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Mapping of TB Treatment Providers at Selected Sites in Andhra Pradesh State, India

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Executive Summary

To understand the contribution of private sector in TB care and know the client preferences during different stages of disease, an OR study was undertaken in Andhra Pradesh. Considering the variation in availability of private sector in urban and rural areas, the study covered one urban area (Metro Hyderabad) and one rural district (Medak).

While all qualified providers were covered in Medak district, in view of substantive private sector in Hyderabad a cluster sampling method was adopted. The city was divided in to 25 zones and from each zone attempt was made to cover a cluster consisting of two hospitals and four clinics. While all the facilities in Medak could be covered, in Hyderabad out of the planned 144 facilities, 125 (87%) could be covered.

To substantiate the finding of the mapping in-depth interviews with 204 TB cases and 26 unqualified private providers were undertaken.

The contribution of private sector in TB care was high as a majority of the private facilities covered (80%) were treating it. Interestingly, there was no single instance where none of the private hospitals/clinics in that zone/town were providing TB care.

The above argument could be further strengthened by the median number of cases currently receiving treatment from these facilities. While the hospitals at Hyderabad had around 10 cases on treatment, the corresponding number in case of Medak was four. Interestingly there was no such difference between urban and rural areas noticed in case of clinics. **The most common reason given by the doctors for not treating TB cases was long duration of treatment resulting in poor patient compliance.** Very few doctors mentioned concern regarding the potential risk for other family members.

About two thirds of interviewed private providers in the city and a half in the rural area said that they would insist on "sputum examination" for all suspected cases of TB. This suggests that the practitioners in urban areas were more aware and to date in their knowledge probably through better interaction with consultants and more opportunities to attend Continuing Medical Education Sessions. The study, therefore, indicates the need for such refresher training to the practising physicians in rural areas.

The fact that treatment compliance was poor even in private sector is evident from the study. According to the responses treatment completion rates were around 20% in urban areas and 5% in rural areas. The reasons given for default were no different from that of public sector like sense of well being after initial treatment, long duration of treatment etc. Though no formal defaulter retrieval protocol is followed, more than a half of the interviewed practitioners stated that in such instances they do send word through friends and relatives.

Evidently such effort was not yielding much result. In India there is large section of un-qualified private providers. Especially in the rural areas - where the public health functionaries do not prefer to stay - these un-qualified providers play a vital role in delivering first contact curative care. An informal discussion with 26 such providers indicated that two thirds of them preferred to refer suspected TB cases to qualified providers.

A majority of the TB patients interviewed were young which once again emphasises the productivity loss and economic burden due to TB. The clients making use of public facilities were observed to be less literate and belong to poorer socio-economic status.

More than two thirds of the clients were residing within 10 Kms from the facility which once again reinforces earlier observations that clients prefer facilities located nearly. Hence, if DOTS strategy has to be implemented efficiently , one should ensure the services as close to the client as possible.

The median duration of illness was longer in public sector (12 months) compared to private sector (5.5 months). This once again re-emphasises the delay due to 'shopping for health' by which time client exhausts all his resources and ends up with a public facility with indebtedness. The fact that about a quarter of clients had family history of TB highlights the need for education of family members and mandatory screening of entire family in case of all smear positive cases.

More than three fourths of interviewed TB patients preferred to contact a neighbourhood doctor first essentially due to convenient timings and location. This once again brings out the need for user friendly attitude of public functionaries. More than three fourths of the clients changed their doctors either due to referral or on the advice of friends/realtives or due to economic reasons.

The study brings out the fact that the cost of TB diagnosis and treatment is substantive. On an average, TB patients were incurring an expenditure of Rs.1000 and Rs.500 respectively in urban and rural areas every month. Though initial expenditure was higher in urban areas, the median duration was shorter which reduced the expenditure. Invariably TB results in indebtedness and mortgage of valuables.

Among the private laboratories, for every sputum examination request there were around 4-5 requests for Chest X-rays which in other words brings out the emphasis being given by the private practitioners on X-rays. This can only be addressed by effective Continuing Medical Education Programmes and franchising of quality lung care.

Though the hospitals and clinics that did not respond were not apparently different from the rest, there was no way to ascertain this. The selection of clients for in-depth interviews was more biased towards public sector essentially due to their better availability at these facilities and reluctance of the private providers to let the study team interview their clients.

Despite these limitations, the study provided useful leads for better involvement of private sector in quality TB care.

Mapping Of TB Treatment Providers At Selected Sites In Andhra Pradesh State, India:

Preamble:

Several studies undertaken in India indicate that private health providers play a major role in health care delivery, especially in ambulatory care. Easier access, convenient timings and low fee structure makes private sector preferred choice by many. However, diseases like tuberculosis which need long standing treatment the precise role being played by the private sector need to be understood more in detail. To understand this issue more in detail a quick operations research study was undertaken by the Administrative Staff College of India with the financial support from the WHO with the following objectives.

Objectives:

1. Mapping of the public and private health facilities providing TB care in selected urban and rural settings.
2. To understand the client preferences for public and private health facilities in different stages (symptoms, diagnosis and treatment) and reasons for their preference

Methodology:

As per the objectives laid down the study focus was on mapping of qualified Private practitioners providing TB services. The two study areas include the Medak district (Rural), which constitutes one of the backward districts of the state, and Metropolitan Hyderabad (Urban). In both areas Revised National Tuberculosis Programme (RNTP) has been introduced recently.

Though the study sample is restricted to qualified allopathic medical practitioners only, in order to understand the role being played by the unqualified sector in TB care, about 26 unqualified providers operating in one primary health centre area were interviewed in the District of Medak.

Sampling:

Different sampling procedures were adopted in the urban and rural areas. While a universal coverage of all qualified practitioners was undertaken at Medak, in case of Hyderabad a cluster sampling method was used. The latter approach was used essentially to provide a representative picture of the entire city within the available time frame and resources rather than restricting the study to a smaller demarcated area. One common trend observed in the city was that the nursing homes tend to flock

in few localities and based on this information the entire city was divided in to 24 clusters. Each cluster has a population between one hundred thousand to one hundred and fifty thousand. From each cluster an attempt was made to cover at least two nursing homes and four clinics. In few localities, which had very large number of nursing homes and clinics, more facilities were included in the sample. However, due to non response, despite repeated visits, in all areas the planned numbers could not be covered. A total of 61 health facilities were covered in the rural areas while information from 125 facilities could be collected from urban areas.

In addition to the facility survey, client interviews were conducted covering 204 respondents in the study areas. This included respondents attending public as well as private facilities. Using random sampling methods these cases were selected from State TB centre and 14 public TB clinics in case of urban areas. In Medak district the clients were selected from District TB centre as well as from those registered for treatment at PHIs. It was, however, difficult to obtain the clients receiving treatment from the private sector as the practitioners do not keep any record. Hence, despite best efforts only 36 clients could be covered compared to 168 sampled from the public sector. Finally, in order to get a better understanding of the prevailing diagnostic and treatment procedures for tuberculosis, 78 clinical laboratories and 217 retail medical outlets were also covered. Details of coverage are summarised in the section below. Further details can be found in Table 1 and Table 2.

Coverage of Units

	Medak	Hyderabad	Total
Nursing Homes	32	50	82
Clinics	34	75	109
Medical Outlets	60	157	217
Medical Labs	21	57	78

Distribution of TB clients

	Medak	Hyderabad	Total
Public	66	102	168
Private	4	32	36

Study Tools and data collection:

Four types of instruments were used for collecting information in the study which includes:

- Facility survey questionnaire: For Nursing Homes and Clinics
- Client questionnaire: For Clients attending Public and Private sector health facilities
- Proforma for Medical laboratories
- Proforma for retail medical outlets.

All the study tools were pre-tested by investigators having field experience in similar studies and based on their feed back appropriate modifications have been incorporated. While the latter three proformae were administered by trained investigators, the same was not possible for the first. Since the practitioners are busy during the clinic hours, we had no option but to leave the questionnaire. Despite repeated visits, a third of the nursing home and clinic owners did not respond.

This trend was noticed to be more predominant in the urban areas.

In the district of Medak all locations having qualified private health providers were listed. This was followed by a personal visit by the investigator who explained the purpose of the study and gave the facility questionnaire to the respondent with a request to fill it. The filled proformae were collected during the next visit.

Results:

Facility Survey:

Size of the nursing homes:

Out of the 94 Nursing homes covered in the study, a majority had bed strengths less than 20. In general the size of the nursing home was smaller in rural areas compared to that of urban areas (13 vs. 42).

Mapping the facilities treating TB cases:

It is interesting to note that out of the 191 private health facilities covered respondents from 153 (80%) said that they have been treating tuberculosis at their facility. It is also of interest to note that out of all the 14 locations covered in the Medak district and 24 clusters covered in the city of Hyderabad there was not a single

location or zone where private sector (either nursing home or clinic) is not providing TB services (Table 1 and Table 2). In other words each zone/locality had at least one private health facility providing TB services. The proportion of private facilities treating tuberculosis was higher in the rural areas (90%) compared to that of urban areas (around 80%). While in rural areas no difference was observed between nursing homes and clinics in this regard, in case of urban area, the proportion of nursing homes offering treatment for TB cases was marginally higher compared to that of clinics (80% vs.77%). Two factors could have influenced the practices in urban areas. One was the speciality clinics and hospitals which restrict their services to limited specialities while the other issue could be the better access to public TB treatment services with a net work of 14 clinics (including the State centre) across the city. On the contrary in the rural areas, speciality nursing homes are rare.

Tuberculosis cases currently receiving treatment and reasons for not treating:

In order to elicit information of the size of TB cases being handled by each facility, respondents from all facilities that claimed to have been managing TB cases were asked to state the number of TB cases they have seen during the past one month.

Though an attempt was made to minimise the recall bias by restricting this period to one week, during pre-testing it was revealed that one week is too short a period to estimate the TB case load of the facility.

The frequency distribution presented in Table 4 suggests that about half of the facilities sampled had less than 5 cases during the past one month. The median number of cases being treated by both nursing homes as well as clinics in rural areas did not vary much and ranged between 3 (Clinics) and 4 (Nursing homes). It is, however, of interest to note that the median number of TB cases seen by nursing homes in urban areas was three times that of clinics (10 vs.3). A recent interaction with a cross section of private providers in Hyderabad under the auspices of Indian Medial Association and College of General Practitioners also revealed that some nursing homes have as many as 50 to 100 cases on treatment. This has an important policy implication. While in rural areas a medial practitioner-irrespective of his attachment to a nursing home or clinic -could be enrolled for providing TB care, in case of urban areas, the majority of TB cases in private sector are being treated by nursing homes and without their active participation, the involvement of private sector would not be successful. This client preference to nursing homes in urban areas could be due to availability of specialists, better diagnostic facilities and assurance that in-patient services are available if there is any need.

Out of 31 private health facilities which preferred not to treat TB cases (Table 5), the most common reason given for unwillingness was long duration of treatment and poor patient compliance (22) followed by fear of potential risk for other cases attending hospital/clinic (7). Table 6 shows that in both clinics and nursing homes, 'new' cases (diagnosed within one month of developing symptoms) are in a minority.

Clinical practices:

When enquired what would you do if you find a suspected case of tuberculosis in your out patient, nearly three fourths of the respondents (74%) said that they would confirm the diagnosis and treat the cases identified (Table 7). More than a tenth (12.6%) of the respondents said that they prefer to refer the confirmed cases to a public facility and this proportion was higher among clinics in the rural areas and nursing homes in urban areas.

However, despite their preference to refer the case, due to the insistence of client or his family some practitioners had to treat the cases at their facility on few occations. Only 6% of the respondents said that they explain the condition to the patient/attandant and leave the choice to them. This attitude was observed to be a shade better among urban practitioners and could be attributed to better educated and aware clients.

When enquired whether they insist on sputum microscopy for all suspected cases of pulmonary tuberculosis, more than a half of the respondents said "Yes" (Table 8). While this proportion was much higher in the urban areas, it is of interest to note that less than a half (47%) of the respondents having clinics in rural areas said that they insist on sputum exam. Other positive clinical practices like screening other family members and chemoprophylaxis for younger children in households with open cases were also generally observed to be better among doctors practising in urban settings. One crucial limiting factor in rural areas could be shortage of clinical labs. Even if labs are available, in the absence of trained personnel there will be little gain in subjecting the patient to one more test. More frequent interaction with the consultants and better scope for attending continuing medical education sessions could be positively influencing clinical practices of the private doctors working in the urban areas.

Treatment completion and influencing factors:

Table 9 shows that according to respondents only a fifth (20%) of the patients in urban areas and about 5% in rural areas were completing the optimal treatment (more than 90% of the treatment). If 75% treatment is taken as cut-off nursing homes in urban areas seemed to be having better compliance followed by clinics located either in urban or rural setting. Discussion with the practitioners suggested that they are rarely bothered about sputum conversion or cure and hence repeat sputum exam is not done routinely. Hence, information on cure rates could not be collected. The most common reasons for default (Table 10) were false sense of cure due to relief from symptoms (78%), followed by high cost of medicines (52%) and long duration of treatment (48%). Only about a tenth (12%) mentioned drug toxicity as a reason for default. Out of the three common reasons mentioned, the need for better client education from the provider - especially emphasising the need to continue the treatment despite relief from symptoms - is quite evident. While the cost of the drugs is certainly an important factor, a cost analysis of few cases on expenditure incurred on shopping for care shows that on an average six to ten thousand rupees is spent

which is in fact a third of the cost of complete course of treatment (Rs.3000). All these aspects once again clearly highlight the emphasis needed on better consumer provider interaction and education.

When the practitioners who were treating TB cases were asked what do you do if your patient defaults from treatment, more than a half (55%) said that they either speak or send word through the friends or relatives of the patient emphasising the need for completing the treatment. While a third said that they just do not bother, very few said that they send word through the hospital staff (Table 11).

Involvement of Private sector in RNTP:

Expressing their opinion on involvement of private sector in TB control programmes more than three fourths (77%) of the respondents felt that there is need for a collaborative effort involving both public and private sectors (Table 12). Though more than half of the respondents (54%) expressed willingness to take part in RNTP provided drugs are given free of cost, this proportion declined by about 10 percent points when specific activities envisaged under the programme such as observed chemotherapy on alternate days (46%), record keeping (46.6%) and defaulter retrieval (48.2%) were explained (Table 13). When the sampled practitioners were asked whether they would like to get any monetary incentive for the participation in RNTP, a majority said "No". This proportion was higher among those located at clinics (Rural :94%, Urban 88%) compared to those running nursing homes (Rural :68%, Urban :79%). The median values of the incentive quoted in the rural areas was Rs.100 for both nursing homes and clinics (Table 14). The corresponding figures in case of urban areas were Rs.500 and Rs.200 respectively for nursing homes and clinics.

Unqualified private practitioners:

Out of the 26 unqualified private practitioners interviewed only a third (35%) said that they were treating TB. The others preferred to refer the cases to qualified practitioners. Among nine practitioners who admitted that they were treating tuberculosis, six said that they prefer blood test, sputum examination and X ray before starting the treatment. They have learnt about these tests when they worked with qualified practitioners as compounders earlier. The most commonly prescribed drugs included streptomycin and INAH. Only two practitioners said that they were using rifamycin and pyrizinamide. All the unqualified practitioners expressed willingness to take part in RNTP as treatment observers. This again brings out the need to educate these unqualified practitioners so that the drug misuse can be minimised and their support could be enlisted for better treatment compliance.

Client survey:

Client Profile

As mentioned earlier a total of 204 clients were covered out of which about 82% are currently receiving treatment from public sector. Females constituted about 45% of the sample. More than three fourths (77%) of the clients interviewed were in the young and productive age group of 15-45 years which once again reflects the tremendous economic burden due to TB (Table 15).

While the proportion of illiterates tended to be higher among the clients using the public facilities, it is of interest to note that nearly half of the clients attending private sector had secondary level or college education (Table 16). Considering the constraints in accurate assessment of income in quick interviews, proxy indicators have been used to asses the household status of the clients. The pattern in Table 17 indicates that those clients making use of private facilities had better access to media (TV and radio) and were more mobile (Bicycle and Motorcyle/scooter). Thus, persons who are better educated and who had better access to information tended to use private facilities more. The distribution of clients by occupational status does not reveal any clear pattern (Table 18).

Access:

Irrespective of the ownership of the facility more than two thirds (69%) of the clients were residing within a distance of less than 10 Kilometres from the facility (Table 19). However, more than a quarter of clients using the public facility (26%) tended to travel 15 Kms or above. The corresponding proportion in case of those using private facility was 14%. About a half of the clients interviewed made use of the public transport services to reach the health facility (Table 20).

First symptom:

Table 21 shows that the most common presenting symptoms were cough and fever. About 85% of the clients said that their disease started with one or both of these symptoms. About a half mentioned pain chest (59%) or breathlessness (50%) as first symptom while in case of a quarter (27%) haemptysis was the first symptom.

Duration of illness:

The median duration of illness in case of clients utilising public sector services was 12 months compared to 5.5 months in case of those attending the private clinics. The longest duration of the disease was 20 years and 4 years respectively for public and private sectors. Thus, it is evident that there is a relationship between the

chronicity of illness and type of treatment facility. This further reinforces the observation made by Dr.Mukund Uplekar that as the disease tends to get chronic there is a tendency to move towards the public sector mainly due to economic reasons. (Table 23 Distribution of cases by duration (months))

Family history of TB:

When enquired whether there was any family history of TB, about a quarter (28%) of the interviewed clients said "Yes". This once again clearly brings out the need for educating the families and also need for mandatory screening the household members of open TB cases (Table 22).

Person consulted first:

The general preference for first consultation by a symptomatic was for a neighbourhood doctor. More than three fourths of the clients (Rural : 74% Urban: 78%) preferred to consult a neighbourhood doctor. While 41% of the rural clients were not aware whether the neighbourhood doctor they consulted was qualified or not, this proportion was observed to be around 21% in urban areas. More than a half of the respondents from urban area (55%) consulted a qualified practitioner in the neighbourhood. It is of interest to note that less than 5% of the clients interviewed made use of existing public facilities (PHIs) for first consultation. When asked reasons for selection, the responses given included, "convenient location and timings" (53%), "advice of friends and relatives" (29%) and "I always consult him/her first" (26%). (Table 24, Table 25)

Diagnosis:

More than a half (53%) of the patients in both urban and rural areas said that it was the neighbourhood doctor who made the made the diagnosis of tuberculosis first. According to the information provided by the respondents, no sputum examination was done in 40% of the cases for confirming the diagnosis. The median time take for diagnosis after the start of the symptoms was about 2 months in both urban and rural areas. (Table 27, Table 30).

Treatment:

It is of interest to note that about 80% of the interviewed cases (67%) from the rural area and 87% from the urban area were not receiving the treatment from the doctor who made the first diagnosis. In the urban areas more than a half of such patients (58%) claimed that the doctor who made the diagnosis himself referred them to a consultant, while the corresponding proportion in rural areas was 36%. Compared to urban areas higher proportion of patients in the rural areas changed the doctor either

on the advice of friends and relatives (26% Vs.7%) or due to economic reasons (24% Vs. 13%). (Table 26, Table 28)

Client education:

According to the information given by the clients, more than three fourths have been told about the duration of treatment and when to take the treatment. Regarding more detailed aspects such as need to continue the treatment after relief from symptoms (Private:78%, Public:67%), likely side effects and where to report when side effects develop etc. was much better in the private sector (Table 31). When the information provided to the client regarding duration of treatment was further cross checked and the median values of twelve months in public sector and eight months in private sector seemed to be reasonable considering the fact that private sector prefers to use short course four drug therapy. However, a wide variation was noticed (**Table 32**).

Expenditure:

(See Table 33, Table 34)

Using the data gathered an attempt was made to estimate both direct and indirect costs of tuberculosis diagnosis and treatment. Considering the median values the following estimate was made:

Expenditure Items	**Rural Areas**	**Urban Areas**
Initial Expenditure		
Doctor's fee	60	50
Lab tests (blood)	35	50
Lab tests (X ray)	85	100
Lab tests (sputum)	50	100
Lab test (others)	30	200
Total Initial Expenditure	**260**	**500**
Recurring Expenditure		
Doctor's fee	240	120
Treatment	400	300
Transport	50	100
Wages lost	400	500
Median duration	12 months	6 months
Median duration of wage loss	3 months	3 months
Total Recurring Expenditure	**9,480**	**4,620**
Cost of TB diagnosis & treatment	**9,740**	**5,120**
Indebtedness	3000	2,000
Mortgage	1000	3,000

Retail Medical Outlets:

Out of the 217 retail medical outlets studied about a fifth (19.8%) were attached to hospitals. A majority (98%) were selling anti TB drugs either in the form of combi-packs, fixed drug combinations or loose medicines. The median number of prescriptions handled by each outlet per week was 5 in case of rural areas (Range: 1-50) while it was 7 in case of urban areas (2-120) thereby suggesting that the private sector has a significant stakes to play in TB control. It is also evident from the expenditure in Urban areas that if treatment duration can be shortened with better combinations, the economic losses can be minimised. (Table 35,Table 36,Table 37)

Medical Laboratories:

Out of the 78 clinical laboratories studied more than three fourths were offering direct microscopy services (Rural:86%, Urban:77%). More sophisticated diagnostic aids like concentration techniques, culture and sensitivity facilities were better available in urban settings (Table 39). On an average each laboratory was performing 2 sputum exams during a week in rural areas compared to 4 in case of those located in urban areas (Table 40). On the contrary, the average number of chest X-rays done in a week was 8 and 20 respectively in rural and urban areas (Table 42). When asked about the usual pattern of investigation preferred by private sector, about three fourths said that the basic battery includes both sputum examination and X-ray chest (Table 45). About 10% of the respondents in urban area said that the doctors who refer cases to them ask for only sputum exam. The cost of sputum examination in urban areas was double that of rural areas (Rs.20 Vs.Rs.40) while there was no difference noted in case of X ray (Rs.80) (Table 41). When enquired about the sputum positivity rates in their respective centres, about half of the respondents in rural areas and about three fourths in urban areas said that it is usually less than 10%. This is more or less in line with the expected pattern of yield (one case per 10 suspects screened) (Table 44).

Limitations:

Though about a tenth of Nursing homes and clinics which did not respond in the city were not apparently different in their size and functioning from those which responded, this assumption may not be true. The selection of clients for interviews was more biased towards the pubic sector TB treatment facilities essentially due to their availability and also partly due to reluctance of some private providers to let the study investigators interview their clients.

Conclusions and recommendations :

All the 14 rural locations and 24 urban zones covered in the study had at least one private health facility providing TB services there by indicating that private sector has considerable role to play in the strategies aimed at controlling TB.

Overwhelming preference of clients to neighbourhood private practitioners is quite evident during the initial phase of disease (symptoms and diagnosis). Therefore, to cut short the duration between on set of symptoms and diagnosis/initiation of treatment, involvement of private practitioners is essential.

The fact that more than a third of the responded practitioners do not insist on sputum microscopy brings out the need for effective continuing medical education programmes to improve their abilities to manage TB symptomatics and cases better. This should be further complemented with availability of quality microscopy services either from public or from private sector. Otherwise, the entire initiative would be lost.

One major area of concern is the poor treatment compliance rates even in private sector. This clearly brings out the need for more emphasis on client/family education, especially in the light of nearly a fifth of the cases giving family history of tuberculosis. The private practitioners who offer clinic based curative care find it difficult to retrieve the person who defaulted. Hence, there is strong need to complement this through involvement of NGOs.

The cost of TB diagnosis and treatment is substantive to the patient. In fact a full course of treatment actually costs less than a half of the expenditure incurred. It is evident from the data that TB invariably results in indebtedness and mortgage of valuables. Hence, easy diagnosis and proper treatment through involvement of private sector could yield substantial economic gain to the clients.

One positive factor was the willingness of private practitioners to get themselves involved in RNTP. Most of them were willing to take up this responsibility without any financial incentive. However, this initiative is essentially restricted to offering Quality TB Care services at their clinics/hospitals.

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Tables

Table 1. Distribution of hospitals and nursing homes in Medak by locality

	Medak District	Nursing homes		Clinics	
Sl.No.	Area	No. responded	No. treating TB	No. responded	No. treating TB
1	Patancheru	2	2	4	4
2	Sangareddy	1	1	2	2
3	Zaheerabad	2	2	6	4
4	Sadashivpet	2	2	2	2
5	Narayankhed	1	0	2	2
6	Medak	2	2	2	2
7	Jogipet	2	2	3	3
8	Gummadidala	0	0	1	1
9	Gajwal	4	4	2	1
10	Siddhipet	9	8	6	3
11	Narsapur	2	2	0	0
12	Toopran	2	1	0	0
13	Ramachandrapuram	1	1	4	2
14	Ramayampet	2	2	0	0
	All	32	29	34	26

Table 2. Distribution of nursing homes and clinics in Hyderabad by Zones and Localities

Sl.No.	Area	Localities included	Nursing homes		Clinics	
			No. responded	No. treating TB	No. responded	No. treating TB
1	Abids	Abids, Tilaknagar	2	1	1	1
2	Ammerpet	Ameerpet	2	2	3	1
3	Barkhatpura	Barkhatpura	2	1	0	0
4	Begampet	Begumpet, Prakashnagar	1	1	3	2
5	Boyin palli	Old & New Boyin palli	1	1	4	3
6	Chikkadapalli	Chikkadpalli	0	0	4	3
7	Ghosha Mahal	Ghosha Mahal, Begum bazar, Dabeerpura	2	2	5	4
8	Himayat Nagar	Himayatnagar, Domalguda	1	1	1	1
9	Kachiguda	Kachiguda, Kandaswamy Lane	2	1	2	2
10	Kukatpally	Kukatpally	2	2	3	3
11	Lakdikaphool	Lakdikaphool	1	1	1	1
12	Malakpet	Malakpet, Guddi malkapur, Dilshuknagar	5	4	0	0
13	Malkajgiri	Malkajgiri	1	1	9	7
14	Maredpally	East & West Maredpally	2	1	5	2
15	Musheerabad	Musheerabad	2	2	2	2
16	Nallakunta	Nallakunta, Central Excise colony, Ramanthapur	2	1	5	4
17	Nampally	Nampally, Bazarghat, Red hills	3	3	1	1
18	Padma Rao Nagar	Padma Rao Nagar	1	1	1	1
19	Sanat Nagar	Sanat Nagar, Yerragadda	2	2	4	4
20	Secundrabad	Regimental Bazar, SD road	4	4	3	3
21	Shalibanda	Shalibanda, Faluknama, Shemshergunj, Charminar, Chandrayanagutta	1	0	8	5
22	Sitaphalmandi	Sitaphalmandi, Warasiguda, Namalagundu	5	3	1	1
23	Vijaynagar colony	Vijaynagar colony, Masab Tank	2	2	1	1
24	Yellareddyguda	Yellareddyguda, Yusuf guda, Srinagar colony, Rehmat Nagar	4	3	8	6
All			50	40	75	58

Table 3. Distribution of Nursing Homes by number of beds

No of Beds	Medak		Hyderabad	
	Number	%	Number	%
<10	17	54.9	15	23.8
10-20	8	25.8	26	41.2
20-30	5	16.1	7	11.1
30-40	1	3.2	3	4.8
40-50	0	0	3	4.8
50 and above	0	0	9	14.3
All	31	100	63	100
Median	13		42	

Table 4. Distribution of facilities by number of cases on treatment

No of cases	No. of Nursing Homes/Clinics			
	Medak		Hyderabad	
	Nursing Homes	Clinics	Nursing Homes	Clinics
<5	16	14	19	35
5-10	3	7	2	6
10-15	5	3	7	5
15-30	1	1	7	5
30-50	2	1	2	7
50-100	2	0	1	0
100 and above	0	0	2	0
Median	4	3	10	3

Table 5. Percent distribution of facilities which are not treating TB by reasons

Reasons	Medak		Hyderabad	
	Nursing Homes	Clinics	Nursing Homes	Clinics
	No.	No.	No.	No.
Requires long term treatment and hence generally compliance is poor	0	7	5	10
Potential risk for other cases attending the clinic/hospital	1	0	3	3
High treatment costs	1	0	1	2
Toxicity of medicines	1	1	2	0
Other reasons	0	0	0	2

Table 6. Percent distribution of facilities by type of case				
Type of case	Medak		Hyderabad	
	Nursing Homes	Clinics	Nursing Homes	Clinics
New[1]	40	37.2	49.7	35.4
Old	60	62.8	50.3	64.6

Table 7. Percent distribution of facilities by response to a suspected case of TB in the OPD								
Type of response	Medak				Hyderabad			
	Nursing Homes		Clinics		Nursing Homes		Clinics	
	No	%	No	%	No	%	No	%
Confirms the diagnosis & treats	28	87.5	25	69.4	36	67.9	53	71.6
Straightaway refers to Govt Hosp./clinic	1	3.1	2	5.6	0	0	6	8.1
Straightaway refers to private consultant	0	0	0	0	1	1.9	0	0
Confirm the diagnosis and refers to private consultant	0	0	0	0	4	7.5	4	5.4
Confirms the diagnosis and refers to Govt facility	2	6.3	8	22.2	8	15.1	6	8.1
Explains the patient/attandant about the condition and leaves the choice to them	1	3.1	1	2.8	4	7.5	5	6.8

Table 8. Percent distribution of facilities by case management behaviour				
Practice	Medak		Hyderabad	
	Nursing Homes	Clinics	Nursing Homes	Clinics
Insists on sputum exam for all suspected cases of pulmonary TB	54.8	47.2	66	64.9
Screens other members of family once a diagnosis of TB is made	35.5	55.6	50.9	62.2
Provides chemoprphylaxis for younger children in households with open case of TB	48.4	55.6	66.6	58.1

[1] Cases diagnosed within one month of developing symptoms.

Table 9. Percent distribution of facilities by treatment completion rates				
Treatment completion rate	**Medak**		**Hyderabad**	
	Nursing Homes	**Clinics**	**Nursing Homes**	**Clinics**
<25%	17.9	10	4.5	11.7
25-50%	21.4	20	14.4	13.3
50-60%	28.6	23.3	20.5	15
60-75%	17.9	16.7	20.5	11.7
75-90%	10.7	20	22.7	13
>90%	3.6	10	20.5	18.3

Table 10. Distribution of private doctors by reasons commonly attributed for default				
Reasons for default	**Medak**		**Hyderabad**	
	No.	**%**	**No.**	**%**
Long duration of treatment	37	55.22	54	42.52
False sense of cure due to relief from symptoms after initial course of treatment	55	82.09	94	74.02
High cost of medicines	42	62.69	57	44.88
Toxicity of Medicines	8	11.94	15	11.81
Others	8	11.94	8	6.3

Table 11. Distribution of doctors by type of follow-up action taken to retrieve a defaulted patient				
Follow-up action	**Medak**		**Hyderabad**	
	No.	**%**	**No.**	**%**
None	25	37.31	37	29.13
Speaks to relatives/friends of the case	13	19.4	33	25.98
Sends word through relatives/friends to personally explain	17	25.37	28	22.05
Sends word through hospital staff to personally explain	1	1.49	5	3.94
Others	4	5.97	2	1.57

Table 12. Distribution of private doctors by opinion on TB service provision				
Opinion	**Medak**		**Hyderabad**	
	No.	**%**	**No.**	**%**
Exclusively by public sector	16	23.88	17	13.39
Exclusively by private sector	5	7.46	1	0.79
Involvement of both sectors essential	46	68.66	101	79.53

Table 13. Distribution of doctors by willingness to participate in RNTP				
Component	**Medak**		**Hyderabad**	
	No.	**%**	**No.**	**%**
Observed chemotherapy every alternate day during initial phase	30	44.78	57	44.88
Record keeping	30	44.78	59	46.46
Defaulter retrieval	38	56.72	54	42.52
Willing to take up RNTP if drugs are provided	38	56.72	66	51.97

Table 14. Distribution of doctors by monetary incentive for participation in RNTP				
Description	**Incentive (Rs.) for One cure**			
	Medak		**Hyderabad**	
	Nursing Home	**Clinic**	**Nursing Home**	**Clinic**
Median	100	*	500	200
Low	10	100	25	15
High	500	100	1000	500
Non Respondents	67.7%	94.4%	79.2%	88%
* Median could not be found, since there are only two values				

Table 15. Demographic profile of the cases								
Age group	**Public**				**Private**			
	Male		**Female**		**Male**		**Female**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
15-30 Yrs	30	32.2	27	36	13	65	10	62.5
<15 Yrs	2	2.15	7	9.3	0	0	1	6.3
30-45 Yrs	34	36.56	28	37.4	3	15	2	12.5
>45 Yrs	27	29.03	13	17.3	4	20	3	18.7
All	93	100	75	100	20	100	16	100

Table 16. Distribution of cases by Literacy status								
Literacy	**Public**				**Private**			
	Male		**Female**		**Male**		**Female**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Illiterate	50	53.8	47	62.7	6	30	8	50
Literate	7	7.5	5	6.7	2	10	0	0
Primary	14	15.1	10	13.3	1	5	1	6.3
Secondary	15	16.1	10	13.3	2	10	3	18.7
College	7	7.5	3	4	9	45	4	25
All	93	100	75	100	20	100	16	100

Table 17. Distribution of cases by Occupation

Occupation	Public				Private			
	Male		Female		Male		Female	
	No.	%	No.	%	No.	%	No.	%
Ag. Labour	10	10.8	3	4	3	15	1	6.3
Other Labour	21	21.6	10	13.3	2	10	0	0
Land owner	17	18.3	4	5.3	2	10	0	0
Service	15	16.1	5	6.7	3	15	1	6.3
Business	10	10.8	0	0	2	10	1	6.3
Traditional caste occupation	8	8.6	3	4	0	0	0	0
Others	12	12.8	50	66.7	8	40	13	81.1
All	93	100	75	100	20	100	16	100

Table 18. Distribution of cases by household possessions

Type of Possession	Public		Private	
	No.	%	No.	%
House	95	56.5	29	8.6
Radio	60	35.7	28	77.8
TV	55	32.7	27	75
Refrigerator	8	4.8	5	13.9
Bicycle	58	34.5	19	52.8
Motor cycle/scooter	14	8.3	10	27.8
Car	4	2.4	1	2.8

Table 19. Distribution of cases by distance travelled to reach facility

Mean distance travelled	Public		Private	
	No.	%	No.	%
< 5Km	81	48.2	14	38.9
5-9 Km	35	20.8	11	30.5
10-14 Km	9	5.4	6	16.7
15 Km and above	43	25.6	5	13.9
All	168	100	36	100

Table 20. Distribution of cases by mode of transport used to reach facility				
Mode of transport	**Public**		**Private**	
	No.	**%**	**No.**	**%**
By walk	45	26.8	7	19.4
Bicycle	7	4.2	1	2.8
Rickshaw	17	10.1	1	2.8
Public transport	83	49.4	20	55.6
Own two wheeler	4	2.4	5	13.8
Others	12	7.1	2	5.6
All	168	100	36	100

Table 21 Distribution of cases by first symptom								
	Male		**Female**		**Male**		**Female**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Cough	85	57.8	62	42.2	13	50	13	50
Fever	80	55.6	64	44.4	17	60.7	11	39.3
Pain chest	58	56.3	45	43.7	10	55.6	8	44.4
Breathlessness	53	60.9	34	39.1	7	50	7	50
Loss of weight	50	58.8	35	41.2	14	56	11	44
Coughing out blood	32	65.3	17	34.7	3	50	3	50
Others	13	44.8	16	55.2	4	66.7	2	33.3

Table 22 Distribution of cases by Family history of TB				
	Public		**Private**	
	No.	**%**	**No.**	**%**
Yes	46	27.4	12	33.3
No	122	72.6	24	66.7

Table 23 Distribution of cases by duration (months)		
Duration	**Public**	**Private**
Median	12	5.5
Lowest	1	1
Highest	480	96

Table 24 Distribution of cases by person consulted first

Doctor consulted first	Medak		Hyderabad	
	No.	%	No.	%
Unqualified doctor in neighbourhood	5	7.1	2	1.5
Qualified doctor in neighbourhood	18	25.7	74	55.2
Doctor in neighbourhood (Not aware whether qualified or not)	29	41.5	28	20.9
Specialist in TB/Chest diseases	0	0	1	0.7
Speciality hospital	6	8.6	0	0
Clinic/dispensary/PHC	3	4.3	4	3
Hospital	1	1.4	20	14.9
TB clinic/hospital	8	11.4	5	3.8
All	70	100	134	100

Table 25: Distribution of cases by reasons for selection of a doctor/facility

Reasons	Public		Private	
	No.	%	No.	%
Convenient location & timings	98	58.3	10	27.8
I always consult him/her first	33	19.6	21	58.3
Advice of friends/relatives	51	30.4	8	22.2
Others	11	6.5	4	11.1

Table 26: Distribution of cases by person who made the diagnosis first

Person	Public		Private	
	No.	%	No.	%
Unqualified doctor in neighbourhood	2	1.2	0	0
Qualified doctor in neighbourhood	55	32.7	17	47.2
Doctor in neighbourhood (Not aware whether qualified or not)	32	19	3	8.3
Specialist in TB/Chest diseases	0	0	10	27.8
Speciality hospital	7	4.2	4	11.1
Clinic/dispensary/PHC	5	3	1	2.8
Hospital	31	18.5	1	2.8
TB clinic/hospital	36	21.4	0	0
All	168	100	36	100

Table 27: Distribution of cases by method of diagnosis

Method of diagnosis	Medak		Hyderabad	
	No.	%	No.	%
Clinical Exam only	3	4.3	5	3.7
Clinical exam and X ray	19	27.1	50	37.3
Clinical Exam, X ray and sputum	47	67.2	75	56
Others	1	1.4	4	3
All	70	100	134	100

Table 28 Distribution of cases by reasons for changing the doctor				
Reason	**Medak**		**Hyderabad**	
	No.	**%**	**No.**	**%**
The doctor himself referred	18	36	70	57.9
Wanted treatment from more experienced doctor	3	6	16	13.2
On the advice of friends /relatives	13	26	9	7.4
Economic reasons	12	24	16	13.2
Others	4	8	10	8.3
All	50	100	121	100

Table 29: Number & % not receiving treatment from the doctor		
Area	**No.**	**%**
Medak	47	67.1
Hyderabad	116	86.6

Table 30: Distribution of cases by time taken for diagnosis		
Time (months)	**Medak**	**Hyderabad**
Median	2	2
Highest	12	36
Lowest	1	0

Table 31 Distribution of cases by information given by the doctor				
Provided Information on	**Public**		**Private**	
	No.	**%**	**No.**	**%**
How long to use the drugs	146	86.9	32	88.9
When to take the medicines	139	82.7	32	88.9
Need to continue the treatment after relief from symptoms	113	67.3	28	77.8
Need to continue the treatment even with occurrence of another disease	41	24.4	25	69.4
Likely side effects	39	23.2	28	77.8
Where to report if side effects develop	43	25.6	29	80.6

Table 32 Distribution of cases by information provided about duration (months)				
Duration	**Medak**		**Hyderabad**	
	No.	**%**	**No.**	**%**
< 6	4	6.6	24	20.5
6-12	23	37.6	53	45.3
12-24	32	52.5	38	32.5
>24	2	3.3	2	1.7
Total	61	100	117	100

Table 33 Distribution of cases by direct economic costs									
Direct costs		**Medak**				**Hyderabad**			
Category	**Description**	**Median**	**Highest**	**Lowest**	**NS**	**Median**	**Highest**	**Lowest**	**NS**
Doctor's fee	Initial	60	250	15	35	50	250	5	52
	Recurrent (Per month)	240	1000	15	49	120	1000	10	89
Lab tests	Blood	35	200	10	31	50	350	20	71
	X ray	85	600	40	26	100	500	40	61
	Sputum	50	400	25	41	100	350	25	91
	Others	30	200	25	58	200	2500	10	117
Treatment	Monthly expenditure	400	1000	40	24	300	1000	15	58

Table 34 Distribution of cases by indirect economic costs /Month								
Indirect costs	**Medak**				**Hyderabad**			
Description	**Median**	**Highest**	**Lowest**	**NS**	**Median**	**Highest**	**Lowest**	**NS**
Transport	50	720	10	22	100	1000	10	49
Wages lost	400	1500	40	31	500	8000	30	99
Indebtedness	3000	35000	100	28	2000	30000	300	102
Mortgage	1500	10000	150	59	3000	10000	1000	121
NS - Non Respondents								

Table 35 Distribution of retail medical outlets by their characteristics				
Description	**Medak**		**Hyderabad**	
	No.	**%**	**No.**	**%**
Attached to a hospital	17	28.3	26	16.6
Selling anti TB drugs	57	95	155	98.7

Table 36 Distribution of retail medical outlets by types of Anti-TB drugs

Types of Anti TB drugs	Medak		Hyderabad	
	No.	%	No.	%
Combipacks	52	86.7	142	90.4
Fixed drug combinations	56	93.3	139	88.5
Loose medicines	49	81.7	121	77.1

Table 37 Distribution of retail medical outlets by number of anti-TB prescriptions sold in a week

No. of prescriptions sold	Medak	Hyderabad
Median	5	7
Lowest	1	2
Highest	50	120

Table 38 Distribution of retail medical outlets by mode of payment

Mode of payment	Medak	Hyderabad
Cash	59	151
Credit	0	4

Table 39 Distribution of laboratories by services available

Laboratory services	Medak		Hyderabad	
	No.	%	No.	%
Direct microscopy	18	85.7	44	77.2
Concentration techniques	6	28.6	26	45.6
Culture	5	23.8	30	52.6
Antibiogram	3	14.3	21	36.8

Table 40 Distribution of laboratories by number of sputum exams done in a week

No. of Sputum exams	Medak	Hyderabad
Median	2	4
Lowest	1	1
Highest	4	95

Table 41 Distribution of laboratories by cost of sputum exam

Cost of sputum exam	Medak	Hyderabad
Median	20	40
Lowest	10	15
Highest	40	100

Table 42 Distribution of laboratories by X-ray exams done in a week

No. of X ray exams	Medak	Hyderabad
Median	8	20
Lowest	1	1
Highest	30	80

Table 43 Distribution of laboratories by cost of X-ray

Cost of X ray exam	Medak	Hyderabad
Median	80	80
Lowest	60	20
Highest	90	100

Table 44 Distribution of laboratories by sputum positivity rates

Sputum positivity rate	Medak		Hyderabad	
	No.	%	No.	%
<5 %	7	41.2	28	57.1
5-10%	2	11.8	11	22.4
10-25%	5	29.4	7	14.3
25-50%	1	5.9	2	4.1
>50%	2	11.8	1	2

Table 45 Distribution of laboratories by pattern of investigations for suspected TB cases

Pattern of investigation	Medak		Hyderabad	
	No.	%	No.	%
Sputum & X ray together	16	84.2	39	72.3
X ray alone	1	5.3	4	7.4
Sputum alone	0	0	5	9.4
Others	2	10.5	6	10.9