Ministry of Health & Family Welfare
Government of India

World Health Organization
COUNTRY OFFICE FOR India

UNIVERSAL ACCESS TO TB CARE (UATBC)

Concurrent Assessment Report

May 2016

CTD and WHO Country Office for India

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Contents

Abbreviations

CBNAAT	cartridge-based nucleic acid amplification testing
CME	continuing medical education
CTD	Central TB Division
DR-TB	drug-resistant tuberculosis
DST	drug susceptibility testing
DTO	district TB officer
ICT	information and communications technology
IMA	Indian Medical Association
MoHFW	Ministry of Health and Family Welfare
NSP	National Strategic Plan
OOPE	out-of-pocket expenditure
PP	private provider
PPIA	private provider interface agency
PPM	public-private mix
PRI	primary rate interface
RNTCP	Revised National TB Control Programme
STCI	standards for TB Care in India
TMA	transaction management agency
UATBC	Universal Access to TB care
WCO	WHO Country Office for India

Executive summary

India has large number of private health-care providers, including qualified and unqualified health practitioners, pharmacies and laboratories. They account for roughly 80% of the first contact of patients (from all socioeconomic groups) with health-care providers. At least half of the TB patients treated in the country are by private providers. To achieve TB control in India, it is therefore essential to have effective engagement of the private sector at a scale commensurate with their dominant presence in the field of health care in India. Multiple prior efforts by the Revised National TB Control Programme (RNTCP) to engage the private sector since its inception have had limited success, not only due to design and implementation gaps, but also due to factors such as mutual mistrust, conflicting market forces and the immense scale and fragmentation of the private health sector. The RNTCP's National Strategic Plan 2012–17, while recognizing the importance of solving this key challenge to TB control, had recommended redesigning the existing strategies and developing and implementing /innovative models of engaging the private sector to overcome the challenges in service delivery gap in TB care that could be encompassed within the Programme.

One such new approach to engage private sector providers has been tried in the project Universal Access to TB care (UATBC). The intervention was aimed at improving TB notifications by offering information and communication technology (ICT) support that is convenient to providers, free TB drugs for notified TB patients and extending public health services including adherence support to patients diagnosed and treated in the private sector. The interventions were implemented in the districts of Patna in Bihar, Mehsana in Gujarat and Mumbai in Maharashtra, with the modus operandi at each of the sites tailored to suit the local context. In the urban areas, i.e. Patna and Mumbai, a private provider interface agency (PPIA) was used to enrol and extend public health services for a large number of private providers to ensure efficient service delivery. In Mehsana, the RNTCP staff was encouraged to manage the service delivery intervention by themselves for a small number of private providers. The interventions under UATBC are being implemented since 2014.

In May 2016, the Central TB Division (CTD) and the World Health Organization Country Office for India (WCO) jointly conducted an assessment of UATBC to understand the efficacy of engaging the private sector through these interventions, understand the operational and technical challenges and provide recommendations for further improvement as well as feasibility for scaling up such intervention. It brought together experts in the field of public–private partnerships, members from National Technical Working Group, CTD, national institutes, development partners, experts from management schools, state programme officers and WCO.

This report contains the findings, lessons learnt and recommendations based on assessment of the private sector engagement interventions carried out through UATBC.

Achievements

Overall, the interventions effectively attracted and facilitated large-scale notification of TB patients from private providers and facilitated monitoring and improvement of the quality of care. The process of enlisting of providers, prioritizing them based on their potential to contribute to TB case notification and updating the priority list for prescribing doctors through pharmacy surveillance (using provisions available under Schedule H1 notification) has been tested and found to be robust. Systems and strategies were developed for sensitization, which led to active recruitment of key providers. Processes related to customer service interface were deployed which kept providers engaged. The interventions respected the existing provider business, and leveraging of pre-existing private provider referral networks resulted in effective engagement.

In UATBC areas, TB case notification increased rapidly and substantially relative to baseline, and this increase was directly attributable to private practitioners. Significantly, large increases in the number of TB notifications occurred from just about one-third of practitioners who were sensitised and enlisted under the intervention, indicating the importance of intentional prioritization and targeting of providers. Prior to the intervention, use of sputum testing by private providers was low in all settings; but under this engagement strategy, availability of rapid and high-sensitivity tests with support to access it and constant monitoring dramatically improved the use of sputum testing and diagnosis of microbiologically confirmed TB in the private sector. The offer of use of tests using cartridge-based nucleic acid amplification testing (CBNAAT) has contributed significantly to multi-drug-resistant tuberculosis (MDR-TB) case finding from the private sector. Under the interventions, adherence support was extended to TB patients treated in the private sector and their treatment outcomes were systematically ascertained. Project interventions demonstrated the feasibility of extending public health services like contact investigation and HIV and drug susceptibility testing to privately treated TB patients. The project has reduced or subsidised the cost of care for patients incurred specifically on drugs and diagnostics. The cost estimates of the intervention suggest better efficiency.

Challenges

Despite supporting free diagnostic testing and provisioning of anti-TB drugs to patients without disrupting the provider practice, not all targeted key providers were successfully engaged. Without subsidizing or providing free access to high sensitivity diagnostic tests, microbial confirmation of TB diagnosis in the private sector would be difficult to improve. Improving microbiological confirmation without subsidized or free high sensitivity diagnostic tests is difficult. Even with the provision of these services and regular communication with private providers asking them to follow standards for TB care in India (STCI) is required to maintain the standards of diagnosis. Change of behaviour of practitioners in their prescription practices is a major challenge. Without ICT tools and back-end support to field staff, public health actions including adherence monitoring may get severely hampered. Due to resource constrains and current programme guidelines on use of CBNAAT which is limited to certain groups of patients, rapid diagnostics available in the public sector are not easily accessible for those patients who are currently seeking TB care

services from private providers. Besides the above, effectiveness of the intervention through the PPIA requires closer institutional coordination, capacity of the public sector staff to manage the programme under the new format, i.e. purchaser rather than direct provider, improving the contract management system including supervision, monitoring and timely reimbursement and resolving human resource problems such as attrition level among support staff.

Opportunities

The project has demonstrated that private providers can be engaged and TB notification can be vastly improved by providing benefits of diagnosis/treatment services to their patients and establishing supportive procedures. UATBC reached the key providers in scale, i.e. more than half of privately-treated TB cases. With improved case reporting, information is now available on a large part of TB patients seeking care in the private sector along with diagnostic and prescription practices of private practitioners. This further provides a window of opportunity to work with the private practitioners in order to improve quality of TB care, extend adherence support to those patients treated by them, and ensure better treatment outcomes. Use of ICT platforms such as handheld devices to field staff offers a huge opportunity to improve coordination and monitoring of services following TB notification. Providing access to rapid diagnostics (CBNAAT) opens up the prospect of better coverage of drug susceptibility testing to TB patients seeking care in the private sector. The intervention also gives an opportunity to review the out-of-pocket expenditure to patients. To summarize, the interventions demonstrated how scaled-up efforts would look like in terms of costs, what outcomes to expect and what metrics to follow on coverage and quality.

Recommendations

The core recommendation of this assessment is to scale-up the interventions in order to optimize the benefits accrued from these approaches. Strategies used in these interventions for enlisitng, attracting and improving case notifications from private providers, encouraging sputum testing and promoting adherence among patients seeking care from private providers should be incorporated into exisiting RNTCP guidelines for engaging the private sector. Key metrics used in the interventions with respect to monitoring coverage of private provider engagement, quality of services, adherence and follow up should be incorporated into the exisiting TB programme guidelines for monitoring.
The assessment identified several areas for improvement. In order to improve diagnostic practices of private practitioners, there is a need to expand access to free, high sensitivity diagnostic tests through the public sector or via purchasing such diganostic services from the private sector, which should be supported by RNTCP. Systematic monitoring of prescription practices and use of available evidence to influence practice behaviour of private practitioners should be part of sustained efforts to ensure standards of TB care. Since public health action following TB notification is a new intervention, coordination plays a major role. Field staff providing follow-up services should be enabled with ICT communication tools. This will immensely reduce time taken for recording and reporting. Provision of ICT tools and system support to field staff for better management of patient

information, tracking and monitoring would boost public health actions overall and adherence support in particular. Adherence systems can be strengthened with the use of emerging additional tools such as 99 DOTS, Pill box, etc. Detailed analysis of out-of-pocket expenditure (OOPE) including evaluation of social welfare payments to TB patients, as currently implemented in Kerala and Gujarat, would help in more effective targeted intervention. It is apparent that the interventions significantly increased the coverage of the programme to the erstwhile unreached, i.e. those seeking care in the private sector. Therefore, the overall coverage, including those seeking services from the public sector, shall be more than double the number of currently reported patients. If the interventions were to be continued or scaled up by the RNTCP, it is obvious that there will be a need for significant increase in the budgetary allocation. However, it may be possible that at scale, some economies will be achieved, and regular review of recurrent costs and use of shared public ICT infrastructure (like call centres) may help to reduce cost to programme.

The intervention design demonstrated the need for deploying contextually appropriate institutional mechanisms for improved private sector collaboration. Yet, certain systems and processes could be strengthened. The interventions also promise huge potential for scale-up, both in urban and rural areas across the country. There is a critical need to build capacity of the public health system to contextualise the private sector engagement strategies, procure and manage PPIAs to engage private providers and manage contracts. The capacity of the public health system to reach private providers and private sector patients can be achieved with adequate deployment of specialised human resources (e.g. PPP coordinator) as per the National Strategic Plan. In urban settings, with intense TB epidemics and dominant private health care, contracting of interface agencies to augment the Programme's reach will be required. Further, use of existing ICT systems like contact centres of 108 ambulance services and existing third party payment agencies to manage the process of e-voucher mechanism should be considered for scalability.

Background

Nearly a third of the world's "missing TB cases" are attributed to India, and nearly a million such cases are believed to be managed by Indian private providers.[1] Effective engagement of the private sector at a scale commensurate to their dominant presence in the health-care sector in India is crucial to achieve Universal Access to TB Care (UATBC). The private sector in India consists of a vibrant but varied set of sub-groups, providing services that are sought by the majority of the population. Besides professionally qualified providers, a substantial proportion of the private providers are unqualified, informal providers who are pervasive in urban slums and rural areas. The services provided by the private sector are generally perceived to be easily accessible (physical proximity), of better quality, more efficient and responsive to the needs of patients. On the other hand, the private sector remains largely unorganized and unregulated, with the technical quality of some sections of the sector remaining a concern. India has millions of private health-care providers, including qualified and unqualified health practitioners, pharmacies and laboratories. In approximately 80% of cases, the first contact of patients (from all socioeconomic groups) with health-care providers is with private health-care providers, which accounts for at least half of those treated for TB in India.[2] Studies conducted since the 1990s have documented the extent to which TB is diagnosed and treated in the private sector, as well as the prevalence of largely inappropriate diagnostic and treatment practices.[3,4,5] National Strategic Plan 2012–17 of the Revised National TB Control Programme (RNTCP) prescribes the development and deployment of engagement models that will overcome the barriers of mutual mistrust, conflicting market forces and fragmentation, so that the TB care provided by the private sector can be improved and encompassed within the programme.[6]

A new approach to engage private sector providers has been attempted under the project UATBC. In this initiative, private providers are enlisted and motivated for case notifications with the offer of convenient, free TB drug vouchers for notified TB patients. This has been implemented in the districts of Patna in Bihar, Mehsana in Gujarat and Mumbai in Maharashtra. The system was made efficient with the help of information and communications technology (ICT) including call centres for voucher management and monitoring of treatment adherence. The new system offered the opportunity to extend public health services to patients diagnosed and treated in the private sector. All three intervention sites are diverse and the modus operandi at each of the sites is tailored to suit the local context. Based on local needs and capacities, support of private provider interface agency (PPIA) was used (in Patna and Mumbai) to ensure efficient management of service delivery operations with the private providers.

[1]Global Tuberculosis Report 2014. Geneva: World Health Organization; 2014.
[2]National Sample Survey Office. Key Indicators of Social Consumption in India – Health. National Sample Survey 71st Round, January – June 2014, New Delhi: Ministry of Statistics and Programme Implementation, Government of India; 2015.
[3]Sachdeva KS, Satyanarayana S, Dewan PK, Nair SA, Reddy R, et al. Source of Previous Treatment for Re-Treatment TB Cases Registered under the National TB Control Programme, India, 2010. PLoS ONE 6(7): e22061.

[4]Satyanarayana S, Nair SA, Chadha SS, Shivashankar R, Sharma G, et al. (2011) From Where Are Tuberculosis Patients Accessing Treatment in India?Results from a Cross-Sectional Community Based Survey of 30 Districts. PLoS ONE 6(9): e24160. doi:10.1371/journal.pone.0024160
[5]Uplekar MW, Shepard DS. Treatment of tuberculosis by private general practitioners in India. Tubercle 1991;72(4):284–90.
[6]Central TB Division. National Strategic Plan for Tuberculosis Control 2012-2017. New Delhi: Directorate General of Health Services, Ministry of Health and Family Welfare.

These pilot projects had the following expected outputs:

- to motivate and attract additional TB notifications from privately-diagnosed TB patients;
- to improve TB treatment adherence among privately-treated TB patients;
- to offer public health services such as drug-susceptibility testing, contact investigation and chemoprophylaxis to the privately-treated patients;
- to reduce costs incurred by privately-treated TB patients who choose not to come for fully free treatment under public sector DOTS.

The interventions under UATBC are being implemented in all the three sites since 2014. Central TB Divisio (CTD) and WHO Country Office for India (WCO) conducted an interim assessment of this pilot projects from 16 to 21 May 2016. The purpose of the assessment was to understand the feasibility, scale and efficacy of engaging the private sector through these interventions, understand the operational and technical challenges and to provide recommendations for further improvement.

Objective of assessment

The overall objective of the assessment was to assess the interventions to guide the states in optimizing the functions and propose a set of recommendations to guide the programme on scale up of interventions or its components.

Specific objectives for the assessment were to:

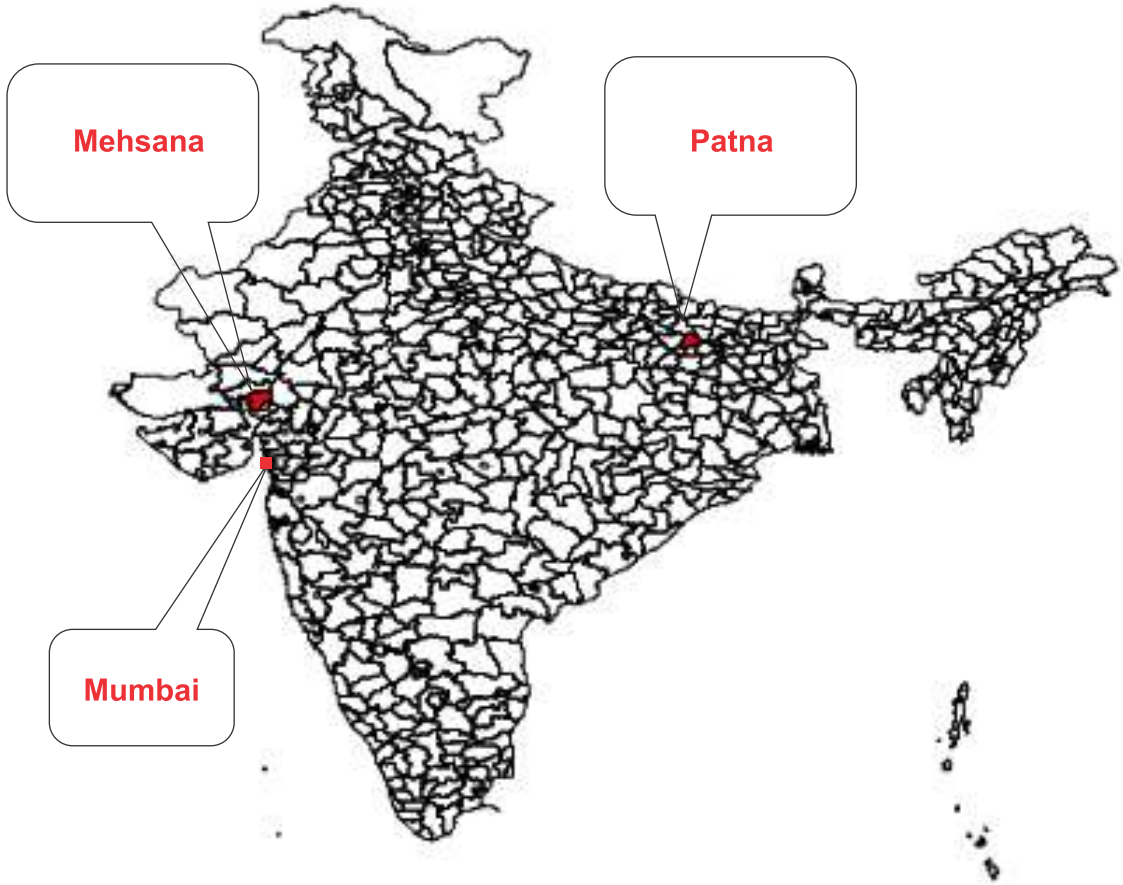
- describe the process of implementation of UATBC intervention
- describe the progress vis-a-vis the objectives of UATBC in all the sites in terms of coverage and quality
- measure the cost and possible efficiency of implementation of intervention
- recommend any mid-course corrections
- provide policy recommendations to CTD on scale up of similar approaches for large-scale engagement of private sector for TB control in India.

Process and approach of assessment

Interim assessment of UATBC was conducted together by the CTD and WCO. The assessment process started on 16 May 2016 with a briefing meeting chaired by DDG-TB, Dr Sunil Khaparde and WHO Representative to India, Dr Henk Bekedam. Member of National Technical Working Group, Professor Venkat Raman spelt out the need for innovations in partnerships for TB control, in particular for engagement with private practitioners. Additional DDG-TB, Dr Devesh Gupta elaborated strategies to engage the private sector under the RNTCP and the public–private mix (PPM) efforts made in the country for TB care and control in the past. The assessment team was appraised of the implementation structure and core strategies of UATBC interventions, the processes followed and initial results under the pilot. The purpose of carrying out assessment of UATBC interventions and procedures for the assessment laid down under the protocol to carry out assessment were deliberated upon.

All three sites implementing interventions under UATBC were visited by the teams. Fig. 1 shows the pilot sites visited.

Fig. 1. UATBC project sites



Each team was further divided into sub-groups, to visit different stakeholders and to cover geographically diverse providers and patients. The teams visited the district/city TB centre, state TB Cell, PPIA, private practitioners, private chemists, private laboratories and call centres. Interviews and discussions were held with patients seeking care from private practitioners (including informal providers), key staff under district/city TB centre, PPIA staff, Indian Medical Association (IMA) office bearers, chemist association leaders and state and district TB officials. At each site, the patients, their practitioners and chemists were also interviewed to ascertain pathways of care. Details of stakeholders interviewewed are given at Table 1.

Table 1. Stakeholders interviewed

State officials	District officials	RNTCP staff	PPIA officers	PPIA staff	Private practitioners	Chemists	Laboratories	Patients	Other (IMA, chemist associations)
9	7	27	8	20	44	27	14	63	3

Records on provider lists, public health actions, reimbursement details, prescriptions of private practitioners, drug master and H1 register (in Patna) were reviewed. Management of data on UATBC application, reimbursement process and call centre operations were assessed. Each state team prepared a summary of observations made during field visits. Period of assessment was from the date of initiation of intervention activities till 31 December 2015. At the conclusion of the field visits, the teams conducted a debriefing meeting with respective state officials, discussed the findings of the review and offered recommendations.

The teams discussed findings of the respective field visits at a debriefing meeting in New Delhi on 20 May 2016, followed by in-depth discussions that took place on 21 May 2016 to prepare overall observations and recommendations. Based on these discussions, team members then drafted their report on observations, implications, opportunities and recommendations on interventions carried out under UATBC and revised it by multiple iterative e-mail exchanges. It was then finalized by CTD.

Participants

A team of 22 members working in field of TB and partnerships in health care were engaged to conduct the assessment. These included officers and consultants working in CTD, independent consultants as well as officers from national institutes. State TB programme managers, economists, epidemiologists and social scientists were also part of the team. Technical officers from WCO and WHO Regional Office for South-East Asia were also members of the team. For a complete list of individuals and their affiliations, see Annexure1.

District profile

The interventions have been implemented at Patna in Bihar, Mehsana in Gujarat and Mumbai in Maharashtra. All three sites are diverse in terms of population structure, public and private health facilities, programme staffing and also the modalities of operations to fit the need. Table 2 gives a summary of relevant characteristics of these districts.

Table 2. District profile

District profile		Patna	Mehsana	Mumbai
Population	Total population	6 305 959	6 305 959	12 923 197 (15/24 wards covered)
	Urban population	35%	25%	100%
Public health facilities	TB units	10 (till 2015) 32 (now)	10	58
	Designated microscopy centres	45 (till 2015) 47 (now)	29	134
	Peripheral health institutes	55	78	255
Private health facilities*	Private doctors (MBBS/+)	1812	344	3772
	AYUSH	1563	131	4813
	Chemists	1556	436	2804
Staffing	District PPM coordinator	0	1	0
	Senior Treatment Supervisor	3	10	54
	Senior TB Lab Supervisor	7	4	53
	TB HV	4	5	158
Case load	TB cases registered under RNTCP (in a year)**	4000	2350	27200
	Drug resistant TB cases registered under RNTCP (in a year)	180	42	3600

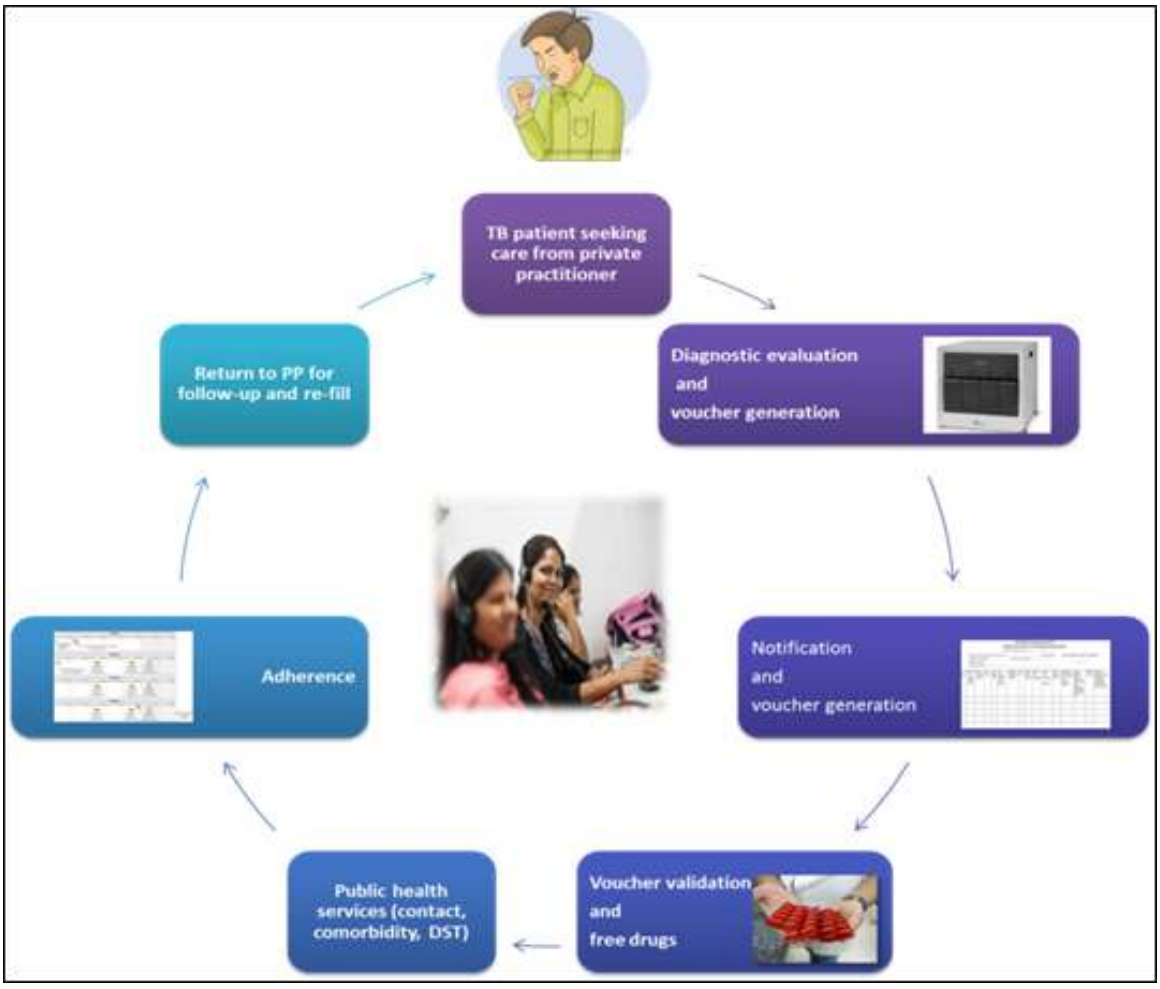
*No. of private health facilities derived through mapping exercise
** Figures are rounded based on last year's data

Interventions in Patna began with Patna City. After consolidating the interventions, the project was expanded to rural Patna. The district TB programme is largely understaffed due to vacancies; staffing norms of National Strategic Plan (NSP) have not been revised. In addition, the district (in particular Patna city) has a large presence of private health-care providers. Mehsana has a largely rural population with good infrastructure and staffing as per norms. There is moderate presence of private health-care providers in the district. Mumbai is, however, a large metropolitan city. It has infrastructure and staffing as per the norms laid down under the programme. It has a huge presence of private health-care providers. Till 2015, interventions had been implemented in 15 out of 24 wards of Greater Mumbai Municipal Corporation.

Modalities of operations under UATBC

Core intervention structure at all three sites includes TB notification facilitated through use of ICT with the help of call centre, free first-line anti-TB drugs using e-vouchers and reimbursement process, ICT-based adherence support and systematic public health services to TB patients. In addition, PPIA is used for provider engagement and patient support in Patna and Mumbai, acting almost like a tuberculosis unit (TU) for private providers in the cities, where providers are too large in numbers for limited RNTCP staff to manage. In all settings, key roles of RNTCP staff or PPIA are to facilitate training and sensitization of providers, encourage providers to avail free diagnostic services for chest X-ray and CBNAAT or smear microscopy and free first-line anti-TB drugs for their patients, facilitate notifications and support patient adherence and public health action on follow-up. All field operations are carried out by RNTCP staff in Mehsana.

Fig. 2. Patient pathway in UATBC



Following is the process laid down under UATBC interventions (see Fig. 2):

- A qualified private practitioner notifies a TB case diagnosed or treated outside RNTCP. The doctor or his/her staff calls a toll free number at the contact centre to notify the TB patient.
- Additionally, in Patna and in Mumbai:

- AYUSH/other informal providers are engaged and trained to refer presumptive TB/TB cases to qualified private practitioners. The informal provider or his/her staff calls the toll free number at the contact centre to register and refer the case.
- In order to facilitate accurate TB diagnosis, a provider engaged under PPIA sites registers a case and simultaneously issues an electronic diagnostic voucher (with unique serial number). The doctor or his/her staff calls the toll free number at the contact centre for diagnostic voucher generation. The voucher number is informed to the provider on phone and the same is also delivered to the patient via SMS. Diagnostic vouchers are generated for sputum microscopy, X-ray, CBNAAT or line probe assay.
- On receiving the prescription from the provider and diagnostic voucher number, the TB patient/presumptive TB patient will produce the same to the engaged laboratory.
- The laboratory validates the authenticity of the voucher number by calling on the toll free number at the contact centre. On successful validation, assigned diagnostic services are provided by the laboratory.
- After the test results are out, the laboratory service provider calls on the toll free number at the contact centre to update the test results.
- On receiving the diagnostic results, the qualified provider calls on the toll free number to notify the case.

- When the TB case is notified, an electronic drug voucher (unique serial number) is simultaneously generated for first-line anti-TB drugs prescription. The same is immediately informed to the provider notifying the TB case number on phone and also to the patient on his mobile number.

- On receiving the prescription from the doctor and drug voucher number, the TB patient produces the same to the chemist.
- The chemist validates the authenticity of the voucher number by calling up the toll free number at the contact centre. If the voucher number is valid, the chemist gives one month's free anti-TB drugs to the patient based on the prescription and voucher.
- District TB officer (DTO) (or PPIA staff) reviews requested vouchers, scrutinizes for errors or inappropriate prescriptions and provides no-objection certificate for reimbursement.
- The payments are made through e-transfer directly to the chemists against the vouchers validated by them. The chemists are reimbursed 3% of the cost in addition to the MRP of the drugs. This is to cover small fluctuations in market price.
- A patient is contacted by contact centre for confirmation of receipt of free TB medicines. During the confirmation call, the patient is also counselled, informed about adherence mechanisms and the adherence plan is decided. Emphasis is on family treatment supervision.
- The patient is also contacted by health staff for extending public health services like contact screening, adherence and infection control counselling, HIV testing and drug susceptibility testing (DST) services, etc.

- Further monitoring of the patient is managed through missed calls from patients to contact centre, SMS reminders to patients from contact centre, weekly phone calls to patients whose adherence are not marked in a week, voucher refilling monitoring and visit to patients based on information from contact centre on adherence.

Intervention modalities

The actual engagement of the field officers of PPIA with providers was focused on promoting diagnostic testing as well as notification/provision of free drugs in Mumbai and Patna, with treatment adherence. In Mehsana, diagnostics were not the mandate; the RNTCP staff were focused on the notification and provision of free drugs and subsequent public health actions (Table 3).

Table 3: Modalities of operations

Parameters	Patna	Mehsana	Mumbai
Beginning of implementation	May 2014	31 July 2014	September 2014
Non-formal providers registered and facilitated referrals	Yes	No	Yes Hub and spoke model
Referral of presumptive TB patients captured in UATBC	Yes	No	Yes
Facilitate diagnosis (diagnostic voucher generation)	Free CXR Free microscopy Subsidized CBNAAT (Free for BPL)	Linkages with microscopy services under RNTCP	Free CXR Subsidized CBNAAT (initially) Free CBNAAT (as of mid 2015)
Formal incentives	To non-formal providers for referral To formal providers for case notification To compounders for voucher generation	None	None
ICT support	Yes	Yes	Yes
Free drugs	Yes	Yes	Yes
Patient visit for treatment support	Patient field officers team of PPIA	RNTCP staff	Patient field officers team of PPIA
Coordination with private providers and chemists	Provider field officers team of PPIA	RNTCP staff	Provider field officers team of PPIA
Review and approval of reimbursement	Project officer of PPIA	District TB officer	Project officer of PPIA
Treatment adherence support	Mixed human and ICT systems, based on prioritization protocol for follow-up intensity: Patient field officer visit for high and medium priority patients, rest get call centre self-reporting, refill monitoring, visits if problems detected	Initial human system with ICT-dependent follow-up: Initial home visit counselling all patients who agree to visit, call centre self-reporting or missed calls, refill monitoring	Human systems more than ICT: Patient field officer visit weekly or bi-weekly home visits, call centre self-reporting, refill monitoring

Payment and Incentive structure in Patna

- The informal providers get a maximum of Rs 300 per diagnosed case (Rs 50 for referral that results in diagnostic voucher and Rs 250 for referrals that lead to diagnostic voucher as well as drug voucher).
- The physicians (formal providers) are given a maximum of Rs 300 as incentive per TB case (Rs 100 for notification and Rs 200 for GX test of the notified patient).
- The compounder attached to the private physician is given a maximum of Rs 300 (Rs 100 for generating diagnostic vouchers, Rs 100 for first drug voucher and Rs 100 after the remaining five or more drug vouchers have been generated).
- The chemist (drug store) is reimbursed the cost of the drug, as well as 3% of the drug cost on MRP to offset any revision in the prices.

Public private interface agency

In Patna and Mumbai, a non-government intermediary agency called public private interface agency or PPIA has been engaged for identifying, enlisting and motivating private providers and chemists, coordinating with private providers for case notification and follow-up, handholding the organizational management of the intervention for patient management, supporting sputum transport, community level follow-up for patient adherence and managing the ICT support. For this, human resources have been hired under PPIA as given in Table 4. There is no PPIA in Mehsana. The entire field operation is carried out by RNTCP staff.

Table 4: PPIA staffing structure at time of assessment

	Patna	Mumbai
Project lead/Director	1	1
Programme manager	1	1
Medical consultant	–	1
Strategic consultant	–	1
Marketing manager	–	1
Lab manager	1	1
Programme analyst	1	1
Field and operations manager	1	
MIS manager	1	1
MIS associate	5	7
Project coordinator	3	3
Knowledge management associate	1	
Grants and transactions manger	1	1
Senior programme administrator	–	1
Area manager	2	4
Field officer	17	17
Field staff	6	92
Monitoring officer	2	–
Sputum agent	4	25
Total	47	158

Staffing ratios in PPIA sites are different because there are differences in activities. Hence, they are not comparable. There is one field officer per 129 providers (physicians, laboratories and informal providers) and one field officer per 1417 patients in Patna. This is based on the number of active patients in a month. In practice, one field officer visits 130 patients/month; prioritizing patients for adherence support over and above contact centre adherence support. In Mumbai, there is one field officer per 162 providers and one field officer per 76 patients. Field officers managing patients also support heavy load facilities for voucher management, patient registration, adherence calls and voucher replenishment. In Mumbai, contact centre operations were started little later and hence, more field staff were required to carry out field operations.

Contact centre

For Patna operations, the contact centre is situated in Patna, and for Mumbai and Mehsana operations the contact centre is located at Gurgaon. The contact centre works in two shifts. The centre is available through two toll-free numbers – one primary rate interface (PRI) and other secondary rate interface to bring in redundancy in case of failure of primary PRI. The contact centre at Patna is enabled with one helpline number. In addition, a third rate interface line is maintained for tracking treatment adherence. The toll-free number has the facility of handling calls from all telecom operators in the country and the number is accessible from landline as well as mobile phone. Human resources deployed at the contact centre are as given in Table 5. Further details of infrastructure of contact centre are annexed.

Table 5: Staffing at contact centre

	Patna	Mehsana	Mumbai
Number of contact centre (CC) agents	13	6	6
CC supervisor	1	1	
Quality analyst	1	1	
CC manager	1	1	

Observations and recommendations

Engagement of providers

Observations

Mapping of private health facilities, chemists and laboratories was carried out by PPIAs with additive support of an agency (IMS Health). PPIAs conducted census of each provider and collected information on their contact details, qualifications, clinical practice and TB-care services. This list was merged with the IMS Health provider census. In Mehsana, only the IMS Health census was used, with inputs and corrections by programme staff. Qualifications, higher case load, lower consultation fee and clinical practices of practitioners were used to initially prioritize and target the providers. For engagement of these providers, continuing medical education (CME) and PPIA sensitization training programmes were carried out, usually with support and facilitation by RNTCP (STC, DTOs, consultants),

followed by one-to-one communication with practitioners. Additionally, hub and spoke structure was used in Mumbai to utilize the existing network and business relationship of formal and informal providers for effective engagement. Memoranda of understanding (MoUs) for provider engagement were executed in Patna, with eligibility conditions for the empanelment of private providers clearly laid out and the criteria for disqualification/ disengagement also clearly indicated in the MoU. In Mumbai, instead of a MoU, the project relies on a provider on-boarding letter in which the conditions of engagement are laid out, including disengagement in case of non-conformity of STCI. Bank details of engaged chemists were collected for the e-reimbursement process.

The assessment team noted that the approach for engagement has been reversed from past practice. Conventionally, RNTCP demanded certain procedures and assurance from providers to award an engagement, e.g. provider must follow diagnostic algorithm as prescribed, must use DOTS, then sign MoU and engage. This has been changed under UATBC, and priority is given to attract engagement (especially notification) first from private providers, and using that information to then monitor and improve quality of care, to ensure standards for TB Care in India (STCI).

At Table 6 is the result of engagement of providers as of December 2015.

Table 6: Private provider engagement by type, in UATBC sites as of December 2015

	Patna				Mehsana				Mumbai			
	M	T	E	A	M	T	E	A	M	T	E	A
MBBS +	1812	875	634	570 (31%)	344	312	312	107 (31%)	3772	3108	1315	817 (22%)
AYUSH/ non MBBS	1563	929	720	576 (37%)	131	-	-	-	4813	4002	1977	1464 (30%)
Chemists	1556	972	692	444 (29%)	437	177	172	90 (21%)	2710	310	310	310 (11%)

M = mapped; T = targeted; E = engaged; A = active (definitions of these terminologies are given at Annexure 3)

At the time of assessment, nearly one third of the providers in Mehsana and Patna and one fourth of the providers in Mumbai were active, i.e. they have been involved in at least one of the following activities–presumptive TB registration, notification, generation of diagnostic/drug vouchers, or validation of vouchers in the reporting period through UATBC.

In the case of Mehsana, engaged providers are the one catering to the majority of TB patients in the district. The assessment identified scope for improvement in Mumbai in terms of engaging priority providers.It was noted that the non-engaged practitioners had a perception that the patients may not return to their clinic and their income would suffer, despite pointing out the experience of other physicians that they do not lose such patients;

and the incentive was percieved as insignificant. Chemists who are not active expressed their disinterest, fearing paper work, inspection and payment delays. Substantial ground remains to be covered in terms of consolidating the process of engaging the providers in areas yet to be fully covered (as in Mumbai), and iterating a better value proposition for the non-engaged providers or non-active providers to become engaged.

Implications and opportunities

The assessment brought out the fact that a systematic process of mapping, targeting and motivating can successfully make priority practitioners (those caring for TB patients in comparitively larger numbers) to be attracted to come up and get involved actively. This engagement of priority providers can give maximum yield in terms of notification of TB patients and achieving better surveillance. It is critical to highlight the importance of unique processes followed while enlisting and motivating the providers by the PPIA and RNTCP staff. This operationalization of the process requires appropriate capacity building. Additionally, the engagement process should have continuous communications with the engaged providers over and above quality CMEs to sustain the rapport and engagement. Intervention also demonstrated that enhancement of capacity of staff such as medical representatives has a very big role to play in sustaining the relationship with providers. However, there are providers who are yet to be engaged. For those, there is ground for improvement.

Recommendations

For states

- Pursue identification and recognition (including certification) of active private providers (PPs) by the Programme/NGOs to strengthen support from active providers, improve rapport and encourage practices in accordance with STCI.
- Disseminate educational material and CME programmes (including sensitization on STCI) to both active and non-active providers.
- Continue regular interactions and coordination with providers by field officers. Coordination meeting of DTO, PPIA (if present) and NGO staff should be regularized (once a month) to share updates and synergize collective efforts to address any gaps.
- Strengthen the customer service approach and procedures for private providers. Grievance redressal mechanism should be established to ensure prompt action to support private practitioners, chemists and patients.

For the Programme

- As the UATBC engagement approach has been more effective than previous approaches in private provider engagement, the Programme should incorporate some of the key learnings from the basic processes, approach and philosophy towards engaging the private sector. Engagement should be provider centric, allowing flexibility in their approach towards service delivery in order to attract notifications and support treatment adherance, followed by provider-wise monitoring and strengthening of diagnostic and treatment quality towards STCI. This approach should be articulated in guidelines and training for programme managers and staff.

- Strengthen management capacity of key programme staff, especially district programme managers and PPM coordinators in their approach towards prioritizing, planning, engaging and monitoring private providers. Beyond reflexive training, ongoing mentoring by a state TB cell dedicated for PP engagement would be one approach to consider. It would be worth while considering conducting intensive workshops (either at state level or regional level) for DPCs/PPM coordinators on the experience and lessons of private sector engagement in Patna and Mumbai. The workshop could be conducted by the staff of PPIA.
- Develop standard templates (engagement package), including a draft MoU or letter of engagement that districts could use to articulate the approach with private providers. This could be part of the workshop material mentioned above.
- Develop capacity and provide support for systematic provider mapping, prioritization and processes involved in engagement so that the programme could generate a district-wise list of willing PPs; this will also facilitate targeted enlisting and improve provider coverage monitoring.

Incorporate private provider master tables and easy contact/updation tools into e-Nikshay development, so that field staff can directly and routinely update lists and contact information.

TB notification

Observations

TB case notifications across the three UATBC sites are shown in Table 7 in absolute numbers and in rate.

Table 7: Total reported TB case notification, public and private

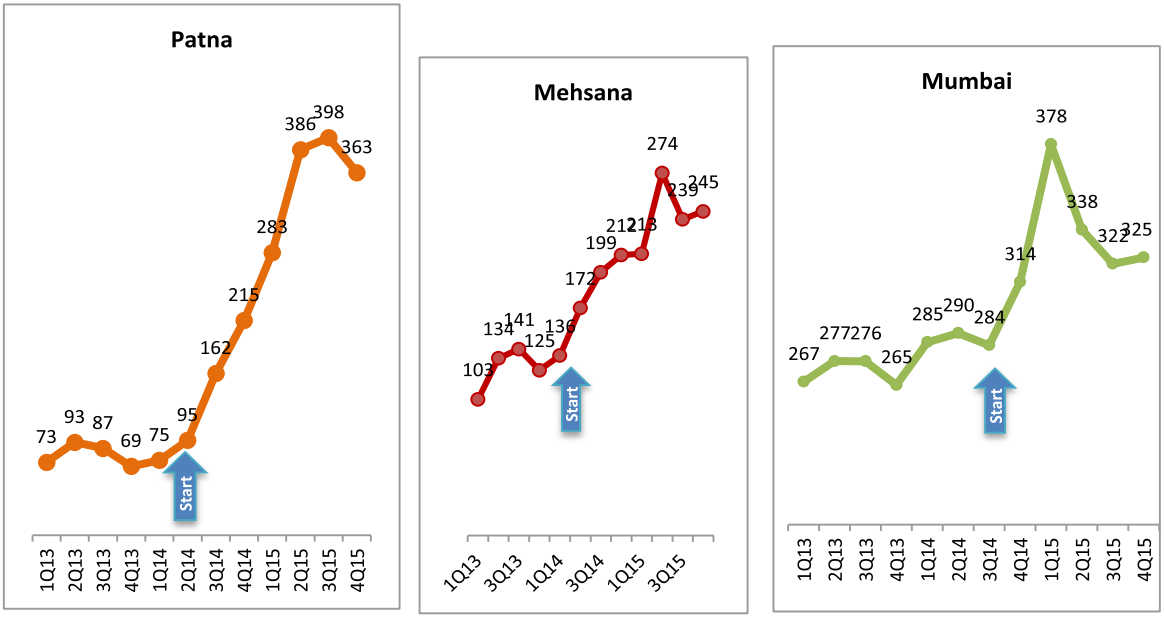
	Year	Public TB notifications (rate)	Private TB notifications (rate)	Total TB notifications (rate)	Increase in total case notification rate as compared to 2013
Patna	2013	462 (80/lakh)	0	4662 (80/lakh)	Ref
	2014	4541 (78/lakh)	3728 (64/lakh)	8269 (142/lakh)	1.77
	2015	4114 (71/lakh)	16 581 (284/lakh)	20 695 (355/lakh)	4.44
Mehsana	2013	2075 (104/lakh)	0	2075 (104/lakh)	Ref
	2014	2452 (123/lakh)	1108 (55/lakh)	3560 (178/lakh)	1.72
	2015	2350 (112/lakh)	2903 (138/lakh)	5353 (250/lakh)	2.41
Mumbai	2013	31 903 (249/lakh)	2891 (23/lakh)	34 794 (272/lakh)	Ref
	2014	30 851 (239/lakh)	7253 (56/lakh)	38 104 (295/lakh)	1.09
	2015	27 200 (211/lakh)	18 134 (141/lakh)	45 334 (351/lakh)	1.29

1 lakh = 100 000

Disaggregated data on source of notification was not available in 2013 in Patna and Mehsana

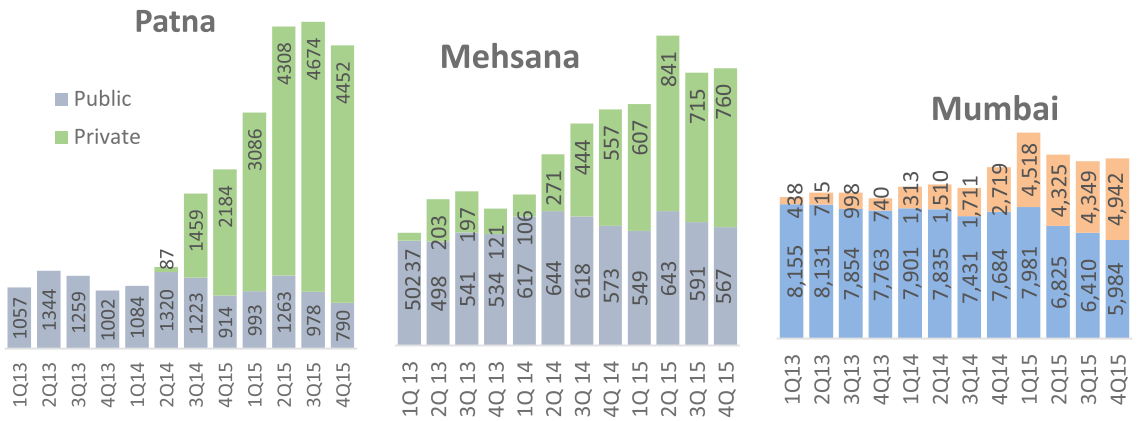
It is apparent that the interventions have resulted in a significant increase in TB notifications from the private sector, leading to an overall increase in total TB notifications at all three sites. Public sector TB case notifications have been stable or have marginally declined (~10% in Mumbai and Patna), perhaps because of capturing TB patients at an earlier point in their care seeking. The graphs at Figs. 3 and 4 depict TB notifications from the public and private sectors and increments in annualized TB notification rate.

Figure 3: Annualized total TB case notification rate



In Mumbai, data validation on case notification was systematically deployed in order to remove duplication of entries. The effort lead to identification of approximately 4% of private notifications that were repeated in the public sector and 1% of public notifications, again from the public sector. These findings underscore the importance of making the required improvements in the overall TB surveillance system.

Figure 4 : TB notifications from public and private sectors



With improved surveillance, information is now available on TB patients seeking care in the private sector and diagnostic and prescription practices of private practitioners. This further provides a window of opportunity to facilitate private practitioners to follow STCI and to extend public health actions to patients treated by them to ensure better treatment outcomes.

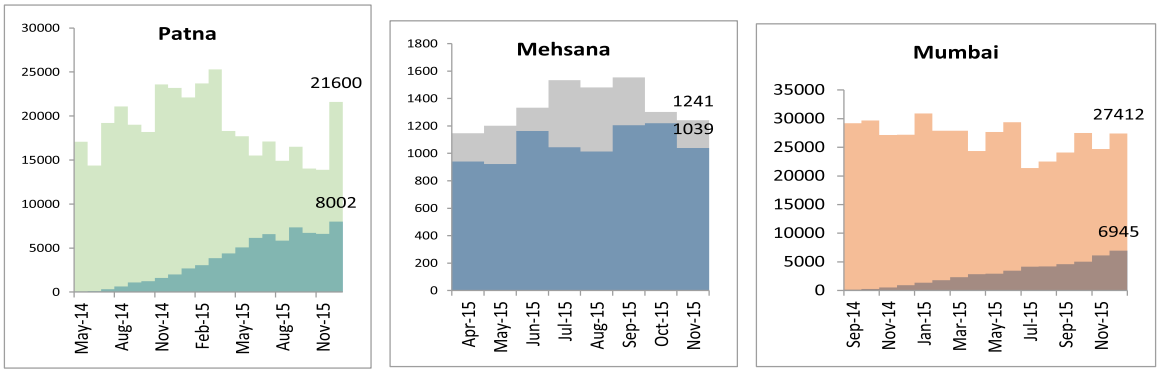
MDR TB case finding

In Mumbai and Patna, where PPIA services relied on CBNAAT quite heavily, a substantial proportion of multidrug-resistant tuberculosis (MDR-TB) case finding could be attributable to private provider referrals through PPIAs. For example, in 2015 in Mumbai, there were 1285 MDR-TB cases detected through PPIA, as against 3331 MDR-TB cases detected via public sector channels. In Patna, the dramatic expansion in TB notification was followed by a manifold increase in MDR-TB case finding. In 2015, 408 MDR-TB patients were detected by PPIA sources as compared to just 72 MDR-TB patients through RNTCP.

Coverage of TB patients notified from the private sector

It was a difficult task to measure coverage of notification of TB patients seeking care from the private sector, as prior to starting UATBC interventions, no information on private TB care was available. To approximate patient coverage, the UATBC sites used drug sales audit (conducted by IMS Health) to estimate number of TB patients treated in the private sector in respective areas. Reports on sale of rifampicin from the distributors (Patna, Mumbai) and retail sale (Mehsana), were taken as source to estimate number of patients in a month in the private sector, adjusted by prescription audit for non-TB uses of rifampicin. The number of patient months of drug voucher validated under UATBC was compared with it to come to patient coverage. It is important to note that this is a proxy of patient coverage, and will tend to underestimate actual coverage achieved. Many patients provided drugs in these areas are from outside the district, and are not included in the e-vouchers. Hence, they will contribute to the denominator, but not to the numerator. Similarly, a few patients notified may switch to self-purchase of medications after some time. Nevertheless, in the absence of other information, this provides an objective assessment of progress. Table 5 gives the trend of patient months of coverage as against estimated patient months of drug sales based on IMS drug surveillance reports. At the time of assessment (as on 31 December 2015), coverage of patients through intervention was estimated to be 37%, 84% and 25% in Patna, Mehsana and Mumbai, respectively.

Figure 5: TB patients notified as against patient months of drug sales



Area in dark colour in all three graphs is the number of TB patients notified in the month; area in lighter colour is patient–months of drug sales in the area

In Mehsana, coverage of patients is significant (>80%). This is through engagement of just one third of the practitioners. Private providers engaged in Mehsana through the intervention catered to the majority of TB patients seeking care from the private sector in the district. This again highlights the importance of targeted approach to engage priority providers in any private sector engagement strategy. There is an increasing trend of patient coverage but this has yet not reached a plateau in Patna and Mumbai. It is still far from the estimated patients in the private sector (only 37% in Patna and 25% in Mumbai).This is perhaps due to the fact that in Mumbai many priority providers (with high TB case loads) are not yet active under the intervention. It is also worthwhile noting that in Mumbai the project had covered only 15 of 24 wards till the end of 2015.

Implications and opportunities

It is evident that the interventions have increased TB notifications from the private sector substantially, impacting overall surveillance at a scale. In 2015, 18% of TB notification from the private sector in the country was reported from these three sites. Since TB notification is facilitated through a smooth ICT process, it systematically captures all information required for TB notification in real time. Additionally, the voucher (for free drugs) gives information of prescription practices. This not only opens up the opportunity to understand diagnostic and treatment practices of private practitioners, but also provides the time and chance to utilize this information for improving quality of care of TB patients. Moreover, access to subsidized or free quality diagnostics are providing the scope for detection of MDR-TB patients and bringing them under surveillance as well. Measuring coverage against drug sales as proxy helps the intervention to monitor when no baseline estimates of patients seeking care in the private sector are available.

Recommendations

For UATBC sites

In order to improve the programme effectiveness and wider coverage of patients, the intervention in Mumbai should prioritize increase in coverage of remaining wards and complete the geographic coverage at the earliest. There are still a large number of private providers who are not part of the intervention project in Mumbai and Patna. Coverage of private providers needs to be improved in both the sites through greater outreach strategy towards priority providers. Re-market and promote the success and benefits of intervention to the unengaged providers. Improve liaison with IMA and other associations to increase the provider network. Advocacy, communication and social mobilization (ACSM) and demand generation activities may be redesigned to check if reaching the unreached is feasible.

For RNTCP

- Drug sales monitoring should be incorporated into the routine programme monitoring and evaluation (M&E) framework; and should be used as baseline indicator wherever private provider outreach is seriously considered for implementation. The approach of tracking drug sales provides an important guidance to the programme as to the extent of coverage and the need for additional efforts. Incorporating the drug sales information, at least state-wise or district-wise or in major cities where possible, should be implemented as part of the programme.
- In order to avoid duplication across sectors and geographies and for more accuracy of information, the surveillance system should be unified. E-Nikshay could play a major role in this through the unique identification process. Emphasise routine collection of Aadhar number in RNTCP to maximize specificity of surveillance and remove duplication.
- Motivate and promote effective compliance to execution of Gazette notification of H1 schedule revision to capture information of practitioners who prescribe anti-TB medicines. This may help to identify practitioners for prioritizing or targeting to encourage TB notification from them.

Diagnostic process

Observations

Initially, microbiological testing was very low, with the microbiological confirmation rate at 5% in Patna, negligible in Mehsana and 15% in Mumbai. The interventions worked to improve microbiological testing and confirmation over the course of the project, deploying CMEs, one-to-one sensitization, continuous engagement from field officers, reducing minor token cost to patients in both Mumbai and Patna, improving specimen transportation and individual feedback to providers via report card on their testing achievements against their peers. In Mumbai, special emphasis was given to use CBNAAT, given the MDR epidemic in the city. With increased initial use of CBNAAT for DST, confidence was built to use sputum testing on more patients. With more testing, PPIA could provide feedback on accuracy of diagnosis to providers, in a way that positively promoted increased alignment with STCI over time.

Microbiological confirmation among notified patients has increased significantly to 20% (from 5% in 2Q14) in Patna and to 34% (from 15% in 3Q14) in Mumbai by 4Q15 with a continued rising trend (Table 8). In Mehsana, free diagnostic support is only through sputum smear microscopy available within the programme. The district has escalated efforts to ensure microbiological confirmation using existing tools (sputum smear microscopy), but with limited success. Among notified TB patients, only 8% were recorded to be microbiologically confirmed TB as on 4Q15 in Mehsana. The actual use of microscopy is unknown, as this captures only the use of public microscopy centres, which is understood to be low.

Table 8. Proportion of notified TB patients who received microbiological test and microbiological confirmed TB patients notified

	Patna				Mehsana				Mumbai			
	TB patients who received microbiological test	%	TB patients microbiological confirmed	%	TB patients who received microbiological test	%	TB patients microbiological confirmed	%	TB patients who received microbiological test	%	TB patients microbiological confirmed	%
2Q14	**7**	**8%**	**4**	**5%**					-	-	-	-
3Q14	**288**	20%	148	10%					93	38%	36	15%
4Q14	**406**	19%	188	9%					567	40%	329	23%
1Q15	**681**	22%	328	11%					1128	40%	782	27%
2Q15	**849**	20%	375	9%					1119	38%	816	27%
3Q15	**1176**	25%	648	14%	66	9%	37	5%	1184	34%	966	28%
4Q15	**1460**	33%	872	20%	126	16%	62	8%	1755	41%	1464	34%

In Patna, 54 microscopy centres and 1 CBNAAT laboratory are engaged under UATBC. In Mumbai, 7 CBNAAT laboratories are engaged to provide support diagnostic services to private practitioners. All the CBNAAT laboratories were covered through annual calibration of modules to maintain quality. Quality of microscopy showed lots of promise, but needs improvement in Patna, with a high proportion of patients (in one of the labs visited) showing single sputum submission, i.e. not returning to submit free second sputum sample.

It was noted that a very high proportion of Mumbai patients tested by CBNAAT were rifampicin-resistant. In 2015, among 13 577 PPIA notifications (including paediatric and extrapulmonary), 1285 (9%) were confirmed as rifampicin-resistant, i.e. more than one fourth of all those tested.

Implications and opportunities

Assessment teams noted the fact that microbiological testing is not the norm in the private sector; in fact, private providers rely on radiographic evaluation, clinical evaluation and response to antibiotics. However, as demonstrated in the intervention, convenient and free access to diagnostic tests (specifically rapid and high sensitive tests like CBNAAT) can increase microbiological testing of TB patients as promoted in STCI. The role of specimen transport and perseverance of field staff with practitioners to order sputum test cannot be ignored. At the same time, offering conventional tests like smear microscopy is not encouraging practitioners and they eventually prefer chest X-Ray and diagnose patients clinically. Additionally, ensuring the quality of microscopy centres in the private sector is a major operational challenge and proved to be highly human resource intensive, and it may not be possible to overcome single sputum submissions.