THE SUPERVISION AND THE CONTROL OF TUBERCULOSIS
IN BIHOR COUNTY

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Abstract
The infection of about 1/3 of the world population with M tuberculosis requires not only a strict specialized supervision, but also the control of tuberculosis at various levels of management. The existence of the Directly Observed Treatment Strategy and the introduction of the WHO Global Plan to stop TB in the National Health Program determined a decrease of incidence through tuberculosis by 1.62 times, as well as the increase with 10% of the identification rate of new cases of tuberculosis. The control of tuberculosis in Bihor county has been carried out efficiently, as highlighted by the evaluated indicators, and is mainly the result of a good coordination between institutions and individuals directly involved in the control and the supervision of this disease.

Key words: tuberculosis, supervision, control, incidence, mortality, the National Health Plan.

INTRODUCTION

Tuberculosis, an infectious and contagious disease, has been considered by the WHO, since 1993, a global emergency situation that presents significant fatality when untreated or incorrectly treated.

About 1/3 of the world's population (1,9 billion people) is infected with M tuberculosis, the annual risk of infection being estimated to about 1%, each person with active tuberculosis being able to infect about 10-15 persons each year. WHO estimates that the number of new cases registered annually is of about 8 millions, while the number of deaths caused by tuberculosis raises to 3 millions.

AIM: This study aims to evaluate the way tuberculosis is supervised and controlled in Bihor county.

MATERIAL AND METHODS

Observation has been chosen as study method. The population of Bihor county has been evaluated in this study and the indicators used correspond to the time period 2004-2008.

RESULTS AND DISCUSSIONS

DOTS (Directly Observed Treatment Strategy) has been adopted in 1997 and the National Program for the Control of Tuberculosis has been implemented for the "average time period" (1997-2000 and then 2001-2005).

In 2006, in accordance to the National Strategy for the Control of Tuberculosis, our country has induced the coordinates for the elaboration of the New National Program for the Control of Tuberculosis (NPCT), based on directives set by the WHO Global Plan for TB Stop 2006-2015 (MDGs 2015). NPCT has been elaborated for the period between 2007 and 2015, is part of the National Program for Health and can be correlated to its annual objectives.

The results of such strategies, initiated through health programs, appeared in 2003, when a decreasing tendency in the incidence of tuberculosis could be observed, tendency that was preserved in the following years as well.
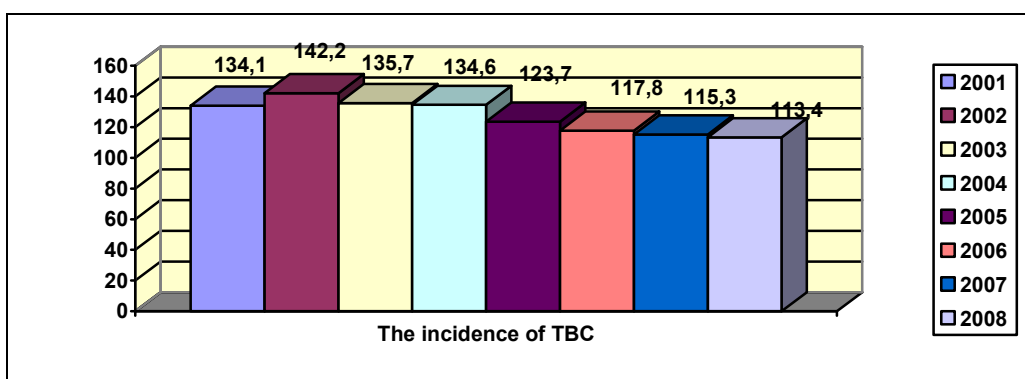

Fig. 1 – The incidence of tuberculosis in Romania, between 2001 and 2008.

Between 2004 and 2006, the main objectives of the NP 1.3 have been:
- monitoring the evolution of tuberculosis
- the active detection of new cases of TB at symptomatic and risk groups, including contacts.

The following objectives have been set for 2007-2008:
- ensuring a detection rate of more than 70% for new cases of tuberculosis, through the control of symptomatic and other risk groups;
- maintaining the trend of stagnation for the growing incidence of tuberculosis identified in the last years;
- obtaining a therapeutic success rate of over 82% for the new registered cases;
- initiating a campaign of information, education and communication at national level;
- evaluating the percentage of patients co-infected with HIV/TB.

The physical indicators obtained are presented in table I.

Physical indicators obtained during the implementation of NP 1.3, between 2004-2008, at the level of Bihor county

PHYSICAL INDICATORS	2004	2006	2008
No. contacts review / registered TB patients – 4*-5 contacts/1 case TB	3499	*3415/490 case TB	*2925/395 case TB
No. of suspects examined / 10 suspects /1 case TB registered	-	3010/490 case TB	3339/410 case TB
No. of new TB cases from the total of examined symptomatic patients	67	-	-
No. of general practitioners trained in the directly observed treatment strategy (DOTS) with patients with TB from their subordinated territory	490	-	-
No. contacts benefiting from chemo-prophylaxis	1251	-	-
No. of cases benefiting from chemo- prophylaxis	-	1090	780
No. of intra-derma-reactions at PPD	-	1446	900
No. of supervision visits in the territory, by specialized doctors	-	7	231
No. of supervision visits in counties	-	-	2
No. of completed activities of information, education and communication	-	-	187

The table above indicates that:
- the examination of more than 5 contacts/tuberculosis cases, which represents a good supervision in centers of contagion with tuberculosis;
- the number of examined suspects – 10 suspects/1 case of TB, which is close to the general level in Romania;
- the IDR with PPR has been performed strictly upon diseased children or suspects, in accordance with the instructions of the NPCT;
- two supervision visits performed by the team of the "Marius Nasta" National Institute and one by the team of the National Institute and the WHO;
- 5 supervising visits made by local coordinators.

The efficiency indicators emphasized by the average cost of diverse activities are presented in table II.

With regards to the training of medical staff for the application of the provisions of the program, besides the 7 courses of 2 days organized in 2005, for general practitioners and nurses, the coordinators of the program, together with local specialists in pneumology have visited reluctant, non-cooperative patients at their home, as well as general practitioners.

Efficiency indicators obtained during the implementation of the NP 1.3, between 2004-2008 at the level of Bihor county

EFFICIENCY INDICATORS	Semestre	2004 (lei)	2006(ron)	2008(ron)
Average cost of screening patients with active TB through the control of contacts and other risk groups	I	450.000	11,78	3,76
	II	480.000	11,54	4,14
	III	457.000	11	4,18
	IV	310.000	12,09	5,87
Average cost of screening patients with TB through the control of symptomatic groups	I	523.000	19,33	7,55
	II	560.000	27,72	10,88
	III	531.000	44,31	7,09
	IV	302.000	27,84	7,70
Average cost/training the general practitioner		0 (through the Global Fund)	-	-
Average cost/ chemo-prophylaxis treatment	I	185.000	1,73	6,65
	II	185.000	1,6	11,81
	III	185.000	1,9	5,63
	IV	185.000	1,58	5,13
Average cost intra-derma-reaction at PPD	I	-	0,85	0,93
	II	-	0,42	1,15
	III	-	0,7	1,56
	IV	-	0,74	1,56
Average cost per supervision visit in territory	I	-	-	29,52
	II	-	-	20,76
	III	-	105	34,02
	IV	-	30	28,12

Table 3 presents the indicators of results obtained in 2004-2008.

Result indicators obtained during the implementation of NP 1.3, in 2004-2008, at the level of Bihor county

RESULT INDICATORS	2004	2006	2008
% of examined contacts, form the total of registered contacts	89,98%	94,62%	81,08%
% patients diagnosed from the number of examined suspects	-	6,77%	13,82%
% persons having gone through chemo-prophylaxis from the number of persons indicated for chemo-prophylaxis	-	96,8%	96,44%
% de performed visits, form the number of scheduled visits	-	100%	83,40%

- result indicator no.1 is better than the national average (94,62%), as compared to the 80% (% of examined contacts form the total of registered contacts);
- result indicator no.2 – the percentage of 6,77% of diagnosed patients, from the total of examined suspects, indicates in 2006 a good epidemiological supervision of the territory (national percentage: 10%);
- result indicator no.3 is superior to the national average (96,8% and 96,44% as compared to 90% - the percentage of persons subject to chemo-prophylaxis, from the number of persons indicated for chemo-prophylaxis);
- result indicator 4 – indicator achieved in a proportion of 100% (percentage of performed visits, from the number of scheduled visits), in 2006.

The incidence of tuberculosis in Bihor county, between 2004-2008
During the 5 years evaluated for the purposes of this study, the incidence of tuberculosis in Bihor county has been below the national average and presented a decreasing tendency.
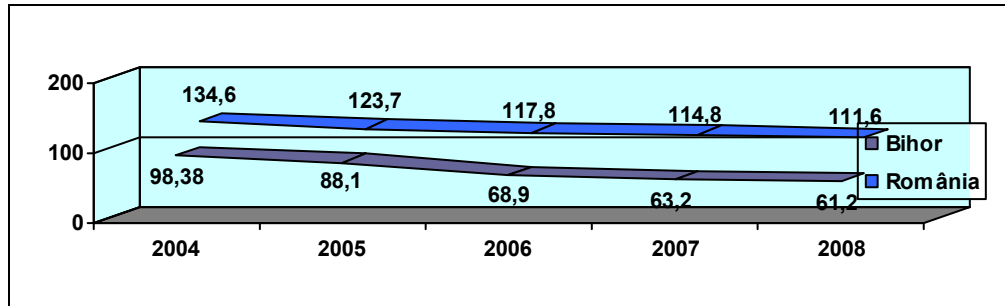

Fig. 2 – The incidence of tuberculosis in Romania and in Bihor county, between 2004-2008.

The incidence of tuberculosis in Bihor county decreased by 1.42 times in five years (61,2$\%_{oooo}$ as compared to 98,38$\%_{oooo}$).

Compared to the county average, the highest incidence has been registered in Salonta territory, during the entire investigated period, while the lowest incidence appeared to be in Alesd territory, except the period 2005-2006, when the lowest incidence has been registered in Marghita territory.

In 2008, the values of tuberculosis incidence, registered in all territories, present no significant variations, coming closer to the county average.
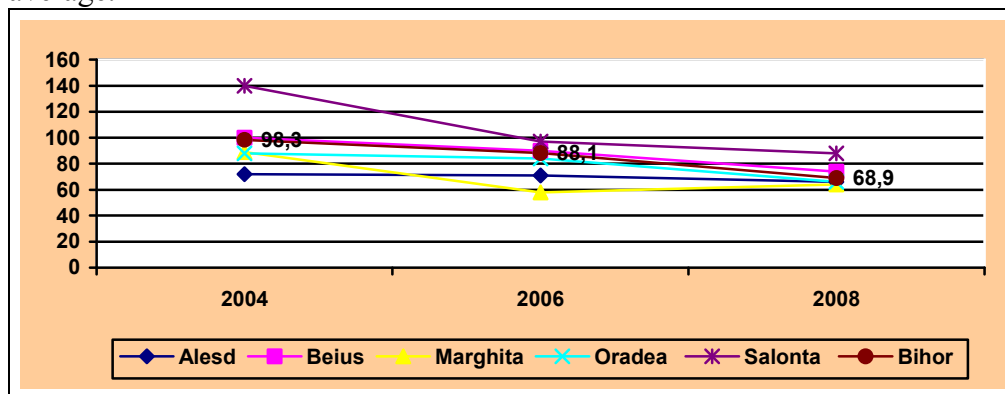

Fig. 3 – The incidence of tuberculosis in Bihor county, between 2004-2008

The incidence of tuberculosis at children living in Bihor county presents almost similar values during the interval 2004-2008 and shows a decreasing tendency in 2008.

With regards to territory, Oradea and Salonta appear to have followed similar trends: after a slight decrease in 2005, as compared to 2004, an increase on new cases of tuberculosis at children can be observed in 2008.

The incidence of tuberculosis presents a similar descending trend in Marghita, with lower incidence values than the national average, this decreasing trend continuing until 2008 and reaching the value of 7,5 $\%_{oooo}$.

It is worth mentioning here that in Beius territory no new case of tuberculosis at children has been registered.
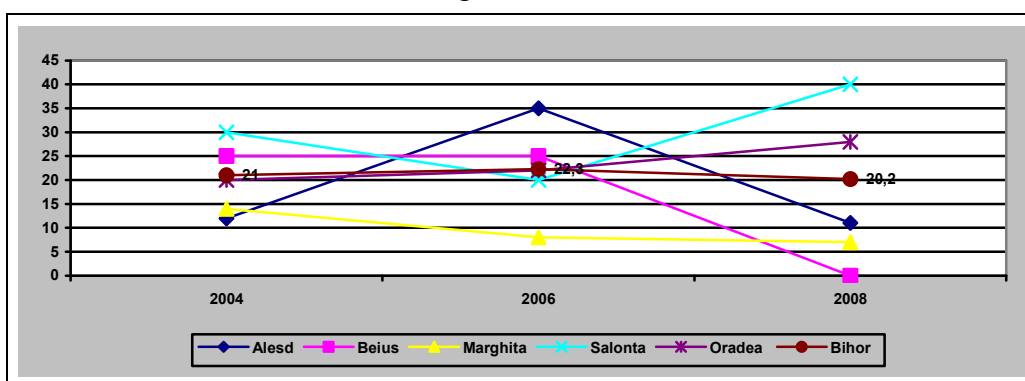

Fig. 4 – The incidence of tuberculosis at children, in Bihor county,
between 2004-2008.

The comparison of tuberculosis incidence values at children in Bihor county and at the national level is presented in figure 5.
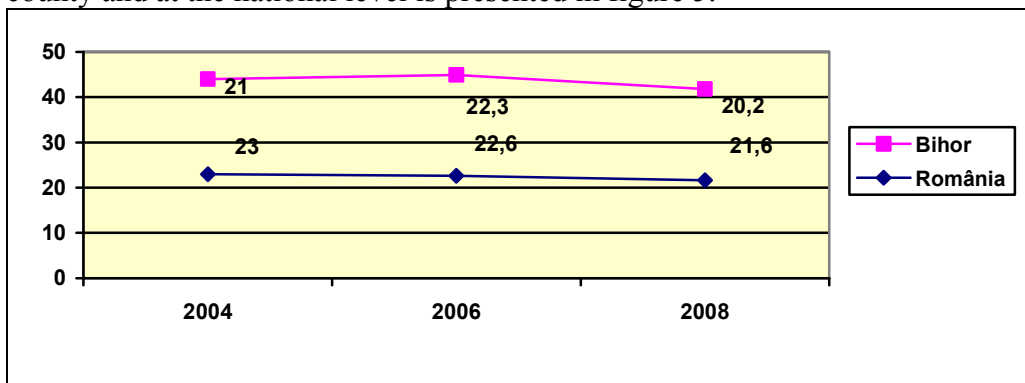

Fig. 5 – The incidence at tuberculosis at children, in Bihor county and in Romania,
between 2004 and 2008.

Tuberculosis-related mortality in Bihor county, between 2004 and 2008

Tabel 4

The number of deaths caused by tuberculosis in Romania and in Bihor county, between 2004-2008.

No. of deaths (absolute cases)	2004	2006	2008
România	2089	1784	1704
Bihor	44	41	27

Tuberculosis-related mortality presents the same descending tendency as in the case of its incidence (figure 6), decreasing by 1,62 times, from 7,4 $\%_{0000}$ in 2004 to 4,54$\%_{0000}$ inhabitants in 2008:
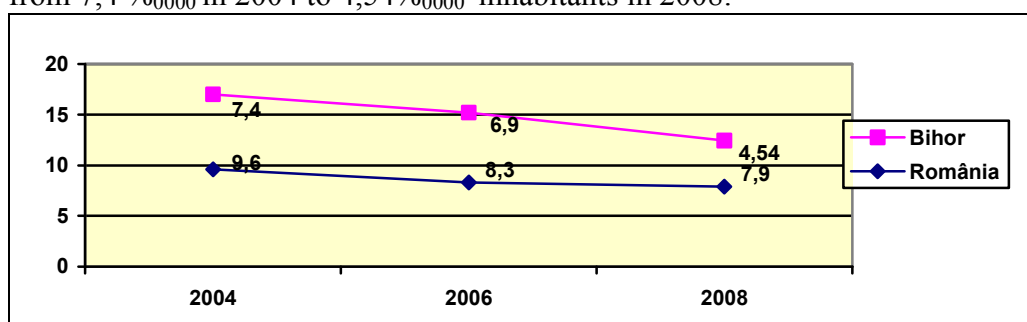

Fig. 6 – Tuberculosis-related mortality in Romania and in Bihor county, between 2004 and 2008

The situation of tubercular patients indicates data concerning the absolute values of tuberculosis cases registered in Bihor county.

One can observe a decreasing tendency in the case of new adult patients diagnosed with tuberculosis, while in the case of children this number presents similar values during the five years examined.

Table 5

The situation of tubercular patients in Bihor county, between 2004 and 2008

No. crt.	Registered patients during the years, of whom:								
	Total	New patients				Re-admitted patients			
		Total	Of whom:			Total	Of whom:		
			Children 0-14 years	Pulmonary TB			Children 0-14 years	Pulmonary TB	
				Total	Of whom with BK[+]			Total	Of whom with BK[+]
2004	640	566	21	442	288	74	1	73	72
2006	578	490	22	387	283	88	-	87	86
2008	473	410	20	317	231	63	2	60	58

The readmitted patients represent an important problem for the control of tuberculosis. At the level of Bihor county, the number of registered cases has varied inconstantly, but the much lower number of readmitted patients in 2008 than in 2006 (1,4 times less) allows us to state

that a decreasing tendency can be observed during the period under investigation.

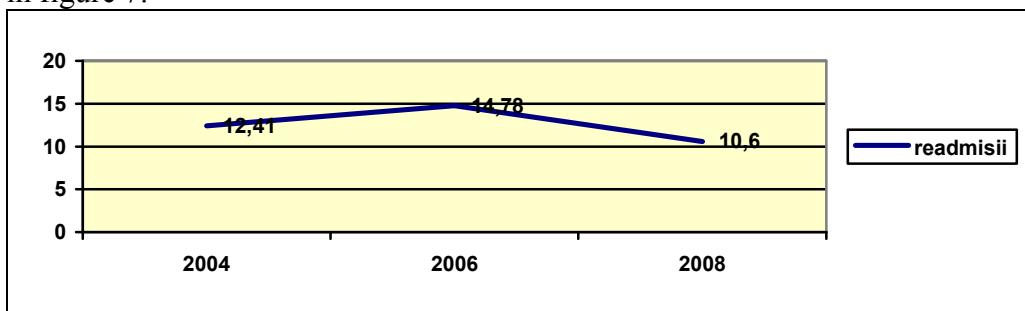The rate of readmitted cases, related to 100000 people, is represented in figure 7:

Fig. 7 – The rate of readmitted cases, related to 100000 people, in Bihor county, between 2004 and 2008

The evolution of tubercular patients under treatment for the groups registered between 2004 and 2008

The observation of patients registered during the interval 2004-2008, as well as the evolution of the successful therapeutic and identification rates emphasize the success obtained through the implementation and the unfolding of the National Health Program 1.3 / The Supervision and Control of Tuberculosis, in Bihor county.

Table 6

The evolution of tubercular patients under treatment, who were pulmonary positive only at the microscopic examination/culture, for the groups registered in Bihor county between 2004 and 2008.

Specification	Year	Total	Evaluated	Cured	Completed treatment
Tbc. Pulmonary positive only at the microscopic examination	2004	227	222	154	21
	2006	225	219	176	9
	2008	220	219	167	10
Tbc. Pulmonary positive only at pulmonary culture	2004	82	82	58	11
	2006	88	85	67	9
	2008	67	67	60	3

The rate of therapeutic success

Figure 8 indicates an increasing rate of therapeutic success for the new cases of microscopic positive tuberculosis, from 78,82% in 2004 to 80,82% in 2008. Better results have been obtained for the successful therapeutic rate of new cases of pulmonary tuberculosis confirmed in culture, from 84,14% in 2004 to 94,02% in 2008 (figure 9).
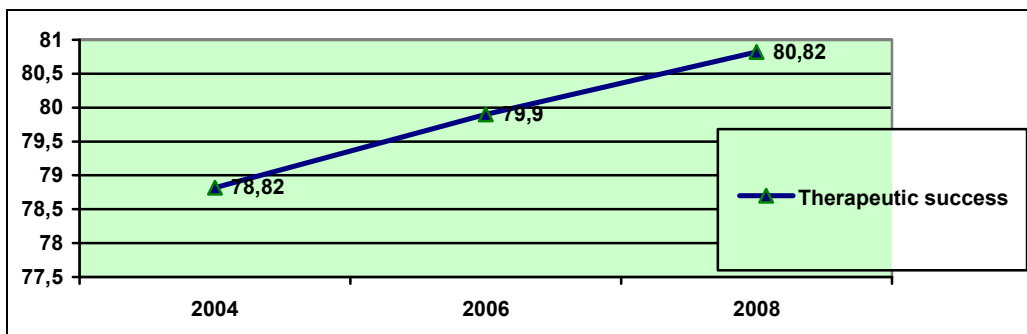
Fig. 8 – The therapeutic success rate (%) of new cases of tuberculosis, microscopically
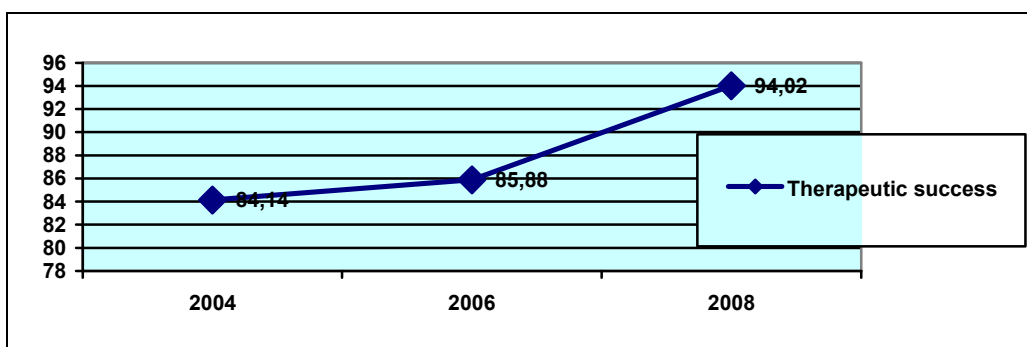positive, in Bihor county, between 2004-2008.

Fig. 9 – The rate of therapeutic success (%) of new cases of pulmonary tuberculosis
confirmed in culture, in Bihor county, between 2004-2008

The identification rate

The rate of identification for new cases of microscopically positive
tuberculosis has registered increasing values from 2004 to 2008 (figure 10),
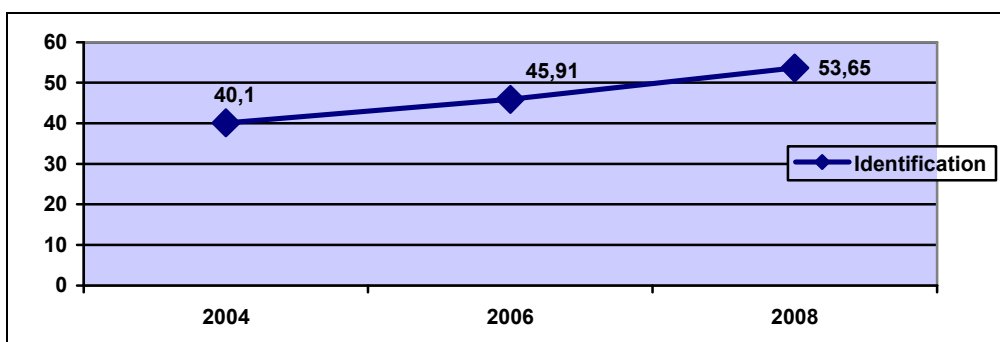from 40,1% in 2004 to 53,65% in 2008.

Fig. 10 – The identification rate (%) of new cases of microscopically positive
pulmonary tuberculosis, in Bihor county, between 2004-2008.

CONCLUSIONS

The National Health Program 1.3 – The Supervision and Control of Tuberculosis, has been successfully put into practice in Bihor county, and encountered no special problems in achieving its established aims.

The control of tuberculosis in Bihor county has been efficiently conducted and achieved, as emphasized by the expected indicators and is mainly the result of a good coordination between institutions and the persons directly involved in the control and supervision of this disease.

As a result of a good implementation of PN 1.3 and of other prophylaxis programs, the long-term reduction of costs for medical assistance, as well as the average term improvement of indicators has been achieved:

- a decrease of incidence by 1,42 times in five years (68,9 $\%_{ooo0}$ in 2008 as compared to 98,38$\%_{ooo0}$ in 2004);
- a decrease in tuberculosis-related mortality by 1,62 times, from 7,4 $\%_{0000}$ in 2004 to 4,54$\%_{0000}$ people in 2008;
- managing a rate of identification for new cases of microscopically positive pulmonary tuberculosis, from 40,1% to 53,65% in 2005.

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