Segregation of tuberculosis patients by social, demographic and economic features on the model of Chisinau city and the role of community support

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Abstract

Background: One of the most important actions in tuberculosis control represents the improvement of social and economic conditions, as well as nutrition, hygiene, housing and working state of the population. Commission on Social determinants of Health suggests to all tuberculosis burden countries, especially targeting research sector, governments and academia institutions to implement health-oriented interventions, as being the most powerful potential efforts in tuberculosis control. The aim of the study was the segregation of tuberculosis patients according to the social, demographic and economic characteristics revealed at the regional level in Chisinau city for identifying target groups for improving the earlier case-detection.
Material and methods: 185 pulmonary tuberculosis patients diagnosed in the period 01.01.2015-31.12.2015 in Chisinau city were investigated.
Results: While segregating new cases of pulmonary tuberculosis there were identified several high risk groups for active disease: social risk groups with specific features – uninsured, unemployed, living in poor conditions; groups with suppressing medical conditions; epidemiologically endangered groups – homeless, migrants and contacts with tuberculosis patients; persons with harmful habits (alcohol abusers, injection drug users). Due to enumerated risk factors it was identified that one half of patients were late detected as being microscopic positive for acid-fast-bacilli that presented the highest epidemiological danger.
Conclusions: Social and community support must take into account the segregation of TB patients method for improving awareness, education and information of high risk groups and specific groups for tuberculosis.
Key words: tuberculosis, social determinants, risk groups.

Introduction

Tuberculosis represents a classic example of an infectious disease linked with social determinants of the health [13, 16, 18]. As a public health term – social determinants represent a set of factors, that contribute to the social definition of health, disease or illness to which are referred collective determinants. It was established that the decline of tuberculosis epidemiological indices is attributed to the improving of social and economic conditions, rather than to the clinical advances [13]. Additionally, it was identified that the improvement of the nutrition, hygiene, housing and working conditions in highly developed countries contributed to health care progress, more evident in strengthened tuberculosis control. In this context, WHO Commission on Social determinants of Health suggested to all TB burden countries, especially targeting research sector, governments and academia institutions to implement health-oriented interventions, as being the most powerful potential efforts in tuberculosis control. International review identified that in majority of high-income states, the combination of the industrial development progress with the use of anti-TB drugs, associated with the social and infrastructure improvement contributed to the dramatic drop of epidemiological tuberculosis indices [16]. On the other hand, despite improvement of diagnostic and treatment options in low-income and middle-income countries, the major unsolved social determinants make their population continuously vulnerable to the infectious diseases, especially to poverty-related diseases [17]. According to the WHO estimations, diseases associated with the poverty account for 45% of the morbidity in the poor countries, and tuberculosis, malaria and HIV/AIDS together are responsible for 18% of the total morbidity burden [18]. So, although chronic noncommunicable diseases are rapidly emerging in the economically disfavored regions, the infectious diseases still represent a significant proportion of public health burden. It was identified that poverty, illiteracy, gender inequality and rapid urbanization are largely unaddressed even in actual epidemiological context and represent general cause of infectious spreading [18].

Accumulated evidence suggested that not only an effective treatment of tuberculosis is a major issue for TB control actions, but also resolution of social and economic problems, such as improving of housing, transportation, nutrition represent important concerns [12]. For reducing the impact of tuberculosis as a social related disease, it was identified the importance of the approach to the underlying social and economic factors, such as social assistance to vulnerable groups, household conditions, improvement of the general public life style, reducing the harmful habits, recognized as determinants for re-activation of latent tuberculosis infection and active tuberculosis progression [11]. Studies realized in low-income states showed that tuberculosis is concentrated in areas with high density of population, poor environmental and sanitation conditions: poverty, food insecurity, unhygienic living conditions, and lack of pure drinking water [13]. The most affected groups, being assessed as hard-to-reach groups are homeless, migrants, individuals living with HIV, children from poor families, drug injected users.

According to the WHO estimations the Republic of Moldova (RM) remains a high risk zone showing an inadequate concern regarding social determinants that represent main barrier to achieve the health related Millennium Development Goals [15]. In the actual globalization process, the Republic of Moldova is the least economically developed country from the Eastern European Region. According to the classification of World Bank Agency, RM is defined as a lower middle income country, with a Gross Domestic Product of $7.962 billion in 2014 and a population of 3 million 556 thousand individuals. With a total Gross Domestic Product (GDP) of $8.178 billion in 2014, and GDP per capita $4.177, RM shows a big rate of inflation (5.1-10% annually), that continuously worsens the economical state of the population. Despite a continuous diminishing of the poverty headcount ratio: 2009 – 26.3%, 2010 – 21.9%, 2011 – 17.5%, 2012 – 16.6%, 2013 – 12,7% there was not found a similar tendency in the epidemic indices of poverty-related diseases, and this fact endangers the security of public health system. Despite increasing by 5 times the national public budget funding for healthcare sector (1.192 – 2005, 3.846 – 2010, 5.890 million MDL – 2015), the total rate/value reported, the GDP remains constantly low (3.9% - 2005, 6.1% - 2010, 5.7% - 2015) that is reflected by the low coverage of high risk groups by screening procedures [22]. Accumulated evidence suggested that not only the deficiencies in performing an effective antituberculosis treatment is a major issue for the public health system of RM, but also the lack of intervention to resolve social and economic problems of Moldovan patients contributes to the poor recovery of the epidemic state [3].

In this paper we critically describe and segregate tuberculosis patients according to the social, demographic and economic characteristics revealed at the regional level in Chisinau city for identifying target groups for improving the precocious case-detection.

Objectives: 1. Comparative assessment of the epidemiological indices of tuberculosis in Chisinau city and at the republican level; 2. Evaluation of social, demographic and economic characteristics of patients from Chisinau city; 3. Identifying risk stratification of patients diagnosed in Chisinau city through the positive GeneXpert MTB/RIF assay and the role of their support by the community organizations.

Material and methods

It was performed a retrospective randomized, selective, descriptive study targeting social, demographic and economic peculiarities of 185 patients with pulmonary tuberculosis diagnosed in Chisinau city in the period of 01.01.2015-31.12.2015 through the positive GeneXpert MTB/RIF assay. Included criteria were: age > 18 years old, patients with tuberculosis established as a new case, through positive GeneXpert MTB/RIF assay, signed informed consent.

In this context we underline that GeneXpert Xpert MTB/RIF is strongly recommended by the World Health Organization in 2010 for diagnosis of tuberculosis in adults and children presumed to have pulmonary MDR-TB, HIV associated tuberculosis or TB meningitis. In RM it was nationally implemented in 2014 as a compulsory investigation in addition to smear microscopy to all tuberculosis suspects. GeneXpert MTB/RIF is designed as a semi-quantitative, nested real-time polymerase chain reaction (PCR) for detection of *Mycobacterium tuberculosis complex* DNA and rifampicin resistance mutations of the *rpoB* gene [20].

The investigational schedule of the presented research included information data about: sex (male-female), age (distribution in age groups according to the WHO recommendations), demographic characteristics (urban/rural), patient's origin (born in the Republic of Moldova or in other states), educational status (the last level of education), economical status (employed, unemployed, retired, disabled, student), health-insurance state (presence/lack of health-insurance), high risk characteristics (social vulnerability, close tuberculosis contact, migrational and detention history, comorbidities), characteristics of the epidemiological cluster (patient's microscopic status, close contacts: children, pregnant and childbed women, HIV positive family member), health care seeking behavior, way of the patient's detection, medical staff involved in the patient's management.

All selected patients were diagnosed and managed according to the National Clinical Protocol – 123 "Tuberculosis in adults". The informational system for monitoring and evaluation of tuberculosis cases (SIME TB) was used for identifying patients diagnosed at the regional (Chisinau city) level between 01.01.2015-31.12.2015. Data were extracted from the statistic templates filled in the frame of tuberculosis case registration – F089/1-e „Aviz despre bolnavul cu diagnosticul stabilit caz nou/recidivă de tuberculoză activă și de reîncepere a tratamentului și rezultatele acestuia" [Declaration about patient's established diagnosis of a new case/relapse of active tuberculosis and restart of the treatment and its outcomes] and F090 „Fișa de declarare și evidență a cazurilor de tuberculoză" [Declaration and evidence template of tuberculosis cases].

Methodological approach used: social, epidemiological, collection methods, statistical analysis, graphic representation and analytical assessment. Statistic assessment was carried out by checking the quantitative and qualitative features of selected patients. Statistical survey was performed using Microsoft Excel XP soft. Accumulated material was tabled in simple and complex groups.

Results and discussion

For the comparative epidemiological assessment of major tuberculosis indices in Chisinau city and general republican indices was used published data by National Statistical Bureau and National Centre for Management in Health. According to the National Statistical Bureau the stable population of the RM is continuously decreasing. Between 2013 and 2015 the total number of the Moldovan population decreased by 4278 citizens. In 2013 were registered 3.559.497, in 2014 – 3.557.634 and in 2015 3.555.159 citizens. In 65 Moldovan towns, considered as the major infectious cluster were residing 1.492.165 Moldovan citizens (40.67% of the total population)

in 2013, 1.502.996 (42.24% of the total population) in 2014 and 1.507.265 citizens (42% of the total population) in 2015. So, urban area increased its population between 2013 and 2015 by 10.831 people, on the other hand the rural population decreased by 19.428 people in the same period. The difference of 8.597 people between urban and rural population is supposed to emigrate from the RM. As a comparison the population of Chisinau city increased by 9600 people between 2013 and 2015, with 800.600 citizens declared in 2013 (53.65%) 804.500 in 2014 (53.52%) and 809.600 citizens in 2015 (53.71% from the Moldovan urban population) [21].

The study was designed to incorporate health-related issues into demographic measures. In this context we describe Moldovan health care system as being based on the universal access to major services through mandatory health insurance mechanisms. The financing of most health services is performed by the National Health Insurance Company. Uninsured part of Moldovan population ranges 10 to 25% from total population, depending on the demographic region (more frequent in rural area), on the ethnicity (minorities are more frequently uninsured), and other social disadvantaged conditions (unemployment, homelessness). In 2014 were identified 971.331 uninsured persons that represent 27.3% of Moldovan population. Despite free of charge tuberculosis care, the lack of insurance in an insurance-based health care systems determines a low medical coverage of high risk populations, lack of social assistance, deficiency in active screening, and poor tuberculosis control. In RM there are several categories of the population, that receive free insurance coverage: children till 18 years old, students, pregnant women, disabled persons with high and medium degree of disablement, retired persons, unemployed registered at the local territorial agencies, persons who take care of a severely ill person, mothers with 4 and more children, socially disadvantaged families assisted by the state. It is important to underline that all health services, including detection, diagnosis, tuberculosis treatment and hospitalization during the intensive phase are free of charge regardless the health insurance state of the patient, although pathogenesis and immunomodulating treatment, as well as respiratory rehabilitation require health insurance. Regarding specialized in pneumophtysiology medical staff involved in the health care of tuberculosis patients, it can be argued the fact that in RM there were only 219 in 2013 and 216 in 2014 pneumophtysiologists working in specialized services, that corresponds to 0,6 doctors at 100.000 population. On the other hand the primary health care sector, considered the most important chain involved in the detection of symptomatic patients is continuously growing with a total number of 1792 family doctors officially registered in 2014, corresponding to 6,7 family doctors at 100.000 population [21]. With such medical assistance the global incidence (number of new cases and relapses reported at 100.000 populations) and incidence of new cases are the most important epidemiological indicators describing the spread of tuberculosis disease in the general population. According to the published data by the National Centre for Management in Health during the period 2013-2015 it was registered an important decline of the global incidence and the incidence of new cases in urban districts of Chisinau and the increase of both indicators in Chisinau and its suburbs. In this context it is important to enumerate the surrounding villages included in the rural area of Chisinau city in the alphabetic order: Bacioi, Bic, Bubuieci, Budesti, Cheltuitori, Ciorescu, Codru, Colonita, Condtrita, Cricova, Cruzesti, Dobrogea, Dumbrava, Durlesti, Fauresti, Frumusica, Ghidighici, Goian, Gratiesti, Bulboaca, Humulesti, Revaca, Stauceni, Straseni, Singera, Tohatin, Truseni, Vadul lui Voda, Vatra, Vaduleni). So, table 1 shows that the global incidence in Chisinau city decreased by 22.4% between 2013 and 2015 and by -21.3% in RM. A similar vector was established regarding the incidences of new cases, defined as patients that never received tuberculosis treatment or the patient treated less than 1 month. So, between 2013-2015 the incidence of new cases diminished by 18.2% in Chisinau city and by 18.8% in RM [4]. Multiple causes are involved in this rapid decline of registered values: low rate of high risk groups investigated in the frame of active way of screening (annual chest radiological examination), high rate of migration population not accessible for screening procedures (according to mass-media data 1 million Moldovan citizen are migrants), low health care seeking behavior of the population, high rate of citizens with lack of insurance policy.

Segregating data according to the demographic place of patient's residence, it was established a heterogeneous distribution of epidemiological indices both in urban and rural areas.

Table 1

Epidemiological indices of tuberculosis in Chisinau city and the Republic of Moldova

Index	2013		2014		2015	
	Abs.	100.000 population	Abs.	100.000 population	Abs.	100.000 population
Global incidence in Chisinau city	755	94,1	659	81,7	579	71,7
Global incidence in RM	3656	102,7	3305	92,9	2870	80,7
Incidence of new cases in Chisinau city	479	72,1	508	62,9	435	53,9
Incidence of new cases in RM	2968	83,4	2686	75,5	2299	64,6
Global incidence in Chisinau city	659	90,3	561	76,4	479	65,3
Global incidence in urban districts of RM	1371	91,6	1180	78,4	1012	67,2
Global incidence in Chisinau and its suburbd	96	132,7	98	134,0	100	136,7
Global incidence in rural districts of RM	2286	90,5	2125	103,6	1858	90,6

So, in Chisinau the global incidence (new cases and relapses) decreased by 25% from 2013 to 2015 comparing with -24.4% decrease in all urban areas. On the other hand a slow increase of global incidence in rural area (suburb) of Chisinau city with +4 and a stable state in the republican rural areas demonstrated the real epidemiological state. It is important to note that incidence in suburbs of Chisinau was higher comparing with urban districts of Chisinau (+ 42.4% in 2103, +57.6% in 2014 and +71.4% in 2015). Exposed data demonstrated that ambiguous positive trend in Chisinau and RM doesn't reflect adequately the real situation and that epidemiological state of tuberculosis remains tensioned.

Evaluation of social, demographic and economic characteristics of patients from Chisinau city allowed their stratification according to the exposed features. Distributing patients according to their affiliation to local health care institutions it was identified a similar distribution of selected patients (table 2). It is important to underline that patients from Botanica sector were grouped as patients from urban Chisinau and surrounding rural areas: Bacioi, Dobrogea, Revaca and Singera villages were referred to the Medical Territorial Association (MTA) Botanica. Patients from the Centre and rural areas of Cricova, Ciorescu, Vadul-lui-Voda villages were attributed to the MTA Centru. MTA Buiucani offers health services to patients of Buiucani sector and villages: Condrita, Durlesti, Ghidighici, Vatra, Truseni. MTA Ciocana provides health care for patients from Ciocana sector and Cruzesti, Bubuieci, Colonita villages. A major public health issue was caused by a high rate of homeless persons. So, due to the lack of residence visa they can't receive specialized health care, in consequence the Municipal Hospital of Tuberculosis registered them as their own residents. Urban homeless persons constituted 22 (11.9 ± 2.38%) cases from Chisinau city, but the total number of homeless from the suburbs of Chisinau city accountered for 29 (15.7 ± 2.67%) cases. The major part of patients were Moldovan citizens, only a couple (2 (1.1±0.76%) cases) were immigrants from Middle Asia.

Table 2

Residential segregation of patients from Chisinau city according to the referable health care unit

Residential sector	n=185	
	n	M± m(%)
Botanica AMT	27	14,6±2,59
Centru AMT	25	13,5±2,51
Ciocana AMT	32	17,3±2,78
Riscani AMT	30	16,2±2,71
Municipal hospital of TB	22	11,9±2,38
Others	11	5,9±1,74
Homeless patients	29	15,7±2,67

Note: MTA – medical territorial association; others – university clinic, Galaxia and private On-line clinics, homeless patients – tuberculosis cases not referred to any municipal health care unit.

Distributing patients according to the sex it was estbalished the predominance of male sex in comparision with female sex

138 (74.6±3.20%) vs 47 (25.4±3.20%), with a male/female ratio=2,93/1. Repartition of the patients in age groups according to the WHO recommendations, identified that the largest was 35-44 years age group: 52 (28,1±3,30%) patients, followed by the 45-54 years age group – 42 (22,7±3,08%) and 25-34 years age – group 36 (1.5±2.91%) patients. Redistributing patients in two age groups (15-44 years old and >45 years) it was established the predominance of young patients – 112 (60.5±3.59%) comparing with 73(39.5±3.59%) aged more than 45years old. So, segregating patients according to the biological characteristics it was cleared up that men and young individuals must be targeted by the screening methods and risk reduction measures, as well as must be supported by civil organizations in earlier detection. Data are shown in the table 2.

Table 3

Segregating patients in sex and age groups

Biological segregation	Sex	n=185		p
		n	M± m(%)	
Sex stratification	Men	138	74,6±3,20	<0,0001
	Women	47	25,4±3,20	
Young age (reproductive groups)	15-24 years	24	12,9±2,47	<0,0001
	25 – 34 years	36	19,5±2,91	
	35-44 years	52	28,1±3,31	
>45 years old	45-54 years	42	22,7±3,08	
	55 - 64 years	24	12,9±2,47	
	>65 years	7	3,8±1,40	

Segregating patients according to the economic status, was established that employed persons, this way contributing to the health budget by paying taxes, health insurance policy and social benefits were only 25 (13.5±2.51%) in number. Each fourth patient (36 (19.5±2.91%) cases) received specialized health care as being retired, disease disabled or student. Two thirds of patients (124 (67.0±3.46%) were unemployed and without personal financial support for life. The table 4 revealed exposed data.

Table 4

Economic segregation of patients with pulmonary tuberculosis

Type of segregation of economical state		n=185		P
		n	M± m (%)	
Economically stable	Employed	25	13,5±2,51	<0.001
Economically vulnerable	Unemployed	124	67,0±3,5	
	Retired	15	8,1±2,0	
	Students	7	3,8±1,40	
	Disease disability	14	7,6±1,94	
Patients with lack of health insurance		139	75,14±3,18	

Health insurance represents the major condition for accessing health care in RM. Uninsured were the majority of cases (139 (75.14±3.18%) patients). While segregating them according to the biological features was identified that 115 (82.7±3.21%) of them were men, that represent the most im-

portant economic force of the country, and 113 (80.6±3.35%) were young aged patients (<44 years old) in their reproductive period (table 5).

Table 5

**Social segregation of patients
with lack of health insurance**

Biological segregation	Sex	n=139		p
		n	M± m(%)	
Sex stratification	Men	115	82,7±3,21	<0,001
	Women	24	17,3±3,21	
Reproductive stratification	15-24 years	24	17,3±3,21	<0,001
	25 – 34 years	43	30,9±3,92	
	35-44 years	46	33,1±3,99	
>45 years old	45-54 years	38	27,3±3,78	
	55 - 64 years	12	8,6±2,38	

Considering exposed results, *mass media* must inform the general population emphasizing that specialised health care, full accessibility to all related diagnostic tools and specific treatment for tuberculosis is free of charge for all Moldovan patients regallcss their health insurance status.

Assessing last educational level it was established that two thirds of patients 135 [72.9±3.26%] completed the secondary education (secondary school, lyceum or professional school) level of education, and the fifth part of them (38 (20.5±2.97%)) were without any educational level or graduated only primary and incomplete general school (table 6). Considering that tuberculosis is linked with low level of education, were studied the biological characteristics of these patients. Assessing them it was identified that two thirds, 27 (71.1±7.37%) were male and two thirds, 25 (65,8±7,96%) were young (< 45 years old). Exposed data are demonstrated in the table 6.

Table 6

**Educational segregation of patients according
to the last graduated diploma**

Educational segregation	Educationalstatus	N=185		P
		n	M± m (%)	
Low level	Illiteracy	8	4,3±1,5	<0.001
	Primary & general incomplete school	30	16,2±2,71	
Secondary education	General (secondary) school	104	56,2±3,65	
	Professional school (college)	31	16,8±2,75	
Superior level	Superior studies	12	6,5±1,81	

Comparing the number of patients with an optimal (medium) level of education (general school and professional school) with those with low level of graduation it was identified the predominance of patients from the first one (135 (72.9±3.26%) vs 38 (20.5±2.97%)). So, awareness and information about disease signs as well as education for risk reduction measures of persons with low degree of education are the most important tools that must be performed by the civil society organizations and could improve the tuberculosis state at the community level.

Assessing civil status it was identified a similar rate of married and unmarried patients. In the group defined as "others" were included patients- widows and patients in concubine. Regrouping patients in two groups, it was identified that single patients predominated comparing with married patients: 98 (52.9±3.67%) vs 72 (38.9±3.58%). So, the community assistance of single patients must be performed to diminish the impact of lack of family support, in this way improving the patient's social inclusion and adherence to health-related recommendations. Data are shown in the table 7.

Table 7

Segregation of patients according to the civil status

Civil segregation	Civil status	n=185		P
		N	M± m(%)	
Familist	Married	72	38,9±3,59	<0.05
Single civil	Unmarried	66	35,7±3,52	
	Divorced	32	17,3±2,78	
	Others	15	8,1±2,01	

Hierarchy of risk groups according to the widest rate of the selected patients identified that the biggest impact on the risk of developing active pulmonary tuberculosis determine: unemployment and lack of health insurance (two thirds of patients), living in poor conditions (one half), associated diseases (one third), extreme poverty (homelessness), migration and alcohol abuse (the fifth part).The stratification of pulmonary tuberculosis patients established the primary target groups in frame of which must be performed screening awareness, education for risk reduction, and improvement of health behavior as well as the groups for whom methods for active screening are most efficient represent: socially and economically vulnerable persons, comorbid patients, migrants and alcohol abusers. In this context it is important to note a very low rate of family tuberculosis clusters (15 (8.1±2.01%) cases) affiliated to each investigated patient. It is due to a low quality epidemiological cross-examination of the patient, rather than to the lack of close (family) contacts in the patient's environment.

Table 8

Distribution of patients according to the risk groups

Risk groups	Hierarchy of risk groups	n=185		Place
		n	M± m(%)	
Social groups	Lack of health insurance	139	75,1±3,17	
	Unemployment	124	67,3±3,46	
	Poor living conditions	106	57,3±3,64	
Co-morbid groups	Associated diseases	50	27,1±3,26	
Epidemiological groups	Extreme poverty	29	15,7±2,67	
	Migration	24	12,9±2,47	
	Family cluster of TB	15	8,1±2,00	
High risk (specific) groups	Chronic alcoholism	13	7,0±1,88	
	History of detention	9	4,9±1,58	
	Psychiatric diseases	4	2,2±1,07	
	Injection drug use	3	1,6±0,93	

With a lower impact were identified groups of patients with history of detention, chronic alcoholism, close contacts with infectious sources, patients with illicit drug use and psychiatric diseases.

Studying case-management, diagnosis delay, medical staff involved in the patient's detection and clinical-radiological diagnosis it was established that two thirds of patients exposed as a barrier for health care seeking lack of health insurance (139 (75,1±3,18%)), that determined late detection (>60 days after the onset of the symptomatology) of one half of the sample (108 (58.4±3.62%) patients). According to the actual recommendations the major way of new case detection is based on the microscopic examination of the symptomatic patients. So, one half of them were detected by addressing family doctor due to specific symptomatology (passive way) – (103 (55.7±3.65%) patients) and the fifth part (28 (15.1±2.64%)) by active way, through chest X-ray examination of high risk groups. One third of patients (34 (18.4±2.85%)) were diagnosed by direct addressing the pneumophtysiologist with specific signs recognized by them being relevant for pulmonary tuberculosis. In "others" conditions were included patients detected in the frame of investigations performed for the work engagement (10 (5.4±1.66%)).

Table 9

Case-management segregation and disease-related characteristics

	Management characteristics	n=185	
		n	M± m(%)
Case management	Lack of health insurance	139	75,1±3,18
	Late (>60 days)	108	58,4±3,62
	Detected by general practitioner passive way	103	55,7±3,65
	Detected by general practitioner active way	28	15,1±2,64
	Detected by pneumophtysiologist	34	18,4±2,85
	Others	10	5,4±1,66
Para-clinical features	Microscopic positive	101	54,6±3,66
	Extended radiological forms in 1 lung	80	43,2±3,64
	Extended radiological forms in 2 lungs	26	14,1±2,56
	Lung destructions	106	57,3±3,64

Assessing laboratory features of pulmonary tuberculosis it was identified that one half of patients were microscopic positive for acid-fast-bacilli. So, the first criteria that defined the highest epidemiological danger of tuberculosis clusters were identified in one half of patients. Evaluating radio-morphological features of pulmonary tuberculosis, it was identified lung infiltrates complicated with destructions in one half of patients (106 (57.3±3.64%)), unilateral extensive forms of tuberculosis involving 3 and more lung segments in 80 (43.2±3.64%) patients and involvement of both lungs in 26 (14.1±2.56%), the fact reflected due to the late detection of new tuberculosis cases.

Conclusions

The Republic of Moldova shows a continuous decreasing of its population, especially of economical and reproductive active groups. The urbanization is contributing to the segregation of health care services, which are more accessible in urban area.

Moldovan health care system is based on the health insurance mechanisms. Due to the fact that third of the population is uninsured, low health national budget doesn't permit an extensive screening in all high risk groups.

Although it was established a decreasing vector of main epidemiological indices in urban areas of the Republic of Moldova and in Chisinau city, the increase in rural regions, demonstrated that epidemiological state of tuberculosis remains tensioned.

Statistical assessment and segregation of social, demographic and economical features of patients with pulmonary tuberculosis with positive test for *Mycobacteria* DNA (GeneXpertMTB/Rif) identified several high risk groups for active tuberculosis developing: social risk groups with specific features (uninsurance, unemployment, poor living conditions); groups with medical conditions that suppress the immune response and psychiatric diseases; epidemiological groups (homelessness, migration and infectious contact); harmful habits groups (alcohol abuse, injection drug use) and other group (persons with history of detention).

All exposed risk factors reflected that one half of patients were late detected (> 60 days) and were microscopic positive for acid-fast-bacilli that determined the highest epidemiological danger.

Evaluating radio-morphological features of pulmonary tuberculosis were identified lung destructions and extensive forms of tuberculosis in one half of patients.

Community support must take into account the segregation method for improving awareness, education and information of socially risk groups, epidemiologically endangered and specific groups of tuberculosis morbidity.

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