was extended to cover 14 million populations in order to study technical soundness and operation feasibility of rntcp in phase II encouraged. It was anticipated that by the end of 2000 nearly 250 million populations will be covered by the dots scheme. The vital portion of dots scheme includes the full package of services for TB control in 102 districts and metropolises covering a population of 400 million in 15 states by 2000. In Delhi the pilot scheme (phase i) of rntcp was commenced at pectus clinic, gulabi bagh and in 1995. LRS institute of TB and allied diseases (chest clinic) was included in the extended pilot task phase 2 along with two more chest clinics. In this country under dots by December, 1999, 130 million of population had been covered. In Jan, 1999, whole of Delhi with a population of about 10 million was covered under rntcp with 14 chest clinics and 102 dots centers. Despite the ntp having been in being since 1962, no appreciable alteration in the epidemiological situation in the country had been observed the revised national TB control programme (1992 onwards). Despite the ntp having been in being since 1962, no appreciable change in the epidemiological situation in the country had been observed. The spread of multi drug opposition TB was endangering

to further worsen the state of affairs. The observations revealed that the NTP, suffered from managerial weaknesses, inadequate funding, an over-reliance on X-ray for diagnosis, had frequent interrupted supplies of drugs, and low rates of treatment completion and lack of supervision. In 1993, To correct these gaps, the authorities decided to give a new thrust to TB control activities by revitalizing the ntp, With assist from the international agencies. In the light of the recommendations and concerns evinced by the central health council, staircases were taken since 1993 to implement the revised national TB control programme (rntcp) in chose areas with World Bank assist. The revised national TB control programme (rntcp) thus articulated, accepted the internationally advocated directly observed treatment short course (dots) scheme, as the most systematic and cost effective approach to revitalize the TB control programme in India.

2. JUSTIFICATION / RATIONALE OF THE STUDY:

To know about the management, Implementation and performance of RNTCP program in India from (1999 to 2011).

3. OBJECTIVES OF THE STUDY:

- To detect the onus of disease (TB) in India.
- To construe the management structure of rntcp at national, state, district, sub district and peripheral degree in India.
- To clarify the Programme components of RNTCP.
- To comprehend the carrying out of rntcp programme.
- To examine the performance of rntcp programme.

4. METHODOLOGY:

This study is based on secondary data collected from Ministry of Health and Family Welfare, Government of India on program management structure, components of program, implementation strategies, and performance achieved. The data were collected from government documents, official statistics, and technical reports of WHO, journals, reference books, to understand the programme management, programme components and its implementation processes.

5. RESULTS AND DISCUSSION:

5.1 BURDEN OF TUBERCULOSIS:

The single most significant causative microorganism responsible for T.B. is known as mycobacterium Tubercule. According to the global estimation 8-9 million people actively develops this disease every year out of this nearly 4 million cases are sputum smear-positive, Tuberculosis kills more adults in comparison to any other infectious disease. More children are orphaned because of tuberculosis than because of any other infectious disease. Tuberculosis (TB) was proclaimed as a worldwide emergency by W.H.O in 1993, and countries around the world escalated their measures towards TB control programs. If an adult is caught by this disease it will result in the loss of 20-30% of annual household income. If an individual dies due to this disease on an average 15 years of income is lost. It has been estimated that in terms of cost annually ,which is beard by the country in the form of direct cost is 300 million US\$ and indirect cost is 3 million US\$. More adult females than any other infectious disease and more than all causes of maternal mortality combined this disease kill. Moreover, women having TB are more stigmatized and about 100,000 women are rejected by their

families each year due to this disease. This disease also shows an unfavorable effect on children in the form that a large number of children becomes orphans and each year in India alone 300,000 children leave school on account of their parents suffering from T.B.

5.1.1. WORLD:

About one third of the human race population is infected with M. tuberculosis. Out of 8.8 million TB cases that occurred globally in 2010, 59% occurred in Asia (WHO South East Asia and Western Pacific Regions), 26% in the African Region, 7% in the Eastern Mediterranean Region, 5% in the European Region, and 3% in the American Region. Together Asia and Africa region accounted for about 85% of the total cases worldwide.

The best estimates of with the largest number of incident cases in 2010 were five countries: India 2.3 million, China 1 million, South Africa 0.49 million, Indonesia 0.45 million and Pakistan 0.40 million. China and India together accounted for 40% of the world total. Around 95% cases and 99% deaths due to TB occur in the developing world. The global HIV positive proportion in all incident TB cases in 2010 was 13% with highest proportion of about 60% in African countries like Mozambique and South Africa. The HIV epidemic worldwide is declining. TB is one of the top three infectious killer diseases in the human race HIV aids kills 3 million people, TB 2 million and malaria 1 million annually. ^{[9] [13] [14] [19]}

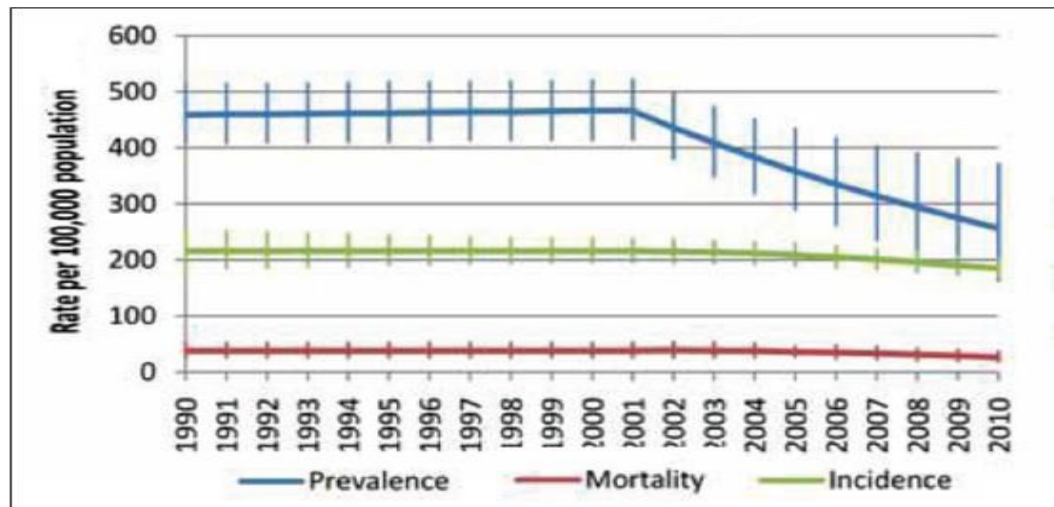
5.1.2. INDIA:

India is the highest TB burden carrying country (26%) in the world. It is estimated that the prevalence of TB infection (latent infection) in India is about 40%. Currently, about one person dies of TB every 2 minutes. Approximately, 75 new sputum smear positive cases occur per 100,000 populations per year in India. A smear-positive pulmonary TB case in the general community may infect 10-15 other persons in a year, and remain infectious for 2-3 years if left untreated. In 2010, the incidence, prevalence, and mortality rates per 100,000 populations were 185, 256, and 26, respectively. ^{[7] [12]}

5.1.3 GLOBAL AND INDIAN TRENDS:

Globally, the incidence, mortality, and prevalence trends are declining and the MDG target (Halt and begin to change by reversal the incidence by 2015) will be achieved in all WHO regions. Also, the MDG targets endorsed by Stop TB Partnership (halve mortality and prevalence by 2015 as compared to 1990 baseline) will be achieved in all WHO regions except the prevalence in African and Eastern Mediterranean Regions. In India, the prevalence and incidence rates have been falling since 2002 and mortality rate since 2005. Who estimated prevalence, incidence, and mortality trends from 1990 to 2010 are plotted in (figure1), with associated uncertainty, second, the prevalence of TB has by a 44% from 1990 to 2010. If current trends remain sustained, then Bharat stands a strong likelihood of achieving the TB related MDG and associated stop TB partnership targets. ^[6]

Figure 1: From 1990 to 2010 WHO estimated prevalence, incidence, and mortality trends.



5.2 MANAGEMENT STRUCTURE OF RNTCP:

5.2.1 NATIONAL LEVEL:

The Ministry of Health and Family Welfare, Government of India is responsible for program management and implementation at the National Level. The Central TB Division at the MOHFW, GOI is responsible for technical support to all the State/UTs in reducing the burden of disease (tuberculosis).

Programme in the entire country a national programme director (deputy director general [tb]) is in charge of the T.B. control. The MOHFW/GOI is responsible for policy planning and providing technical support for managing the program in various States/UTs. The financial and administrative control of the program is managed by the joint secretary from the administrative arm of the MOHFW. The CTD is supported by six national institutes: National institute for Research in Tuberculosis (NIRT), Chennai, National Tuberculosis Institute (NTI), Bangalore, National Institute of Tuberculosis and Respiratory Diseases (NITRD), Delhi, National JALMA Institute, Agra, Regional Medical Research Centre, Bhubaneshwar and BMHRC, Bhopal and National Task force of Medical colleges. Various committees of experts to guide the programme at

different levels on technical and policy matters are there supporting Central TB Division. ^[15]

5.2.2 STATE LEVEL:

The State Health Society or the State TB Control Society (STCS) (or its equivalent) is the implementing agency at the State level. It also exercises control over the District/Municipal Health Societies or District/ Municipal TB Control Societies (or its equivalent) in the State. The State TB Cell (STC) which functions as the secretariat of the State Health Society or State TB Control Society (STCS) for all functions pertaining to RNTCP at the State level is the accounting center for the programme.

The State Tuberculosis Officer (STO) holds the accountability for planning, training, supervising and monitoring the Programme. STO is administratively answerable to the state government and technically follows the instruction of the Central Tuberculosis Division (CTD), MOHFW, GOI and coordinates with CTD and districts for executing the programme at the state level. State TB Training and Demonstration Centre (STDC), headed by a Director, supports the State TB Cell with i) training, ii) supervision monitoring and evaluation iii) quality assurance of sputum microscopy, iv) culture and sensitivity, v) operational research, vi) advocacy, and vii) IEC. ^[15]

5.2.3 DISTRICT LEVEL:

For the management of primary health care the district is the key level. In large metropolitan areas) performs functions similar to those of the state degree in its area the district degree (or municipal corp degree. In the district and is responsible for all medical and public health activities including control of TB the chief district health military officer or his equivalent is the principal health functionary. For TB control

activities in the district and also functions as a specialized referral Centre the district T.B. Centre (dte) is the nodal point. The District Tuberculosis Officer (DTO) at the DTC has the overall responsibility of the programme at the district level and is assisted by an MO, Statistical Assistant and another paramedical staff. For each district, in some large metropolitan cities diagnosis is made at specialized TB Dispensaries/Chest Clinics and microscopy and treatment administration are done by special staff based in a general health facility. ^[15]

5.2.4 SUB DISTRICT LEVEL

A major organizational alteration in rntcp is the creation of a sub territorial dominion (tuberculosis unit TU). The TU is the nodal point for TB control activities in the sub-district. TU are based mainly in NHM health blocks with overall aim to align with NHM Block programme management unit (BPMU) for optimum resources utilization and appropriate monitoring. In urban areas TU's have been created based on a population of 1 per 2, 00,000 (range 1.5 -2.5 lakh). The Tuberculosis unit (TU) consists of a designated medical officer -Tuberculosis control (MO-TC), as well as one full-time supervisory staff - senior Treatment supervisor (STS). One Senior TB Laboratory supervisor (STLS) will continue to be in 5 lakh population and 1 TBHV per one lakh urban population is there to support the urban TB control activities.

The Block Medical Officer also functions as a MO-TC who is trained in RNTCP at a state level institution. MO-TC has the overall responsibility of management of TB control programme at the TU and is expected to undertake supervisory visits for seven days in a month. The team of STS and STLS are under the administrative supervision of the MO-TC and the DTO. Each TU will have one microscopy Centre which will cover 100,000 populations out of this (50,000 in tribal, desert, remote and hilly regions)

referred to as the designated microscopy Centre (DMC). Microscopy Centers are also located in medical colleges, corporate hospitals, ESI, Railways, NGO's, Private hospitals etc. ^[15]

5.2.5 PRIPHERAL HEALTH INSTITUTIONS (PHI'S)

In relation of RNTCP, a PHI is a health facility which consists at least a medical officer. At this degree, there are Dis similarities between, phcs, chcs, referral hospitals, major hospitals, forte clinics or hospitals (including other health facilities), TB infirmaries and medical colleges with in the respective district. In the private and NGO sectors participating in rntcp are also considered as phis by the programme all health facilities. Peripheral health institutions undertake T.B. case finding and treatment activities as a component part of the general wellness services. In any of the peripheral health centers, one of them may be identified and entrusted with the responsibilities of the rntcp in situations where more than one MO is posted. ^[15]

5.3 PROGRAMME COMPONENTS:

TB partnership is applied as a comprehensive package for TB control the directly observed treatment short course (dots), scheme along with the other elements of stop.

5.3.1 COMPONENTS OF DOTS:

- 1) **Political commitment with increased and sustained financing:** Strong and continuous commitment is necessary by the national governments for successful execution of DOTS & Stop TB strategy.
- 2) **Case detection through quality assured bacteriology:**

- a. Bacteriology for diagnosis – Bacteriology remains the acclaimed method of TB case revealing, first using sputum smear microscopy and then culture and drug susceptibility testing (DST).
- b. Strengthened Laboratory network: Lab scale up plan (43 laboratory units to be established)
 - Enhanced sputum processing capacity.
 - Solid culture and DST in all lab units.
 - Line probe Assay (LPA) in all lab units.
 - Liquid culture in 33 lab units.

3) Standardized treatment with supervision and patient support:

- a. Treatment services: To control TB, a structured and controlled standardized treatment is followed across the country for all mature and pediatric TB cases. Containing sputum smear – positive, smear negative & extra pulmonary cases.
- b. Superintendence and patient back up agreeablenesses for TB care should detect and address factors that may do patients cut off or stop treatment. Overseen treatment, which may have to include direct observation of therapy (DOT), helps patients to take their drugs regularly and complete treatment, thus accomplishing cure and preventing the development of drug resistance. Administration must be carried out in a context-specific and patient-sensitive manner, and is meant to ensure adherence on the part both of providers (in giving proper care and support) and of patients (in taking regular treatment).

- c. Improving access to treatment: Appropriate measures are to be undertaken in order to address and remove different types of barriers (physical, financial, social and cultural). Attention should be given to the poorest and vulnerable population groups.
- 4) **An effective drug supply and management system:** A dependable method of obtaining and delivery of all vital anti-TB drugs to all related health facilities should be in place. Proper TB reporting and recording system is planned to provide the information needed to design, acquire, allocate and uphold sufficient stocks of drugs.
- 5) **Monitoring and evaluation system, and impact measurement:** A dependable observing and assessment system with regular communication between the central and peripheral levels of the health systems is important. Proper recording of data should be done in order to get accurate effect assessment of the program.

The impact of DOTS, in India, in contrast to previous program is mainly attributed to following inputs: strong financial and administrative support, finding of pulmonary TB mainly by sputum microscopy and judicious use of X-ray, provision of drugs in patient-wise boxes (PWBs) containing the drugs for a full course category wise and the assignment of the box to a patient at the initiation of treatment, direct supervision of all doses in intensive phase and about one-third doses in continuation phase which helps maintaining the adherence and regularity of treatment and effective supervision and monitoring of the DOTS by exhaustive record keeping and regular review meetings, follow-up sputum examinations, field visits, etc. ^{[10] [16] [18]}

5.3.2 COMPONENTS OF STOP TB STRATEGY (2006):

- **Pursuing high quality DOTS extension and enrichment:**
 - a. Political promise with improved and continued financing.
 - b. Case discovery through excellence assured bacteriology.
 - c. Provide Uniform treatment with supervision and patient support.
 - d. An effective drug supply and management system.
 - e. Observing and assessment system, and effect measurement.
- **Addressing TB/HIV, MDR-TB and other challenges:**
 - a. Scaling up collaborative TB/HIV activities.
 - b. Scaling up prevention and management of MDR-TB.
- **Contributing to health system solidification based on primary health care:**
 - a. Improving health guidelines, Human resource development, and Funding, supplies and service delivery information.
 - b. Upgradation of laboratory networks.
- **Engaging all health providers.**
 - a. Involving of all public, voluntary, corporate and private providers through public private mix (PPM) approaches.
- **Enabling and promoting research:**
 - a. Conduct program based operational research.
 - b. Participate in research for development of new drugs, vaccines and diagnostics.

- **Empowering people with TB and communities through partnership:**
 - a. Pursue advocacy, communication and social mobilization.
 - b. Foster community participation in TB care, prevention and health promotion.
 - c. Promote use of the patient's charter for tuberculosis care. ^[15]

5.4 PROGRAM IMPLEMENTATION:

Beginning in Oct 1993, the rntcp was implemented in a population of 2 35 million in 5 sites in different states (Delhi, Kerala, west Bengal, Maharashtra, and Gujarat). Rapid graduated table up began in late 1998, when another 100 million population was covered under rntcp. Since 1998, The RNTCP has been rapidly expanding and has achieved complete nationwide coverage in March 2006, covering over a billion populations. In 2005 alone, on treatment under nearly 13 million patients 3 were initiated. Over 100,000 patients are now being placed on treatment each month. The phase II of RNTCP was approved by the government for a period of 5 years, from Oct 2005 to Sept 2010. As the programme has moved from the preparatory/expansion phase to maintenance and consolidation phase, RNTCP endeavors to provide high quality and cost effective diagnostic and treatment services. DOTS Plus was introduced A network of rntcp accredited quality assured intermediate mention laboratories (irl), furnishing culture and dst services for rntcp, besides monitoring quality under rntcp phase 2, it is planned to first establish. As per international guidelines, capable of enrolling and furnishing care and management for mdr TB cases would be recognized dots plus sites. The main dots plus sites were recognized in the states of Gujarat and Maharashtra and to register the first patients during 2006. As public private coalesce (ppm), rntcp has

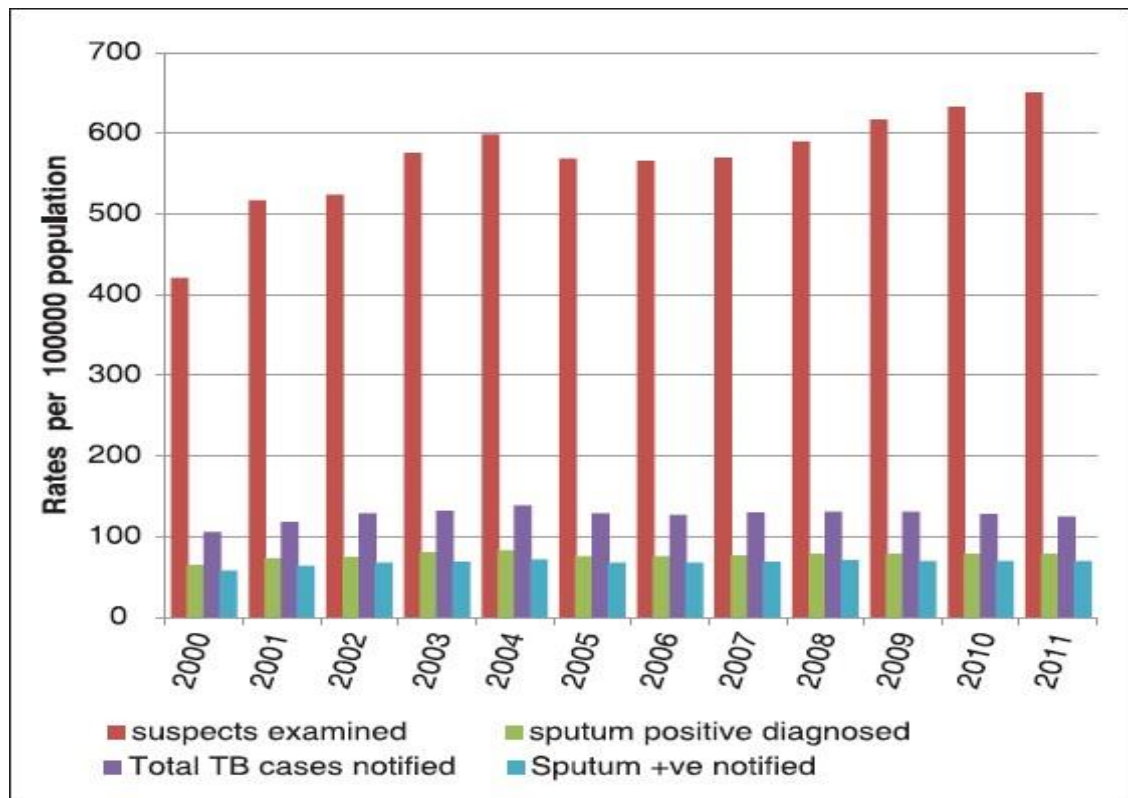
convoluted over 1971 NGOs, 10, 894 private practitioners, 150 corporate hospitals, and 297 medical colleges in enactment of rntcp.

5.5 PROGRAM PERFORMANCE:

5.5.1 RNTCP CASE FINDING AND TREATMENT OUTCOME PERFORMANC, 1999-2011:

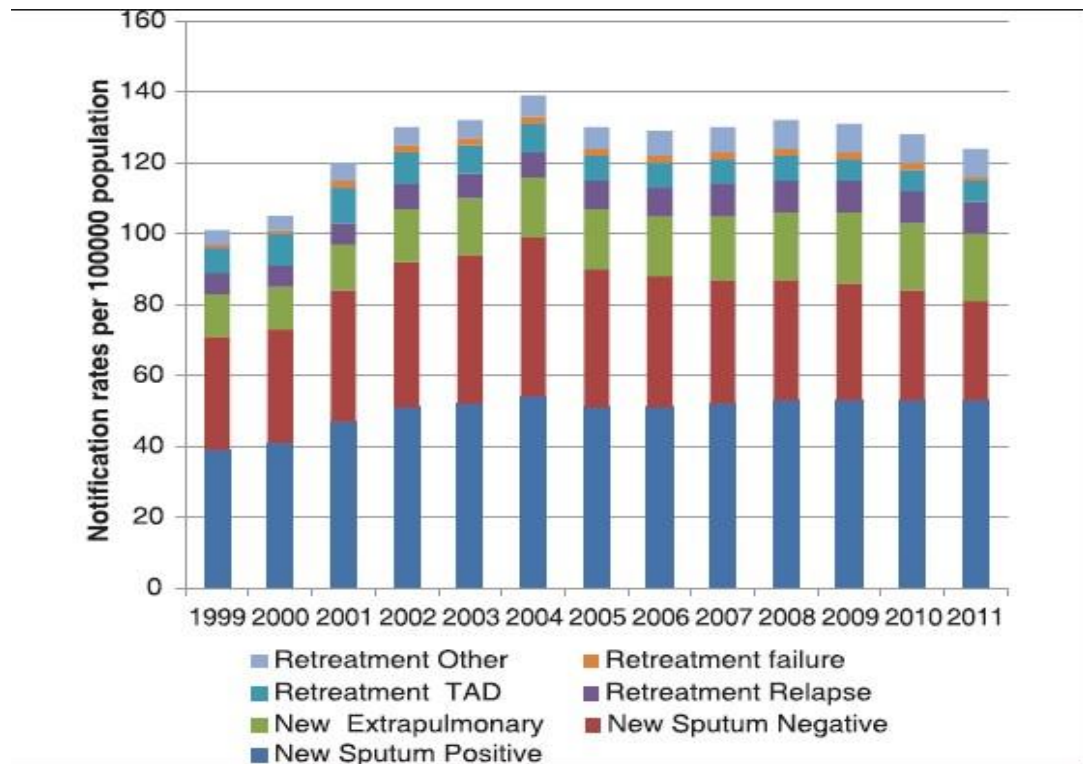
Rntcp follows the global method of cohort analysis for describing lawsuit finding and treatment outcomes. The data accumulated from the three monthly reports are examined and dispersed in the public arena as trimestral performance reports and as a yearly report. The annual performances of RNTCP in India, from 1999 to 2011, pertaining to case finding, case notification, and treatment outcomes are presented graphically in {(Figure 2), (Figure 3), (Figure 4), (Figure 5)}. These graphs are constructed from the tabular information available in TB India 2012, RNTCP, and Annual Status Report, published by Government of India. The rates mentioned in this section are per 100,000 populations. The National Strategic Plan with vision of "TB free India" and the objective of "Universal Access" for superiority diagnosis and treatment for all TB patients in the community and the extended Stop TB Partnership target for "Elimination of TB i.e. to reduce incidence <1 per million population by 2050" are the thrust areas of RNTCP for coming years. ^{[4] [11] [18]}

Figure 2: TB case finding and notification rates per 100,000 populations (2000-2011) India.



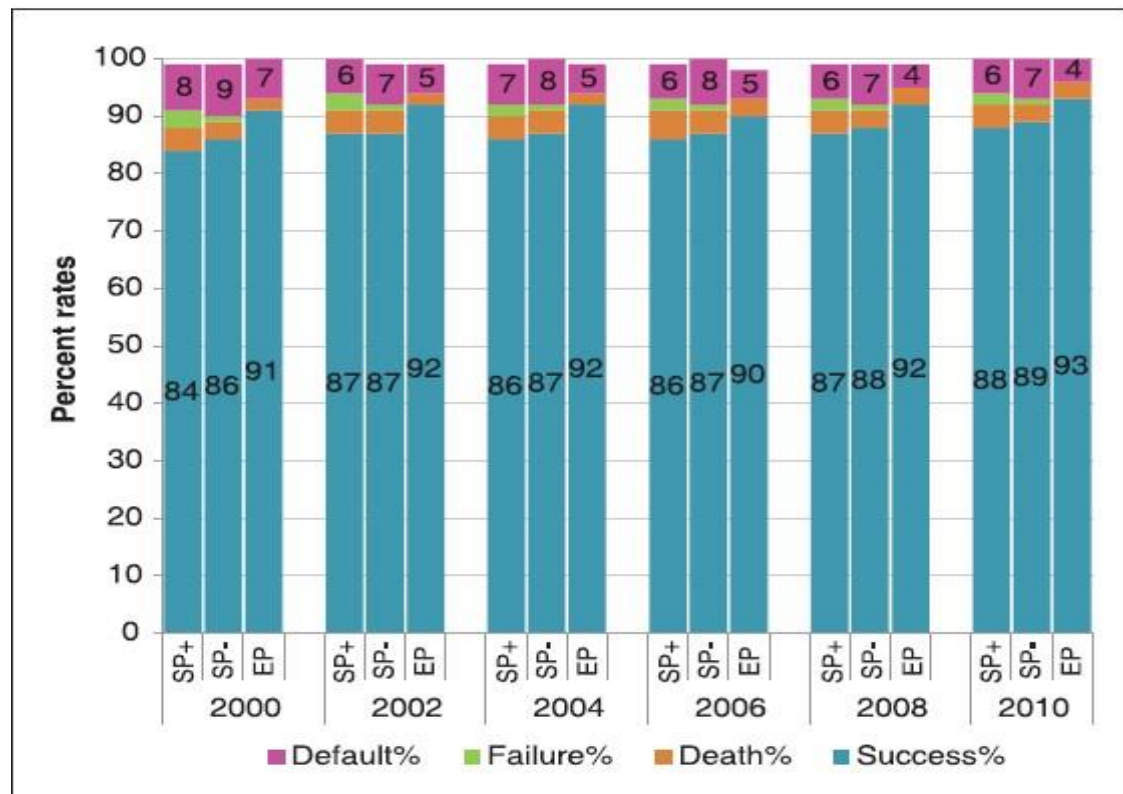
This bar-diagram depicts that, over the years from 2000 to 2011, Examination has increased by 50%, from 421 to 651 per 100, 000 populations the charge per unit of TB suspect. Similarly, the rate of sputum smears positive cases diagnosed by microscopy has increased by 20% from 62 to 79 per 100, 000 population. An average difference of 11.3%.

Figure 3: Notification rates per 100,000 populations for different types TB under RNTCP (1999-2011), India.



This Figure reveals that, Overall case presentment has increased over the analysis period in most types of TB cases with the exception of new smear negative and "treatment after default". Some of the argument for non-increase in new smear-negative type is increased attempts to acquire the sputum examined and Bacillus demonstrated with increasing availability and application of quality sputum smear microscopy services expanded under the program. The notification charge per unit of re treatment cases has increased by 40% over the past 12 old age. Almost stable and the "treatment after default" presentment rates have declined the notification charge per unit of failure type re treatment cases has remained.

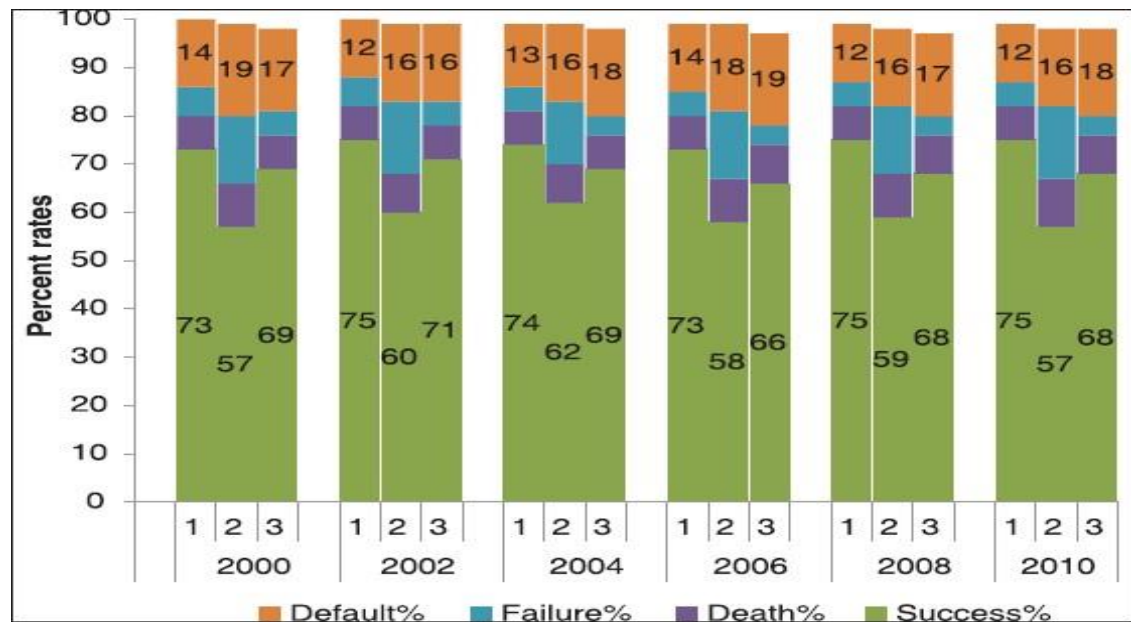
Figure 4: Treatment outcomes among notified new TB cases (2000-2010), India.



Note – SP+ Sputum Positive, SP- Sputum Negative, EP Extra Pulmonary Treatment outcome of Notified TB cases:

Among New Sputum Positive (NSP) cases, during 2010, the treatment success rate, death rate and failure rate has been 88%, above 5% and 2% respectively and over the period, the default rate has decreased from 9% to 6%.

Figure 5: Treatment outcomes among notified re-treatment TB cases (2000-2010), India.



Note: 1. Relapse cases put on re-treatment. 2. Failure cases put on re-treatment, 3. Default cases put on re-treatment. This diagram denotes that, the success rates and the two adverse outcomes (death, failure) in all the three types (relapse, failure and default) of over the year are almost similar and default rate Seems rather increasing which is of great concern and needs special attention. Among smear re treatment cases the treatment success charge per unit has been 68% since implementation. Concern among the re treatment cases default rates 15% has been an area of. Among re treatment cases have been higher when compared to the death rates among new smear positive decease rates.

5.5.2 PERFORMANCE OF RNTCP IN SOCIAL CONTEXT:

The association between TB and impoverishment has been much labeled with the poor, Susceptible sidelined populations known to bear uneven burden of the disease and severe monetary penalizations. Studies from Bharat bring outs that there has been

increased happening of TB among such population groupings, with data representing that about 64% of patients taking treatment under the rntcp, belonging to poor economic strata. On an examination of nfhs 2 data reports that TB happening is highest among the scheduled tribe women (2 63%) alternative study based. Domiciliation conditions also contribute in bearing the occurrence of the disease. Factors such as domiciliation in kutcha houses and apply of fume causing fuel for cooking are significantly associated to the occurrence of TB. It is reported that the monetary cost of illness due to TB in resource poor locations surpasses 10 pct. of the household income. Such populations, when distressed with TB, fight to grapple with the disastrous monetary costs and loss of efficiency. In delivery down the cost of TB treatment from rs rntcp has been successful. The poor and could be an effective component part of an anti-impoverishment approach to development however, some sidelined groupings such as tribal populations, rural poor and urban slum populations are yet to receive the full benefits of the programme studies report that the Programme is inward. A social rating undertaken in 2005 informed the development and deployment of a tribal action plan which defined several actions undertaken to assure inclusion of vulnerable and marginalized groupings in equitable and accessible rntcp service delivery. A follow up social appraisal was undertaken in 2011 to appraise the gaps and barriers to full utilization of rntcp diagnostic and treatment services by the sidelined and susceptible populations. Situation exposed three major groupings of barriers namely sociocultural barriers, economic barriers and wellness system barriers rating of the existing. Between outdated and biomedical cognition leading to delay in diagnosing and treatment induction, stigma, limited family and community back up and the long path to care seeking were some of the major factors affecting a gap utilization of TB services,

Monetary barriers included visits to multiple providers, high costs of diagnostic runs, treatment and additional drugs, and costs related to transportation system and nutrition supplements. From the geographical barriers like location of health facilities and difficult topography in the hard to arrive at areas, the study foregrounded issues related to health personnel (shortage of docs, health worker attitudes, deficiency of personal attending by clinical staff, "social distance" between patients and providers) apart. Furthermore, there were difficulties with service timings (fixed days of service, inconvenient and busheled timings, waiting time) and quality of care (inadequate follow up, inattention to side personal effects, and poor counseling). In addition to the general health system barriers, specific to TB treatment under rntcp in the authorities health facilities, there were issues such as delay in induction of treatment, too many tablets, side personal effects of drugs, cost of additional therapy, and the inconvenience of dot.

5.5.3 CHALLENGES OF RNTCP:

Some of the bottlenecks in TB control in India: about 40% dormant TB infections, HIV-TB co-infection, increasing burden of diabetes mellitus, widespread under-nutrition, overcrowded living, travelling and working conditions especially in urban areas due to rural-urban migration, unchecked use of alcohol and smoking, MDR and XDR TB, and poor involvement of private sector in TB control. Based on the results of Gujarat, Maharashtra (2005-2006), and Andhra Pradesh (2007-2008) Drug Resistance Surveillance (DRS) Surveys, estimated proportion of MDR-TB is 2.1% (1.5-2.7%) in new TB cases and 15% (13-17%) in previously treated cases. The global data shows that 32% of relapse cases are actually MDR-TB. Improving success rate of RNTCP treatment (by effective DOTS) will prevent relapses and may also reduce number of

MDR-TB cases in India. By February 2013, Programmatic Management of Drug-resistant TB (PMDT) services were available in all 35 states of the country across 638 districts covering a population of 1089 million (92%) and were being rapidly scaled up to include remaining districts by 24 March 2013.

Extensively drug-resistant TB (XDR-TB), a subset of MDR-TB with resistance to second line anti-TB drugs, has been reported in India. Results of the second-line Gujarat DRS survey have shown that there is no XDR amongst new cases and the prevalence among retreatment cases is 0.5%. Standardized treatment regimen for XDR TB under daily DOT includes (6-12 m) Capreomycin, PAS, Moxifloxacin, high dose INH, Clofazimine, Linezolid, Amoxy-Clavulanic Acid/ (18 m) all the above drugs except Capreomycin. Clarithromycin and thiacetazone are used as substitute drugs in case of intolerance.

Though only 5% of incident TB patients in India are HIV infected, in absolute terms it ranks 2nd in the world and accounts for about 10% of the global burden of HIV-associated TB.

India has a huge and poorly regulated private medical sector and it has been reported that, nearly 50-70% of TB patients continue to prefer private healthcare. Profligate use of existing commercial sero-diagnostic assays in the diagnosis of TB by the private sector without sufficient evidence of their utility resulted in the Government of India banning the import, manufacture, distribution and sale of these test materials in June 2012. The enforcement of this ban is a challenge.

Stigma and discrimination faced by TB patients and particularly those with TB-HIV coinfection are major obstacles in the path of the success of the program.

All these challenges need to be addressed to achieve the better impact of the program.

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6. CONCLUSION:

The National Tuberculosis Programme (NTP) which was conceived in 1962 did not come up to the expectations and were found lacking accuracy in several areas especially in accuracy of diagnosis and case holding. DOTS are the most actual approach of the RNTCP for controlling TB. It ensures that the patient adheres to treatment. DOTS avoid the extent of tuberculous bacilli, thus decreasing the incidence and prevalence of TB. TB causes indirect costs to the individual as well as society such as loss of employment, social stigma, and dropout from school etc.

RNTCP helps in improving poverty by saving lives, decreasing the duration of illness and prevention of new infectious cases. Success of the RNTCP depends on communication, collaboration and co-ordination between the Government and private practitioners, Non-Government organizations and other institutions of prominence such as medical colleges.

To conclude, the meticulous application of all the modules of DOTS, WHO Stop TB Strategy and Universal Access National Strategic Plan (NSP) will definitely help in achieving TB elimination goal by 2050.

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