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## A Modern View on Outpatient Treatment "From the First Day" of Patients with Pulmonary Tuberculosis in the Conditions of the City of Tashkent

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### Abstract

Tuberculosis today is a multicomponent problem that has gone beyond the medical sphere. Despite significant progress in the global fight against tuberculosis, no country in the world has reached its targets. As a result, there is an urgent need to revise the tuberculosis control strategy, which unites all levels of healthcare, public and religious organizations, and all sectors of the media [6,9]. Thus, a patient-centered approach to TB treatment is being formed - this is one of the fundamental elements of the "End TB" Strategy ("End TB"), which was adopted in 2014 at the 67th session of WHO. A patient-centered approach to treatment allows you to be treated outside of hospital facilities and continue to work without interruption from work and family. Treatment models that provide equitable access to outpatient care and patient support in the community provide an opportunity to reduce stigma in people with TB.

A Comprehensive plan to combat tuberculosis in the Republic of Uzbekistan for 2011-2015. - Decree of the Cabinet of Ministers No. 62 dated 05.03.2011 "On

additional measures to reduce the incidence of tuberculosis in the Republic of Uzbekistan for 2011-2015" defined subsequent targets, strategic

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interventions and activities to inform implement the prevention, treatment and control of TB during the period of the plan [5,10,11]

In recent decades, the National TB Control Program of the Republic of Uzbekistan has demonstrated its ability to improve the epidemiological situation of TB by reducing its incidence in the country from 46.8 in 2015 to 32.1 in 2020 and mortality from 3.1 in 2015 to 1.2 in 2020.

## 1. Purpose of the study:

To analyze the effectiveness of the model of outpatient treatment of pulmonary tuberculosis from the first day of treatment in the example of two districts of the city of Tashkent.

## 2. Materials and methods:

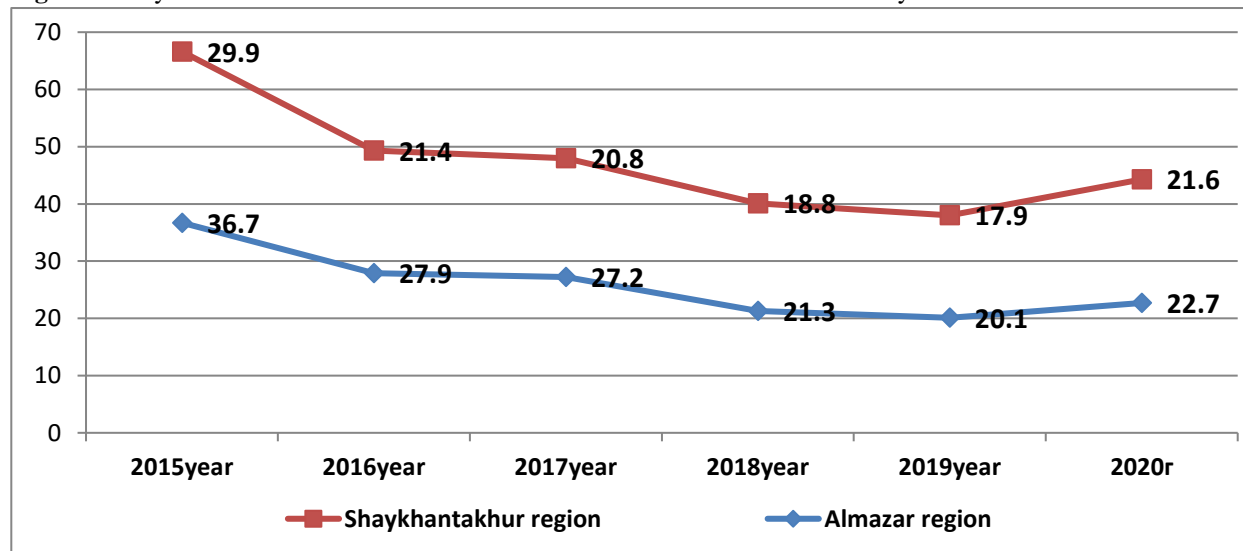
An assessment of the epidemic situation for tuberculosis in two districts of the city of Tashkent in the period from 2015 to 2020 was carried out.

Epidemiological indicators were analyzed using the methods of variation statistics. A model for organizing outpatient treatment from the first day of chemotherapy in patients with pulmonary tuberculosis is presented in the example of the Almazar and Shaikhontakhur districts of the city of Tashkent. Anti-tuberculosis activities were carried out by the district psychiatric dispensary No. 3.

## 3. Results and discussion:

In the city of Tashkent during this period, measures were intensively introduced to organize the controlled treatment of patients with tuberculosis, to increase adherence to treatment. Work with "threatened" contingents has intensified. All this led to a decrease in the incidence rate from 49.8 per 100,000 population in 2015 to 35.2 in 2020. In Almazar district in 2015, the incidence of tuberculosis was 36.7 per 100 thousand of the population, with a subsequent decrease to 22.7 in 2020. A similar picture is observed in the Shaikhontakhur region - 29.9 in 2015 and 21.6 in 2020 (Fig. 1).

**Figure. 1.** Dynamics of the incidence of tuberculosis in two districts of the city of Tashkent from 2015 to 2020



In Uzbekistan, according to the Order of the Ministry of Health No. 383 dated October 24, 2014. "On the improvement of anti-tuberculosis measures in the Republic of Uzbekistan", an integrated control of the treatment of tuberculosis in the hospital and outpatient link is being implemented. According to this order, chemotherapy is carried out on an outpatient basis in polyclinics at the place of residence or district TB dispensaries from the first day in patients who do not

excrete Mycobacterium tuberculosis and do not pose a danger to others, as well as patients with bacterial excretion, but whose living conditions allow receiving treatment without hospitalization.

For the period from 2015 to 2020, in two districts of the city of Tashkent: Shaykhontokhur and Almazar, 200 patients were taken for outpatient treatment from the first day of chemotherapy. In Shaykhontokhur

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district - 91, in Almazar - 109 patients. There were 129 (64.5%) men and 71 (35.5%) women.

**Figure. 2.** Composition of pulmonary tuberculosis patients by gender treated in 2015-2020

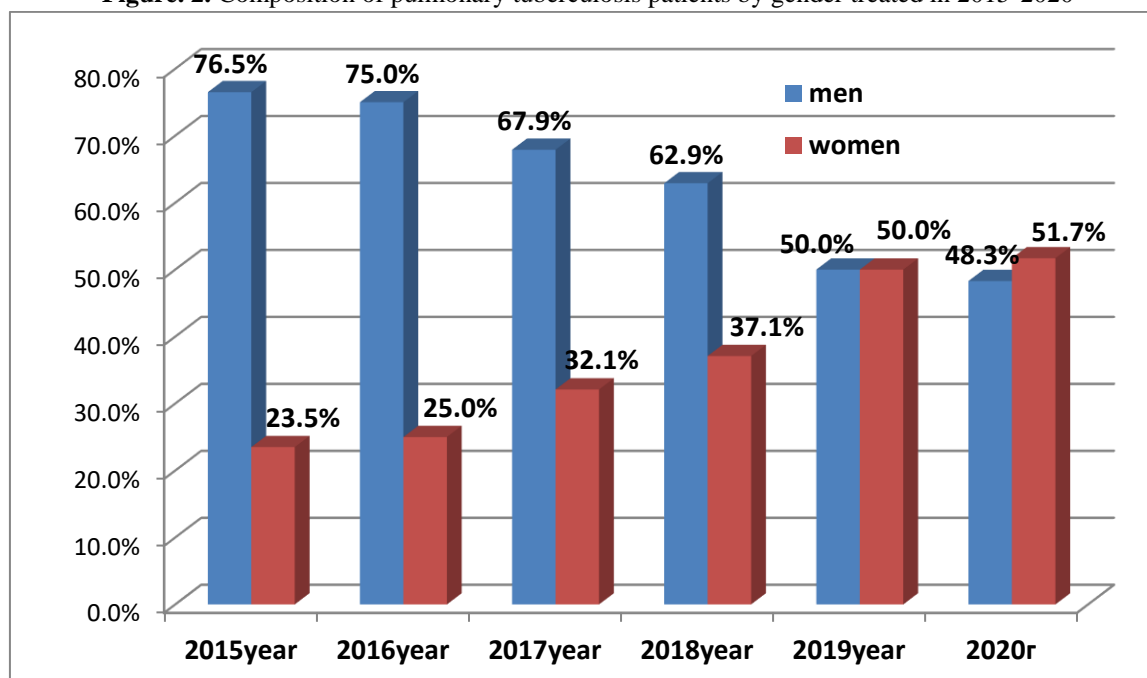


Figure 2 shows data on the gender composition of treated patients. Gender differences were significant between groups. Thus, in 2015, more men than women received outpatient treatment - 52 (76.5%) versus 16 (23.5%), followed by a steady increase in women to 15 (51.7%) versus 14 (48.3%). % - men in 2020.

An analysis of the age structure showed that pulmonary tuberculosis causes losses among the most able-bodied, economically active part of the population. Table 1 shows that the largest share among TB patients is made up of persons aged 31 to 40 years - 61 (30.5%), the second place in importance is occupied by the age of 51 to 60 years - 43 (21.5%) years and from 41 to 50 years - 32 (16%).

**Table 1.** Age composition of patients treated on an outpatient basis from 2015 to 2020

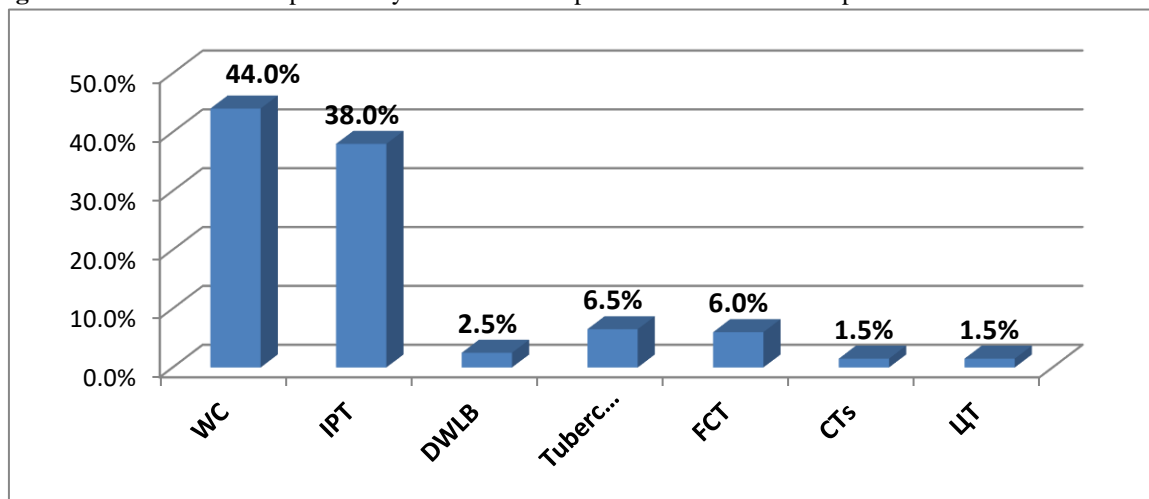
years	general	Age						
		18-20 years	21-30 years	31-40 years	41-50 years	51-60 years	61-70 years	71-80 years
2015	68	1	7	18	11	21	7	3
	100%	1.5%	10.3%	26.5%	16.2%	30.8%	10.3%	4.4%
2016	12	0	5	2	0	4	0	1
	100%	0%	41.7%	16.7%	0%	33.3%	0%	8.3%
2017	28	1	9	7	5	3	2	1
	100%	3.5%	32.1%	25.1%	17.9%	10.7%	7.1%	3.6%
2018	27	1	6	10	3	4	2	1
	100%	3.7%	22.2%	37.1%	11.1%	14.8%	7.4%	3.7%
2019	36	2	1	13	7	6	7	0
	100%	5.5%	2.8%	36.1%	19.4%	16.7%	19.5%	0%
2020	29	0	2	11	6	5	3	2
	100%	0%	6.9%	37.9%	20.8%	17.2%	10.3%	6.9%
total	200	5	30	61	32	43	21	8
	100%	2.5%	15.0%	30.5%	16.0%	21.5%	10.5%	4.0%

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Figure No. 3 shows the clinical forms of pulmonary tuberculosis at the time of detection of pulmonary tuberculosis. As can be seen from the data presented, the predominant clinical forms of pulmonary tuberculosis were focal - in 88 (44%) and infiltrative pulmonary tuberculosis - in 76 (38%) patients. Less

common were patients with tuberculomas - 13 (6.5%) and fibrous-cavernous pulmonary tuberculosis - 12 (6.0%). Other clinical forms of pulmonary tuberculosis occurred in isolated cases.

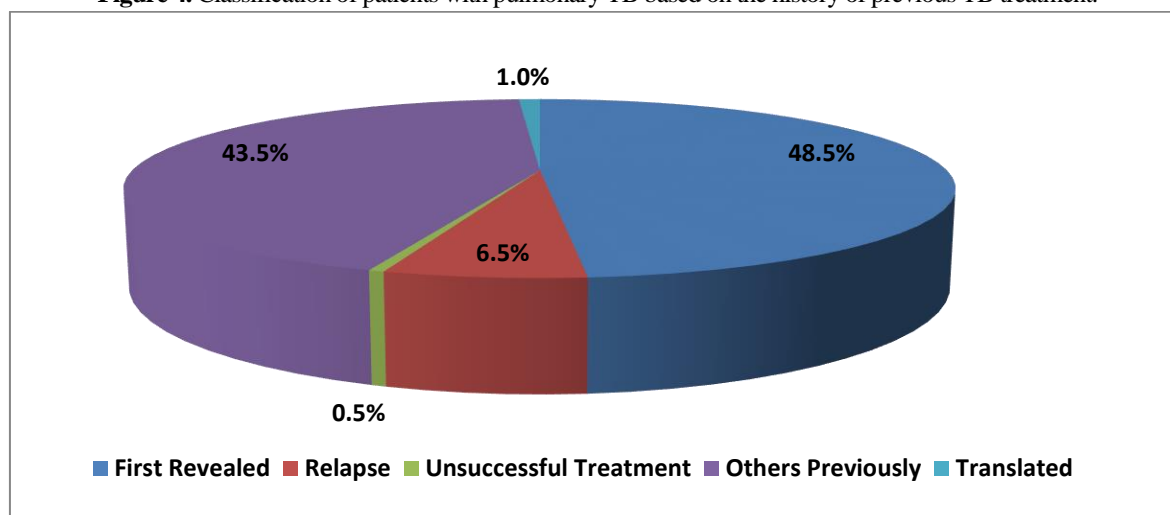
**Figure 3.** Clinical forms of pulmonary tuberculosis in patients treated on an outpatient basis from 2015 to 2020



Among 200 patients treated from 2015 to 2020, the proportion of newly diagnosed patients with respiratory tuberculosis was 97 (48.5%) (Figure No. 4), and other previously treated patients – were 87

(43.5%). There were 13 (6.5%) patients with a relapse of the disease, 2 (1.0%) were transferred from other anti-tuberculosis treatment facilities, and one patient received treatment after an unsuccessful course of therapy.

**Figure 4.** Classification of patients with pulmonary TB based on the history of previous TB treatment.



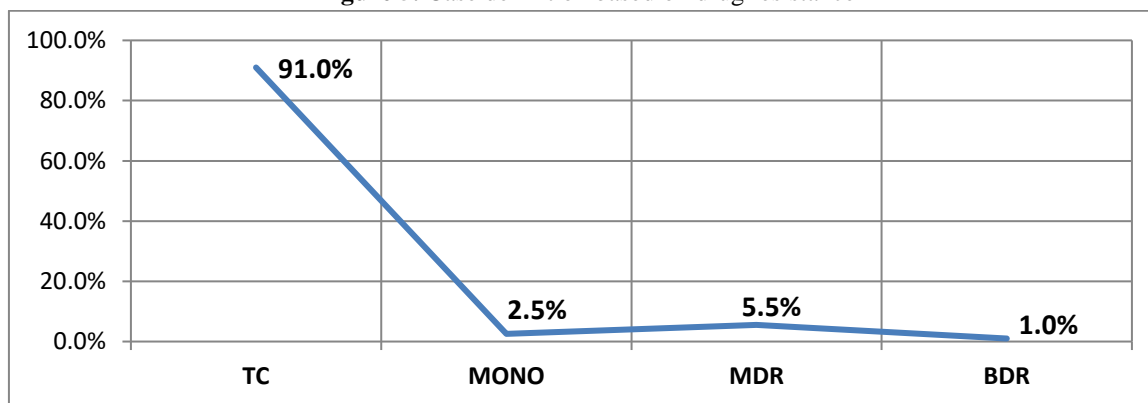
The problem of HIV-associated tuberculosis also has a negative impact on the epidemiological situation. So from 2015 to 2020 - 13 (6.5%), patients were treated on an outpatient basis from the first day due to the fact that in this group of patients living conditions and adherence to treatment were at a high level.

Outpatient treatment in Uzbekistan is gradually covering more and more patients with pulmonary tuberculosis. District TB dispensaries and PHC services are fully operational and are reaching more and more patients, both sputum smear-negative, VC-positive pulmonary tuberculosis, and multidrug-resistant (MDR-TB) patients.

Destruction in the lungs was detected in 49 (24.5%). Bacterial excretion was detected in 46 (23%) patients. Patients with non-bacterioexcretory respiratory tuberculosis (sputum smear-negative) are hospitalized only for epidemic indications, as a rule, they begin treatment on an outpatient basis. If a culture of mycobacteria susceptible to first-line anti-tuberculosis drugs is obtained against the background of ongoing treatment and there are no negative clinical and radiological dynamics, the person continues treatment on an outpatient basis. If the culture is resistant to rifampicin and isoniazid, the patient is referred to the city medical council for MDR-TB registration and treatment. If sputum smear microscopy is negative, treatment can continue on an outpatient basis.

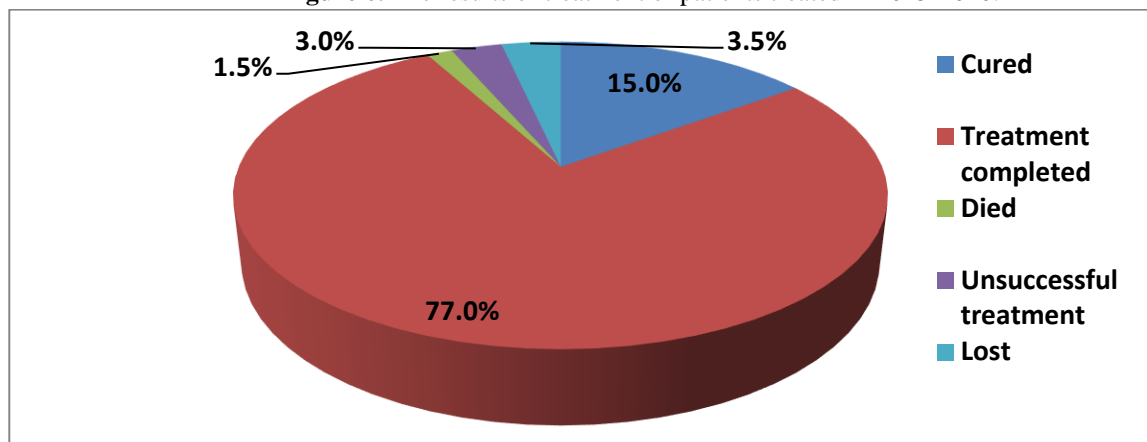
At the moment, accelerated molecular diagnosis of MDR-TB and drug-susceptibility testing (DST) are available to all patients in Uzbekistan. The modern equipment of laboratories makes it possible to timely determine the resistance of Mycobacterium tuberculosis to the main and reserve anti-TB drugs. According to our data (Figure No. 5), the vast majority of patients were with drug-susceptible tuberculosis - 182 (91%) and mono-resistant pulmonary tuberculosis was detected - in 5 (2.5%) patients. At the same time, it is noteworthy that more and more patients with MDR/TB are beginning to receive outpatient treatment - 11 (5.5%) and with XDR/TB - 2 (1.0%).

**Figure 5.** Case definition based on drug resistance



The main component that determines the successful solution to the problem of tuberculosis is the organization of controlled chemotherapy at all stages of the patient's treatment. Anti-tuberculosis activities were carried out by the psychiatric dispensary No. 3. Implementation of the principle of accessibility of medical care in relation to tuberculosis has been achieved by organizing controlled treatment on the basis of the outpatient clinic [1], which is most convenient for the patient to visit (territorial polyclinic or anti-tuberculosis dispensary). The patient himself chooses where he will receive medicines [2]. Activities for the organization of

outpatient treatment are regulated by the National Clinical Protocol for the Management and Treatment of Respiratory Tuberculosis in Adults created and operating in the Republic of Uzbekistan for 2020. According to the National Clinical Protocol for the Management and Treatment of Respiratory Tuberculosis in Adults, treatment is considered successful if the patient is cured of tuberculosis or has completed the main course of chemotherapy. So, for the period from 2015 to 2020, successful treatment was registered in 184 (92%) patients treated on an outpatient basis (Figure No. 6).

**Figure 6.** The results of treatment of patients treated in 2015-2020.

Treatment failure (persisting bacterial excretion or emergence of drug-resistant mycobacteria) was detected in 6 (3.0%) patients. 3 (1.5%) people died from tuberculosis. 7 (3.5%) patients left the field of activity of the TB dispensary.

#### 4. Conclusion:

Modern living conditions in the metropolis and the dynamic development of instrumental and laboratory diagnostics in the TB service dictate the revision and expansion of the criteria for a patient-oriented model of pulmonary tuberculosis treatment without separation from society [8]. The model of organizing controlled treatment of tuberculosis with the involvement of outpatient healthcare organizations in a large industrial city can increase the proportion of successfully treated patients. The effectiveness of outpatient treatment is not inferior in terms of the effectiveness of inpatient treatment, it allows for reduction of the time devoted by medical personnel to one patient without losing the quality of treatment. The health care system of Uzbekistan is undergoing reform and transformation, including in the financing system. The current situation should be a trigger for the necessary reforms and changes not only in the TB service but also in legislation and the financing system, with the subsequent formation of the foundation for a new, more rational system for treating patients with pulmonary tuberculosis.

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