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INCREASED UTILIZATION OF CBNAAT FOR SAMPLES AND IMPROVED PRIVATE TB NOTIFICATION AFTER ENGAGING SAMPLE COLLECTION AGENT FOR PRIVATE SECTOR IN DISTRICT OF KHAMMAM, TELANGANA, INDIA

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ABSTRACT

Background: Involving a huge unorganized private sector in TB program in India remained a challenge despite the release of Gazette for Notification of Tuberculosis. Involving professional bodies and mapping the private care providers helped a little to start with, but establishing a sustained linkage remained a challenge. A study was conducted where an identified sample collection and Transport (SCT) agent improved our services to patients seeking care in private sector and enabled a paradigm shift from clinically diagnosed to evidence based TB diagnosis. **Aims & objectives**: To compare the services before and after introduction of Sample collection (SCT) agent enabling TB services to patients seeking care in private sector. **Methodology**: The study was conducted in Khammam District over a period of 16months (from January 2018 to April 2019).The performance was assessed in two parts i.e January 2018 to August 2018 (initial 8 months and September 2018-April 2019 (later 8 months). A person was designated as Sample collection agent in August 2018 and he was introduced to all private providers for linking sample collection and Transport and testing at CBNAAT(catridge based nucleic acid amplification test). **Results:** The total samples tested from January 2018 to August 2018 were 2400 where as tested during September 2018 to April 2019 were 4436 (an increase of 2036). The private samples tested were 105 during first eight months of 2018 and dramatically increased to 1091 during September 2018 to April 2019.The number of samples which showed rifampicin sensitive and resistant were 30 and 4 during first 8 months of 2018 and 249 and 26 respectively during latter period of study. **Conclusion:** Involving a trained personnel in linking private and public samples helps to improve samples tested in CBNAAT as well as private notification**.**

KEYWORDS: Tuberculosis, SCT agent Notification, CBNAAT services.

INTRODUCTION

Healthcare delivery in India involves both public and private sector. The Indian private healthcare sector is estimated to cater to approximately two-thirds of inpatients and three-fourths of outpatients in the country[1].The TB cases seeking care in private sector had not been accounted and their care cascade was missing, which actually hampered to estimate disease burden.

Government Mandates Notification of TB on May 7th 2012.It had been amended and expanded the scope of improving notification from private sector. India has a huge unmet private sector which is very unorganized. To enhance notification, several steps have been initiated. The initial step was mapping and line listing of private care providers, and private health facilities. The need for establishing a sustained linkage was needed to enhance notification from private sector.

OBJECTIVE OF STUDY

- To compare the services before and after introduction of Sample collection and Transport (SCT) agent enabling TB services to patients seeking care in private sector.

METHODOLOGY

Type of Study: Comparative study
1) January 2018- August2018 (without SCT Agent)
2) September 2018- April 2019 (with SCT Agent)

Place of study: All Tuberculosis Units(TUs) of Khammam District in Telangana state of India

One person was identified as SCT agent and training given on Sample collection and Transportation (SCT) from Private Sector to CBNAAT (Cartridge based Nucleic acid amplification test) site at District TB center. The SCT agent was given adequate conical tubes for collection of appropriate samples along with the

logistics. Instructions were given to collect all types of biological samples. (including extra pulmonary). Vaccine carrier issued to maintain cold chain system to carry samples.

Initially the SCT agent met all private practitioners in person and requested for samples to be tested in CBNAAT. Sensitizations to all private practitioners of Khammam in association with Indian Medical Association was conducted, where in which the role of SCT agent was emphasized by District TB Control Officer (DTCO). To facilitate the sample collection at private Hospital, a display of SCT agent along with the contact number was placed at reception. District TB control Officer met all the private practitioners in person and re-emphasized the importance of Notification and utilization of CBNAAT services.

RESULTS

The total number of CBNAAT test conducted were 2400 during the period of January 2018 to August 2018, and 4436 tests were conducted during September 2018 to April 2019.

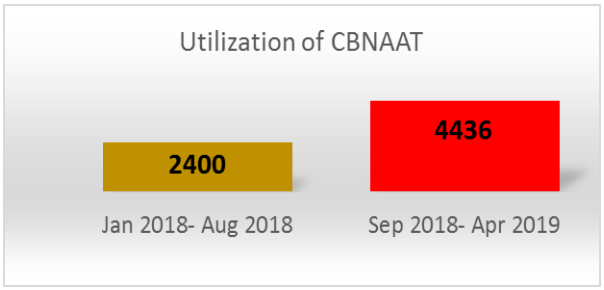

Fig. No.1: Bar diagram showing Utilization of CBNAAT.

The number of Private samples tested were dramatically increased from 105 (Jan 2018 to Aug 2018) to 1091 (Sep 2019 to April 2019)

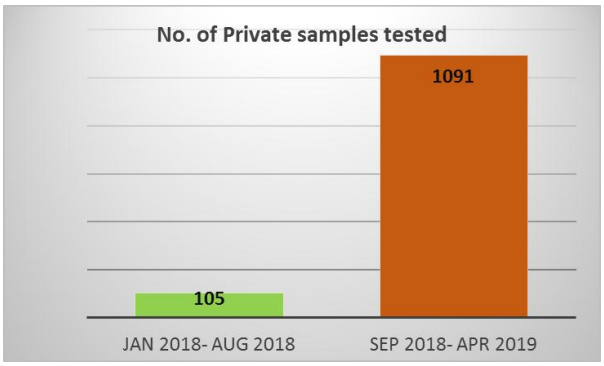

Fig. No.2: Bar diagram showing number of private samples tested.

Tab No.1: Utilization of CBNAAT and private samples in two periods.

	Total CBNAAT tests	Total private Samples tested
January 2018-August 2019	2400	105
September 2018-April 2019	4436	1091
P value- <0.00001		

Applying Chi square tests, the P value is <0.00001, which is significant in the study. The presence of SCT agent significantly improved private sample testing in CBNAAT.

Out of private samples tested in CBNAAT, the number of diagnosis rose from 30 to 249 in drug sensitive TB and 4 to 26 in Rif resistance TB.

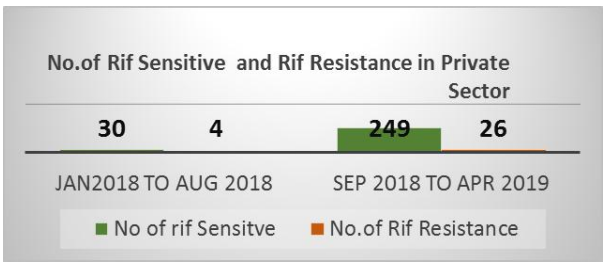

Fig no.3: Bar Diagram showing number of Rif sensitive and resistance in private Sector.

The number of MTB detection and Rif Sensitive rose to 249 (almost 8 times) and Rif resistant from 4 to 26 (6 times).

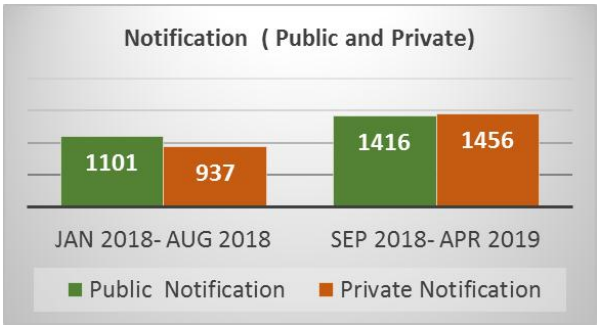

Fig No. 4: Bar Diagram showing Public and private Notification.

Tab No.2: Notification of Tuberculosis in both the periods.

	Public Notification	Private Notification
Without SCT agent	1101	937
With SCT Agent	1416	1456
P value-0.0013(i.e <0.05)indicates significance		

The notification of TB in private sector increased from 937 to 1456.

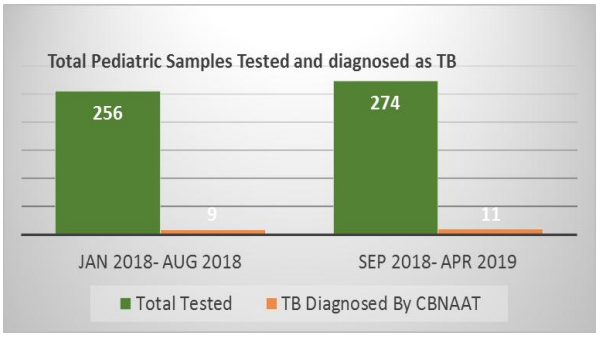

Fig No.5: Bar Diagrams showing Number of pediatric samples tested and diagnosed as TB.

The pediatric samples tested during initial 8 months of study were 256, whereas in latter part of study, there were 274 samples tested.

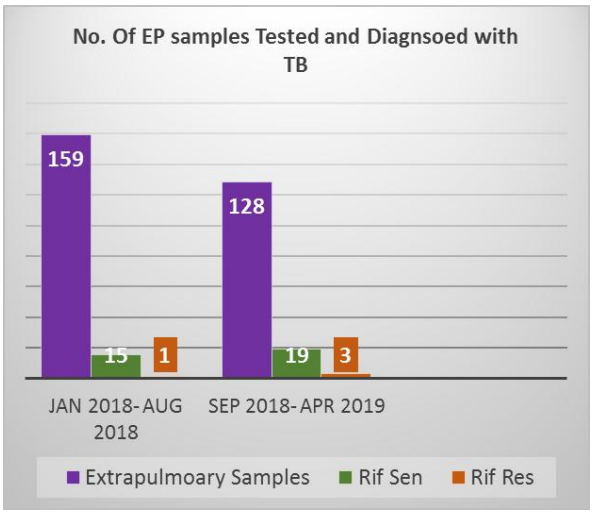

Fig No.6: Bar diagrams showing number of EP samples tested.

DISCUSSION

Notification of TB cases has been and a critical step in Tuberculosis control. Notification of TB is essential for surveillance and estimating TB burden. Under-notification of TB cases remains a serious and persistent global problem that impedes a correct understanding of the burden of disease and of the impact of the response. It is also a reflection of weak general public health surveillance.[2]

To improve notification from private sector, which was huge and unmet, many strategies needed to be designed. Lack of complete knowledge about TB notification, lack of simplified operational mechanism of notification, and lack of trust and coordination with the government health system were identified challenges faced for improving TB notification in private sector.[3]

There is no universal successful formula to engage private health care providers; globally, there remains gaps in policy and practice for TB notification among the high burden TB countries.[2]

Despite ban on serodiagnosis on TB, many practitioners still advise for these tests for diagnosis of TB. These tests do more harm than benefit to the patient, sometimes over diagnosis of TB might occur.[4] To curb the wrong practices and improve the services, many sensitizations, CMEs, Seminars have to be conducted to convince private providers.

In our study, the initial challenges which we found during January 2018 to August 2018,

- Though referred by private provider, patients' reluctance to utilize public services (even though services are offered free of cost)
- Private patients were missed in search of public facility to get appropriate test done.
- Stipulated timings at Government sector disappointed many private patients and practitioners. There was a mismatch in timings maintained at Government Hospital and Private Establishments.
- Missed the opportunity of getting a microbiological evidence when sample was available especially in cases of diagnosing pulmonary TB.
- Hampered the early detection of Drug resistant TB.

The diagnosis and treatment practices among private practitioners in India vary widely and are not formally regulated.[5]

Frequent sensitization to all private practitioners, in collaboration with Indian Medical Association(IMA) was initial step. The samples from Private sector were tested in CBNAAT (Genexpert) in Public health sector, for free of cost is another initiative, which will enhance evidence based diagnosis and treatment.

Most of the times patients seeking care in private sector may not readily agree to visit a public health facility. There was pressing need for having a dedicated person for sample collection and transport (SCT Agent) from private sector and getting tested in CBNAAT and provide results back to the treating physician. This measure is not only added comfort to the patient but also gives confidence on health system to the provider.

The identified SCT agent was appointed in August 2018. He was introduced in regular CMEs conducted by District TB Officer in collaboration with local branch of Indian Medical Association (IMA). For initial few visits, SCT agent was assisted by DTO and Medical Officer in District TB office. One-to-one sensitization of private practitioners has proven to be a useful approach.[6] To enhance private samples getting tested in the contact number of SCT agent is displayed at reception and few consulting rooms of physicians.

Many issues were addressed with this initiative and Public sector led an example in wiping out wrong beliefs

in private sector. The patient seeking care in private sector were not travelling to public health institutions, instead their samples were transported. The number of samples transported by SCT agent was 1091, which was unusually very high from previous 8 months.

In the study the p value in CBNAAT testing and private samples being tested during both periods is <0.05, which implies that it is significant. The presence of SCT agent increased CBNAAT testing of samples from private sector.

The samples were tested for free of cost and results were provided within turnaround time winning confidence of patients and providers. The further testing in Culture and Drug susceptibility testing Laboratory (C&DST) also happened without loss of linkage, enabling diagnosis of extensively drug resistant TB (XDR) in private patients.

The trend of more evidence based diagnosis of TB (microbiologically confirmed TB) began to increase. Early diagnosis of Drug resistant TB in private sector and their notification also increased. This helped the TB control program to take a prompt public health action and support the private patient in terms of drugs and nutrition.

The notification of TB has also increase from 937 to 1456 from private sector in both the periods.

The calculation of P value <0.05 upon notification of TB from private sector during the two periods of study is also significant upon applying Chi Square test. This indicates that SCT agent helped in improving TB notification from private sector significantly.

Gaps related to TB notification in terms of punching the details of patient into online system also was addressed. The practitioners were giving in hard copy, which was collected by program staff and SCT agent. SCT agent punch the details of patient into Nikshay, an online portal for enrolling TB patients, for testing in CBNAAT or test requested by treating physician. The field staff of TB control program collects relevant data and timely submits data.

Treatment initiation delays have been found to be associated with private providers in care pathways of TB patients.[7] The treatment was initiated within time both in diagnosed drug sensitive and drug resistant TB minimizing treatment initiation gap. To support patients of private sector, few providers readily agreed to provide drugs from TB program in their clinic. Patients receive regular reminder text messages and phone calls to ensure adherence.[8]

Thus entrusting one personnel in sample collection and enhancing TB showed promising results in TB notification and gave an opportunity to render good services to the private patients, thus establishing sustainable linkages.

CONCLUSIONS

The challenge of Private samples testing in public sector was overcome by SCT agent. By entrusting one personnel in this job encouraged patients to give sample at the clinic rather than coming to public sector. The number of patients availing these services increased and importantly treatment interruptions and dropouts were decreased. Huge involvement of Private Providers in notifying TB cases and it was promising.

Conflicts of Interest: None.

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