

## Role of the private health sector in detection of cases of tuberculosis in Missan Governorate.

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### ABSTRACT

**Background:** As tuberculosis (TB) is still endemic disease in Iraq, efforts in detection, diagnosis, treatment, and prevention are of utmost importance to decrease the prevalence and negative impacts of this disease on people. In this study we aim to find out the extent of contribution of the private health sector in, Missan governorate to the detection of cases of tuberculosis and referring them to the Chest and Respiratory Disease Clinic in Missan for further management. Collaboration between the private and public health sectors is crucial for early detection, treatment, and cure of tuberculosis and consequently decrease in its prevalence and transmission to other people.

**Patients and methods:** Records of patients managed by the Chest and Respiratory Disease Clinic in Missan, for the period between 2012-2014 were reviewed. The above mentioned clinic deals with all cases any different types of tuberculosis. All cases, and of different types of tuberculosis, were enrolled in the study. Particular concern to the source of referral of these cases was considered. Other parameters such as, type of tuberculosis, whether it is newly or previously diagnosed, and the results of the sputum test for acid-fast bacilli. (AFB) were considered.

**Results:** 752 patients with tuberculosis were diagnosed and managed by the Chest and Respiratory Disease Clinic in Missan for the period between 2012-2014, considerable number of these patients (44.4%) was detected and referred to the TB Center by the physicians in the private health sector. Private health sector had more contribution to detection of extrapulmonary tuberculosis than the public health centers.

**Conclusion:** The private health sector in Missan governorate has an important role in detection of cases, mostly newly diagnosed cases, of tuberculosis. So collaboration between governmental health faculties and private health sector is essential for effective detection and management of cases of tuberculosis to decrease its prevalence and negative impacts on the public health.

**Key words:** detection, tuberculosis, Missan Governorate.

دور القطاع الصحي الخاص في اكتشاف ومتابعة حالات التدرن في محافظة ميسان

من خلال دراسة (٧٥٢) حالة من حالات التدرن التي تم تشخيصها في العيادة الاستشارية لأمراض الصدرية والتنفسية في محافظة ميسان، (تعني هذه العيادة بالتعامل مع حالات التدرن بمختلف أنواعه داخل وخارج الرئة) للسنوات ٢٠١٢ - ٢٠١٤، تم ولأول مرة، إلقاء الضوء على دور القطاع الصحي الخاص المتمثلاً بعيادات الأطباء والمختبرات الخاصة في اكتشاف ومتابعة حالات التدرن في المحافظة. أظهرت الدراسة دوراً واضحاً وفعالاً للقطاع الصحي الخاص في المحافظة في هذا الخصوص حيث بلغت نسبة الحالات المشخصة والمحالة من قبل الأطباء في عياداتهم أو مختبراتهم الخاصة إلى العيادة المذكورة أعلاه ٤٤.٤% من مجموع حالات التدرن التي تم تشخيصها، كما أن 58.1% من مجموع حالات التدرن خارج الرئة كانت قد تم اكتشافها من قبل الأطباء في القطاع الصحي الخاص.

## INTRODUCTION

**T**uberculosis (TB) is an ancient disease but is still a major public health problem in most of the world. Tuberculosis appears to be increasing throughout the world due to various factors like increasing number of immunocompromised patients, aging population, and multiple drug resistant strains of the bacillus.<sup>[1]</sup> Targeted testing and treatment of individuals with latent tuberculosis infection at increased risk of progression to active disease is a key element of tuberculosis control.<sup>[2]</sup> Public-private mix (PPM), recommended by the World Health Organization (WHO), was introduced to cope with the tuberculosis epidemic worldwide. In many developing countries, PPM has played a powerful role in TB control, while in others it has failed to meet expectations.<sup>[3]</sup> The concept of public-private mix model (PPM) in health care has emerged in the past decade with a view that a large majority in the developing countries utilizes private sector as a source of health care. This partnership between governmental and private organizations emerged as a novel approach to improve the system of health care service delivery.<sup>[4]</sup> Health facility opening times that are inconvenient for working people also limit access to and acceptability of direct observation of treatment (DOT), a central component of DOTS. Furthermore, there is considerable stigma associated with TB, both in its own right and because of its association with HIV/AIDS. These factors combine to limit patients' desire and ability to seek early diagnosis and treatment from public services. Consequently, large numbers of people with chest symptoms initially seek care from private healthcare providers.<sup>[5]</sup> Several initiatives have been undertaken not only to increase the involvement of the private sector in TB control, but also to help align their practices with national and international standards of TB care.<sup>[6]</sup> Public-private mix has been defined by WHO as strategies that link all healthcare

entities within the private and public sectors to national tuberculosis programmes for expansion of DOTS activities.<sup>[7]</sup> TB is preventable as well as curable and its transmission could be prevented by prompt identification and treatment of the infected person. Tuberculosis (TB) remains a major global health problem. In 2012, an estimated 8.6 million people developed TB and 1.3 million died from the disease.<sup>[8]</sup>

## AIM OF THE STUDY

The aim of this study is to shed light on the contribution of the private health sector in Missan governorate, to the detection of cases of tuberculosis (pulmonary and extrapulmonary), particularly, the new cases.

## PATIENTS AND METHODS

Records of tuberculous patients managed by the Chest and Respiratory Disease Clinic in Missan, for the period 2012-2014 were reviewed. Chest and Respiratory Disease Clinic in Missan is concerned mainly by management and follow up of all cases of tuberculosis in the governorate, that is why, it is generally known as tuberculosis center. All cases and types of tuberculosis managed by the clinic mentioned above were enrolled in the study. Patients with more than one referral letter from more than one sites were excluded. Extrapulmonary tuberculosis is defined as the isolated occurrence of tuberculosis in any part of the body other than lungs. Private health sector includes private clinic and laboratories. Public health center includes governmental hospitals and primary care health centers. Self-referred cases mean patients who seek medical advice directly from the Chest and Respiratory Disease Clinic without being referred by physicians in the public or the private health sectors. Particular concern of the site of detection or referral of cases of tuberculosis to the above mentioned clinic was considered. Other parameters taken into consideration were; type of tuberculosis (pulmonary or extrapulmonary),

results of sputum examination for AFB, and whether the tuberculosis is new or old one. Previous or old TB means category II TB which includes those patients who had failure to previous anti-TB treatment, relapsed after treatment, or defaulted during previous treatment. The analysis of data was carried out using the available Statistical packages for social science (SPSS), version 18.0(SPSS-18.0). Data were presented in form of table of number and percentage. Chi-square test ( $\chi^2$ -test) was used for testing the significance of association between variables under study. Statistical significance was considered whenever the p-value was equal or less than 0.05.

**RESULTS**

In this study, 752 patients, with different types of tuberculosis, were enrolled, more cases of pulmonary tuberculosis were been recognized. (Table-1)

**Table 1. Types of tuberculosis among patients in the study**

Type of tuberculosis	No. (%)
Pulmonary TB	425 (56.5)
Extrapulmonary TB	327 (43.5)
Total	752 (100)

Out of the total cases of tuberculosis diagnosed by the TB Center, 44.4% of them were been referred by the private clinics and labs. (Table-2).

**Table 2. Source of detection or referral of all cases of tuberculosis**

Referred by	No. (%)
Private sector	334 (44.4)
Public health faculties	290 (38.6)
Self-referred	128 (17.0)
Total	752 (100)

The majority of cases of tuberculosis detected were new, only 25 cases (3.3%) were previously diagnosed TB (Category-2). Private sector contributes to 44.7% of detection of new cases of tuberculosis (Table-3). This finding is statistically significant, P value is less than .00001.

**Table 3. Source of detection or referral of new and old cases of TB**

Referred by	Newly diagnosed TB No. (%)	Previously treated Category.2 No. (%)
Private	325 (44.7)	9 (36)
Public health faculties	280 (38.5)	10 (40)
Self-referred	122 (16.8)	6 (24)
Total	727 (100)	25 (100)

P value 0.0001 (statistically significant)

A bit more patients with new pulmonary tuberculosis and positive sputum for AFB were detected by the private sector than public one, self-referred cases constitutes 30.9% with TB and positive sputum for AFB. Cases of pulmonary tuberculosis with negative sputum for AFB were diagnosed predominantly by the public health sector. (Table-4).

**Table 4. New pulmonary tuberculosis and results of sputum examination for AFB according to the site of detection or reference. Total number =425**

Referred by	Positive(SS+)sputum smear microscopy No. (%)	Negative(SS-)sputum smear microscopy No. (%)
Private sector	98 (36.8)	46 (28.9)
Public health faculties	86 (32.3)	81 (50.9)
Self-referred	82 (30.9)	32 (20.2)
Total	266 (100)	159 (100)

P value 0.0005 (statistically significant)

Regarding the type of tuberculosis, the private sector contributes to 58.1% of detected cases of extrapulmonary tuberculosis as compared to 37.6% by the public sector, (Table-5).

**Table 5. Source of detection and referral of pulmonary and extrapulmonary tuberculosis**

Referred by	Pulmonary TB. No. (%)	Extra-pulmonary TB No. (%)
Public health faculties	167 (39.3)	123 (37.6)
Private sector	144 (33.9)	190 (58.1)
Self-referred	114 (26.8)	14 (4.3)
Total	425 (100)	327 (100)

P value 0.0001 (statistically significant)

**DISCUSSION**

In this study we try to shed light on the collaboration between the public and the private health sectors, in detection and follow-up of cases of tuberculosis in Missan governorate. Prompt diagnosis is essential to ensure prompt treatment and thus rapid reduction in infectivity.<sup>[9]</sup> This study is the first one in this governorate, and probably in other governorates in Iraq. In our study more cases of pulmonary tuberculosis (56.5% of the total number of TB cases) were been detected as compared to extrapulmonary tuberculosis (EPTB) cases which forms (43.5%) of cases (Table-1). Though pulmonary tuberculosis is the most common form, extra pulmonary tuberculosis (EPTB) also contributes to significant morbidity and mortality.<sup>[10]</sup> The identification and treatment of persons who have active tuberculosis remain the first priority in controlling the spread of the disease.<sup>[11]</sup> WHO with its “STOP TB” strategy has given a vision to eliminate TB as a public health problem from the face of this earth by 2050.<sup>[12]</sup> In our study also, private sector contributes to 44.4% of all cases of tuberculosis detected and referred to the Chest and Respiratory Disease Clinic in the

governorate, this is in comparison to 38.6% detected by the public sector, and 17% self-referred (Table-2). In many countries, the private sector is a major source of care, even for poor persons, and the area where services for the public are widely available.<sup>[13]</sup> In a study, 79% of first-line health care in Pakistan is provided by private practitioners, and in India 60-80% of out-patient health care is provided on a private basis.<sup>[14]</sup> However, little information is available from high-incidence countries about the role of the private sector in tuberculosis detection and treatment. In Vietnam, < 40% of all TB cases in Ho Chi Minh City were estimated to be treated in the private sector, and half of all patients with a diagnosis of TB in the public sector initially sought help in the private sector.<sup>[13]</sup> Private health care plays a central role in health-care provision in many developing countries that are burdened by TB.<sup>[6]</sup> Unfortunately I could find data related to the role of private sector in detection of cases of tuberculosis in other governorate in Iraq, probably because our study may be the first one in this respect. It seems from our study also, that, the private sector in Missan governorate has a bit more contribution regarding the detection of new cases of tuberculosis as compared to the public sector, 44.7% of new cases were detected by the private health sector in comparison to 38.5% of cases detected by the public health sector (Table-3). In a study, in India, (63.4%) of private physicians reported to have seen TB suspects in their private practice, and (45.2%) of them always relied on National Tuberculosis Control Programme (NTP) services for diagnosis. The majority (63.6%) always referred confirmed cases for treatment.<sup>[15]</sup> According to a study, although all participants were aware that they could get free treatment in the public sector and viewed this positively, a number opted to seek care at a private clinic, at least in the short term. Consistent with findings from other studies conducted in the South East Asia region, the

general practitioner (GP) was the first point of contact for all patients.<sup>[16]</sup> Regarding the diagnosis of cases of pulmonary tuberculosis & sputum examination results for AFB, we found through our study, that slightly more TB cases with positive sputum for AFB were detected among patients referred by the private sector personals (36.8% of cases) as compared to 32.3% of cases detected by the public sector, and 30.9% among patients who sought medical advice directly from the TB center (self-referred) (**Table-4**). The relatively high percentage of self-referred patients with positive sputum may reflect high index of suspicion of pulmonary tuberculosis among people. It is recommended that, cough that persists for more than three weeks despite treatment with a broad spectrum antibiotic should, in developing countries of Africa, Asia, and Europe, lead to examination of at least two specimens of sputum for tubercle bacilli, one of which should be an early morning specimen.<sup>[6]</sup> The World Health Organization's goal for tuberculosis (TB) control is to detect 70% of cases with a new, smear-positive TB test and cure 85% of these cases.<sup>[17]</sup> We found through our study also, that, most of new cases of pulmonary tuberculosis with negative sputum for AFB (50.9%) were diagnosed by the personals in the public health sector (Table-4). This finding may reflect better awareness & higher index of suspicion of TB, on clinical bases, by the physicians in the public health sector or may point to a fact that private sector personals may have less affinity to diagnose pulmonary tuberculosis without positive sputum for AFB, such finding is statistically significant as the p value < 0005. In developing countries with a large number of tuberculosis cases and limited resources, the diagnosis of TB relies primarily on smear microscopy for Acid Fast Bacilli (AFB) but its sensitivity is limited in paucibacillary cases.<sup>[18]</sup> Also, the role of the private health sector is quite obvious in detection of extrapulmonary tuberculosis (EPTB), 58.1% of these cases were been

detected by this sector as compared to 39.3% by the public health sector, and only 4.3% of cases of (EPTB), were self-referred (**Table-5**). This finding is statistically significant (P value is < 0001). Such relatively high percentage of cases of (EPTB), detected by physicians in the private sector may indicate that patients with (EPTB), usually seek medical advice because of vague ill health or PUO, and usually such chronically ill patients keep visit the private clinics more often, also such finding may reflect good index of suspicion of (EPTB), among private health sector physicians. The presentation of (EPTB), can challenge the diagnostic skills of clinicians and lead to a delay in the diagnosis and management of the disease.<sup>[10]</sup> The diagnosis of (EPTB), can be elusive, necessitating a high index of suspicion.<sup>[19]</sup> In one study, out of 250 suspicious cases, 58 (23.2%) cases were of extrapulmonary tuberculosis.<sup>[20]</sup> In another study, extrapulmonary tuberculosis represented 28% of all active cases of tuberculosis. The last decade has witnessed shifting trends in tubercular infection, with extra pulmonary tuberculosis (EPTB) emerging as an important entity. EPTB constitutes about 15–20% of all cases of tuberculosis in immunocompetent patients and accounts for more than 50% of cases in HIV positive individuals.<sup>[21]</sup> Only (4.3%) of cases of EPTB in our study were self-referred. The absence of pulmonary symptoms may contribute to such finding. On the other hand, reasonable number of patients who were diagnosed to have pulmonary tuberculosis in our study, were self-referred (Table-4,5). This finding may reflect the effect of community regarding increasing the awareness of this disease through the available health education facilities. Self-referring in Missan seems to be encouraging. According to a study, proximity to a health facility and disease severity were the strongest determinants of prompt care-seeking.<sup>[22]</sup> Community-based interventions, such as the establishment of referral networks and other activities that bring TB information and services closer to those with symptoms, can

contribute to improved TB case notification.<sup>[23]</sup> At the same time there needs to be intensified research to identify a more accurate test for the diagnosis of latent tuberculosis infection.<sup>[24]</sup>

### CONCLUSION AND RECOMMENDATIONS

1. The private health sector, in Missan governorate, represented by private clinics and labs, plays an important role in the detection and follow-up of patients with tuberculosis.
2. Collaboration between the private health sector and public health centers is crucial for better case detection and management of tuberculosis.
3. Community participation to highlight the important points about TB; particularly its prevention, transmission, diagnosis, treatment and care, should be encouraged to decrease its prevalence and its negative impact on the public health.
4. High index of suspicion of tuberculosis is important on the site of; community, private health personals, and public health care givers.

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