

Contents lists available at Sjournals

## Health, Safety and Environment

Journal homepage: <http://sjournals.net/ojs>

### Original article

## Epidemiological features of tuberculosis in the region of Prizren

F. Kryeziu<sup>a,\*</sup>, V. Kryeziu<sup>b</sup>, F. Mazreku<sup>c</sup>, S. Abdushi<sup>d</sup>, I. Dedushaj<sup>e</sup>

<sup>a</sup>National Institute of Public Health of Kosovo in Prizren.

<sup>b</sup>National Institute of Public Health of Kosovo in Prizren.

<sup>c</sup>Regional Hospital "Prim. Dr. Daut Mustafa" Prizren.

<sup>d</sup>Regional Hospital "Prim. Dr. Daut Mustafa" Prizren.

<sup>e</sup>National Institute of Public Health of Kosovo in Prishtina.

\*Corresponding author; National Institute of Public Health of Kosovo in Prizren, Str. 'Sheh Emini' Nn., 20000 Prizren, Republic of Kosovo, Tel: 003813820038389; Telfax. 003813820038389; Mobil phone: +37744566555.

### ARTICLE INFO

#### Article history:

Received 28 May 2013

Accepted 16 June 2013

Available online 28 June 2013

#### Keywords:

Tuberculosis

Incidence

Region

Prizren

### ABSTRACT

Tuberculosis is still one of disease with high incidence in the region of Prizren, but at a lower level than at the Country level. The aim of our research was analysis of epidemiological parameters of tuberculosis in region of Prizren, its trend and comparison of incidence at the Country level. In this study are used data from the Institute of Public Health in Prizren, registration forms of tuberculosis disease. The data are processed and analyzed using descriptive epidemiological method. For an analysis of the results and their expression in tables and graphs we use Microsoft Exell 2007. During the time period from 2008 to 2012 in the region of Prizren have registered 614 cases with tuberculosis. From them, 56% of cases were male and 44% were female. The largest number of cases registered was during 2010, while the most involved municipality at the Region level was the municipality of Prizren. The age group most affected was 15-24 years old with 29.97% of the cases. Pulmonary tuberculosis was recorded in 421 cases and extra pulmonary tuberculosis in 193 cases. New cases have dominated with over 90% of cases, while recidivism was occurred in 10% of cases. The average incidence of tuberculosis in the region of Prizren for the period 2008-2012 was 31.9 per 100,000 inhabitants, while at the country level was about 52.3 per 100,000 inhabitants. Incidence of tuberculosis has shown an upward trend in the region of Prizren, as well as at the

country level. Most affected are adolescents and young people. This should be investigated further, and institutions need to be more active in the prevention and treatment of tuberculosis.

© 2013 Sjournals. All rights reserved.

---

## Abbreviations

<b>TB</b>	Tuberculosis
<b>WHO</b>	World Health Organization
<b>MDG</b>	Millenium Development Goals

## 1. Introduction

Tuberculosis accompanied humanity throughout its history (Dedushaj, I. et al., 2005), and also today represents the most common contagious disease in the world. According to the WHO in the world within a year show up around 9 million new cases of tuberculosis and 1.4 million people die from this disease (990 000 HIV-negative and 430 000 HIV-associated TB deaths) (WHO. 2013). In the number of deaths from TB, including half a million dead women, that makes tuberculosis a top killer of women throughout the world (WHO. 2013).

WHO has launched Strategy 'Stop TB', which started from 2006 and relates to new targets for reducing global TB cases and deaths from this disease by 50% by 2015 (MDG), compared with data from 1990y and elimination of TB as a public health problem (WHO. 2008).

Since 2011 presented the cases of tuberculosis in children in particular, so also were registered 0.5 million affected with about 64,000 cases have ended in death (WHO 2013; Jurcev-Savicevic et al., 2011; WHO. 2008).

Tuberculosis in Kosovo is still present as a contagious disease and in challenging level. For the past 10 years the incidence has declined to 50%, the imperative of professionals is that in the next 10 years to have the same declining (Kryeziu et al., 2009; Mehmeti, R., 2012). Kosovo is part of the global project to fight tuberculosis, but socioeconomic status and performance of contemporary social development favor the appearance of this disease.

Prizren represents one of the regions of the country with a population of 386,628 inhabitants and only one regional hospital, while there are only 9 pulmonologists. Tuberculosis challenges this region, which is also loaded with other diseases such as brucellosis, tularemia, hemorrhagic fever, etc.

The aim of our research was the analysis of epidemiological parameters of tuberculosis in the region of Prizren, performance and comparison with incidence data at the country level.

## 2. Materials and methods

The data source is registration forms of infectious diseases, registration form of tuberculosis at the National Institute of Public Health in Prizren, annual reports for new and recidivist cases, etc. The data are analyzed by the descriptive epidemiological method. We have collected all the reports for 614 cases diagnosed with tuberculosis. We analyze each case of tuberculosis diagnosed for: number by municipalities of the region, the number by years, by sex and by age, by the place of occurrence, is relapse or a new case, the incidence of tuberculosis by years, the incidence of tuberculosis in our region we have compared with the incidence in country level (graph 5), and at the level of the Balkan countries (graph 6). Also we determined the incidence for cases in 2012 by age and gender and (table 3). For an analysis of the results and their expression in tables and graphs we use with Microsoft Exell 2007.

## 3. Results

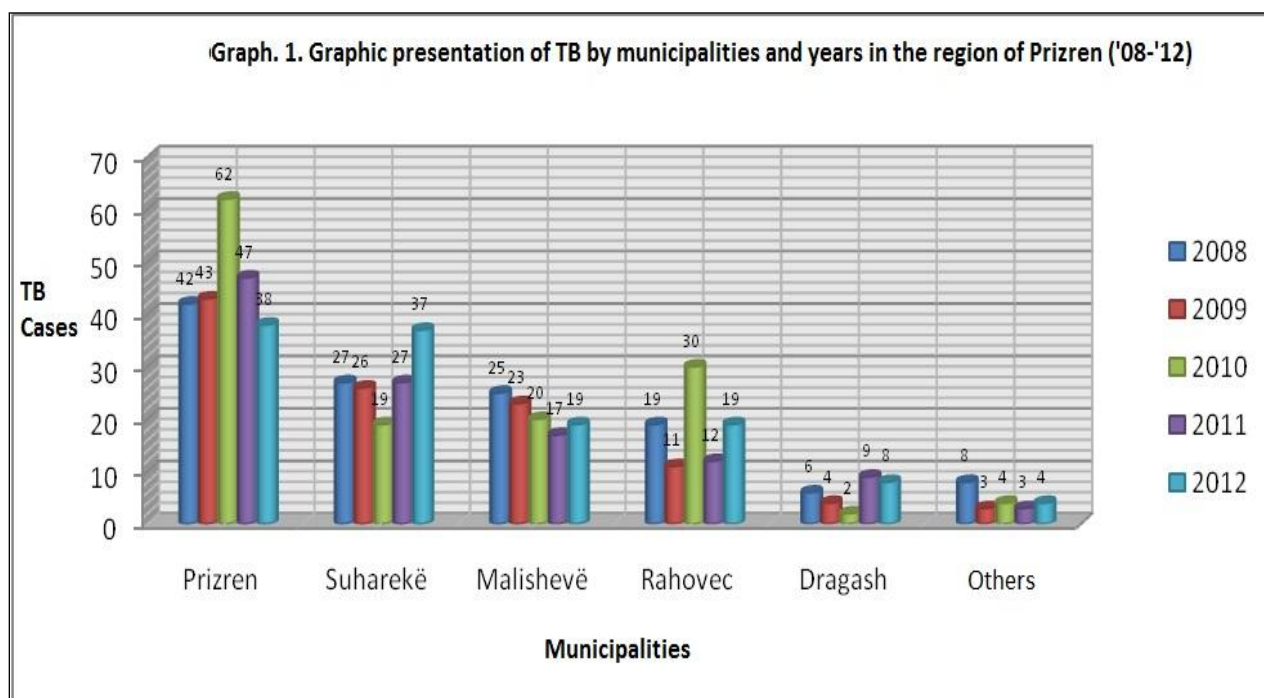
At National Institute of Public Health of Kosovo - Prizren branch from 2008 to 2012 were recorded 614 cases of tuberculosis, which are presented in Table 1:

**Table 1**

Cases of tuberculosis in the region of Prizren by year and by municipalities.

Municipalities of Prizren region	Years											
	2008	%	2009	%	2010	%	2011	%	2012	%	Total	%
Prizren	42	6.84	43	7	62	10.1	47	7.65	38	6.19	232	37.78
Suhareke	27	4.4	26	4.23	19	3.1	27	4.4	37	6.02	136	22.15
Malisheve	25	4.07	23	3.74	20	3.26	17	2.77	19	3.09	104	16.93
Rahovec	19	3.1	11	1.79	30	4.88	12	1.95	19	3.1	91	14.82
Dragash	6	0.97	4	0.65	2	0.32	9	1.46	8	1.3	29	4.7
Others	8	1.3	3	0.49	4	0.65	3	0.49	4	0.65	22	3.58
Total	127	20.68	110	17.9	137	22.31	115	18.72	125	20.35	614	99.9

This table shows that in the period 2008-2012 in the region of Prizren are 614 reported cases of tuberculosis, at which leads the municipality of Prizren with 232 cases or 37.78%, followed by Suhareka 136 or 22.15%; Malisheva with 104 cases or 16.93%, Rahovec with 91 cases or 14.82%; Dragas with 29 cases or 4.7% and 22 cases or 3.58% are cases from other parts of the country outside the region, but are treated in Regional Hospital of Prizren (Graph 1):



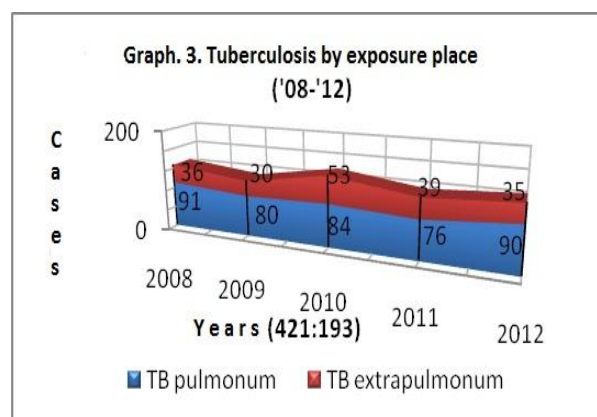
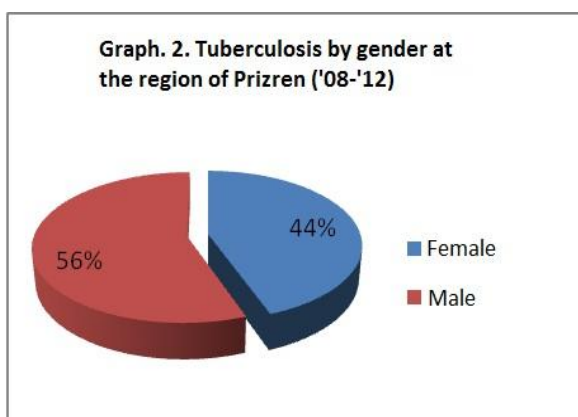
According to the data in chart 1 we can conclude that the year with more cases of the disease was recorded in 2010, with 137 or 22.31%, while the least cases were recorded in 2009 with 110 or 17.9%, in 2008, 127 cases or 20.68% in 2011, 115 cases or 18.72% and in 2012 are 125 or 20.35%.

Age most affected by TB during this period ages 15-24 with 184 cases, followed by 146 cases aged 25-34 and > 64 + with 95 cases. Including ages 15-34 insensitive measure is specific and is it as a result of the new age of the population, remain to be explored. According to the last registration in 2011, over 50% of the population is under the age of 30 years. Less affected age was 0-14 years. In the Prizren region, as well as at the country level, is performed anti TB vaccination, by building immune protection against tuberculosis. The high degree affected is also age > 64 + with 97 cases or 15.8%, following the trend of tuberculosis in developing countries (Table 2):

**Table 2**  
Tuberculosis in the region of Prizren by age and gender

Age groups	2008		2009		2010		2011		2012		Total female	Total male	Total
	F	M	F	M	F	M	F	M	F	M			
0 – 14	0	1	0	2	3	0	5	2	1	2	9	7	16
15 - 24	14	12	16	18	24	26	13	16	19	26	86	98	184↑
25 - 34	13	23	12	12	14	19	12	13	10	18	61	85	146↑
35 - 44	3	7	4	10	6	10	10	9	4	9	27	45	72
45 - 54	1	9	5	3	3	10	4	5	5	8	18	35	53
55 - 64	5	10	4	9	3	3	1	3	3	5	16	30	46
>64+	14	15	11	4	8	8	11	11	11	4	55	42	97↑
Total	50	77	52	58	61	76	56	59	53	72	272	342	614

Active tuberculosis in this period of our research has been manifested more in males with 342 cases or 56%, while 272 women or 44% of the cases. This condition occurs about equally for each year separately (Graph 2).



According to the manifestation place (Graph 3), tuberculosis has present as TB pulmonum in 421 cases or 68.56% and TB extrapulmonum in 193 cases or in 31.44% of cases.

In chart 4 shows that from 383 new cases of pulmonary tuberculosis, only 38 cases have recidivism, respectively at tenth in each new case of pulmonary tuberculosis, there is a recidivism. This finding requires our special attention and further research (Graph 4).

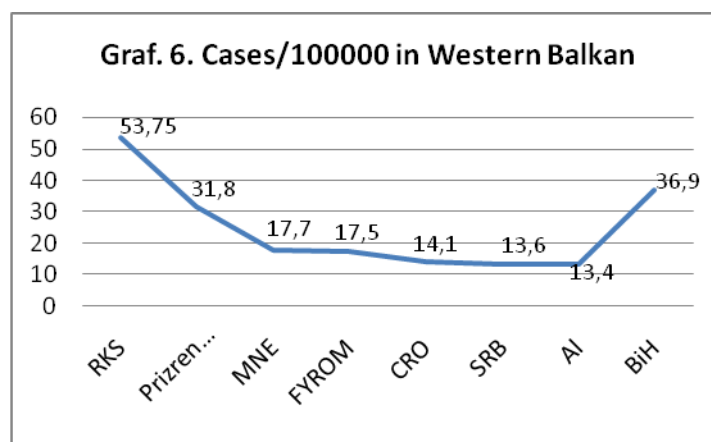
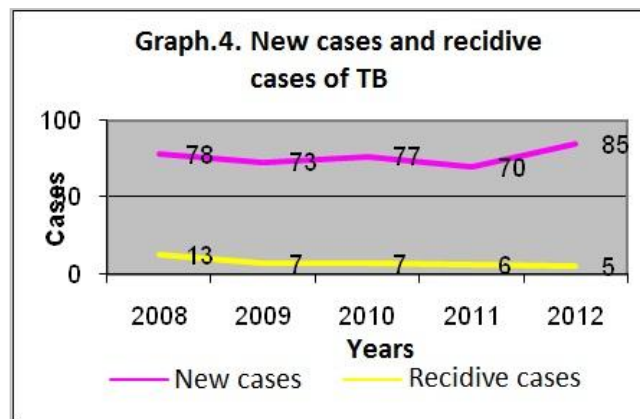
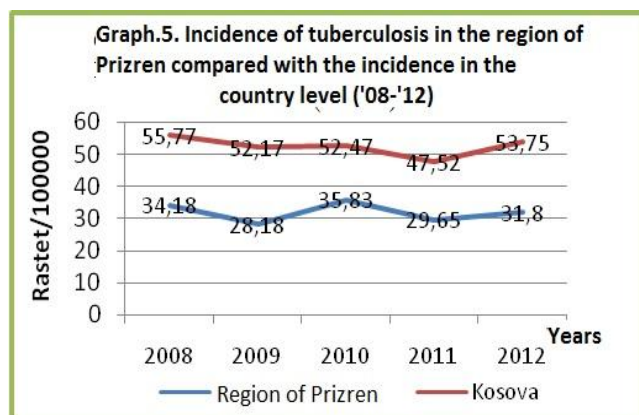
Data about the incidence of tuberculosis in the region of Prizren from 2008 to 2012 are presented graphically in Chart 5. According to these results per 100,000 incidences varies from year to year, but compared to the incidence in the country level is lower. Thus in 2008 the incidence is 34.18/100000, while at the country level goes up 55.77/100000.

In this five-year period the incidence was higher in 2010 with 35.83/100000, while lower in 2009 with 28.18 /100000. In our recent research year has had an increasing tendency of the number of cases per 100,000 (Graph 5). If we notice that the trend curve incidence compared to the incidence in the country has a parallel level that matches without significance.

Calculation of incidence is made on the basis of population data from the last census occurred in Kosovo in 2011. Certainly incidence by 'the number of people on the basis of assessment' may be low, which gives us an unrealistic view of the control of this disease.

Whether follow the chart 6 we notice that still remain far from region levels in the control of tuberculosis disease. As a region better stand alone against B&H (36.9), but not with other countries (Graph 6). This condition requires dedication.

In Table 3 we presented data on age-specific incidence and gender for the year 2012.



**Table 3**

Cases and Incidence in 2012 by age and gender in the region of Prizren.

Ages	Cases by age and gender '12			Incidence by age and gender '12		
	Total	Female	Male	Total/100000	Female/100000	Male/100000
0-14	3	1	2	0.76	0.25	0.51
15-24	45	19	26	11.44	4.83	6.61
25-34	28	10	18	7.11	2.54	4.57
35-44	13	4	9	3.3	1.01	2.28
45-54	13	5	8	3.3	1.27	2.03
55-64	8	3	5	2.03	0.76	1.27
>64+	15	11	4	3.18	2.79	1.01
All ages	125	53	72	31.78	13.5	18.3

According to these data, which can be taken as a specific overview for other years surveyed, it appears that in 2012 in the region of Prizren with 393268 inhabitants are affected by TB 31.8 per 100000 inhabitants, of which 18.3 male and 13.5 female. TB by age group most affected age group 15-24 to 6.61 per 100000 while the less affected group was 0-14 years of age.

#### 4. Discussion

Tuberculosis requires a multidisciplinary approach and epidemiological service is just one link to its supervision (Dedushaj, I. 2005). Kosovo is part of a partnership to combat TB. In 2012 the number of cases per 100,000 was 53.75, while at the Prizren region has resulted in 31.8 per 100,000 inhabitants.

The highest incidence of tuberculosis in our survey was in 2010, while at the national level in 2008. However, last year was observed the growth trend of tuberculosis in the region of Prizren, but also at the country level. The increasing trend of TB was reported by the WHO, particularly in developed countries and that comes as a result of resistance appeared to tuberculostatics (WHO. 2013).

Our findings, compared with reports from other countries, do not match in terms of age. For example, while our research most affected age group is 15-24, followed by 25-34, in the reports of the countries most affected age is >64+ ( ECDPC. 2013). Obviously the older age presents good conditions for tubercular bacilli as a result of lower immunity, chronic illnesses, etc.. But it remains to be investigated further stimulus aged 15-24, which is under the close antitubercular protection. At us about 50% of the population are under 30 years old, so it seems that this parameter affects the appearance of the highest incidence in the age group 15-24, or maybe antitubercular vaccination has been compromised during the 90 decenies in Kosovo.

#### 5. Conclusion

Tuberculosis is still a problem for public health in the region of Prizren. The incidence of tuberculosis has shown an upward trend. The most affected age of adolescents and young people is quite specific problem, because of the risks that accompany this age of different substance misuse drugs, alcohol, without perspective, malnutrition, etc.. The number of medical professionals is small and is not distributed to all municipalities in the region. There is little or no domestic activities of our partnership with the Global Fund in the implementation of the strategy 'Stop TB' and the millennium goals in this region. NIPH laboratory equipment in Prizren for tuberculosis diagnosis are not functioning or they are missing.

Public Health of Prizren region, but also at the national level, should urgently take steps towards establishing control of tuberculosis, and to remain on the priority list.

To build a multidisciplinary approach to tuberculosis, including family doctors, pulmonologist, epidemiologists, microbiologists, social workers, etc.

To activate and strengthen the service of patronage.

Partnership activities with the Global Fund to be distributed at the level of regions of the country.

Beside the economic and social welfare of the community, to build efficient service supervision and control of TB.

#### Acknowledgement

Special thanks go to the following for their contributions in this publication: NIPH of Kosovo and Mr. Jahja Abrashi

#### References

- Broekmans, J.F., Migliori, G.B., Rieder, H.L., Leesz, J., Ruutu, P., Loddenkemper, R., Raviglione M.C., 2002. European framework for tuberculosis control and elimination in countries with a low incidence. *Eur Respir J.* 19, 765-775.
- Dedushaj, I., Humolli, I., 2005. *Special Epidemiology of Infectious Diseases*. Pristina University. Pristina. 89-93.
- ECDPC., 2013. *Tuberculosis surveillance and monitoring in Europe 2013*. European Centre for Disease Prevention and Control/WHO Regional Office for Europe. Stockholm.
- Feske, M. L., Teeter, L. D., Musser, J. M., Graviss, E. A., 2013. A Previously Incalculable Tuberculosis Risk and Its Social Determinants' *American Journal of Public Health.* 103 (5), 839-848.

- Garcia-Leoni, M.E., Martin-Scapa, C., Rodeno, P., Valderrabano, F., Moreno, S., Bouza, E. 'High incidence of tuberculosis in renal patients' *European Journal of Clinical Microbiology and Infectious Diseases*. 9(4), 283-285;
- Harrington J.M., Shanon, H.S., 1976. Incidence of tuberculosis, hepatitis, brucellosis, and shigellosis in British medical laboratory workers. *British Medical Journal*. 1, 759-762.
- HPA., 2012. Tuberculosis in the UK: Annual report on tuberculosis surveillance in the UK. London: Health Protection Agency.
- Jurcev-Savicevic, A., Mulic, R., Klismanic, Z., Katalinic-Jankovic, V., 2011. Epidemiological aspects of tuberculosis-old disease in children 21st Century today. *Acta Med Croatica*. 65, 3-10.
- Kryeziu, V., Hulaj, N., 2009. Epidemiologic evaluation of TB in Prizren area et 2007-2008. International Conference of Public Health in Tirana.
- Leth, F.V. et al., January 2008. Prevalence of tuberculous infection and incidence of tuberculosis; a re-assessment of the Styblo rule' *Bulletin of WHO*. 86 (1).
- Mehmeti, R., 2012. Tuberculosis in decline. available et <http://www.botasot.info/shendetesia/187311/1>.
- Pedrazzoli D. et al., 2012. Tuberculosis in the UK: Annual report on tuberculosis surveillance in the UK, 2012.' London: Health Protection Agency.
- Raka, L.F., 1998. Veçoritë epidemiologjike të tuberkulozit në komunën e Kaçanikut. *Praxis medica*. 41, 31-35.
- Rieder, H.L., Cauthen, G.M., Comstock, G.W., Snider, D.E. Jr., 1989. Epidemiology of tuberculosis in the United States. *Epidemiology Rev.* 11, 79-98.
- Sudre P., Dam G.T., Kochi A., 1992. Tuberculosis: a global overview of the situation today' *Bulletin of the World Health Organization*. 70 (2), 149-159.
- WHO., 2008. Advocacy, communication and social mobilization for TB control 'A Guide to Developing Knowledge, Attitude and Practice Surveys 'Stop TB Partnership Secretariat, 20 Avenue Appia, CH-1211 Geneva, Switzerland. Available et: [www.stoptb.org](http://www.stoptb.org).
- WHO., 2013. Geneva Global tuberculosis report 2012. World Health Organization. Available from: [http://www.who.int/tb/publications/global\\_report/en/](http://www.who.int/tb/publications/global_report/en/).
- WHO; 2007. Millennium Development Goals for tuberculosis. Available at: [http://www.who.int/tb/country/mdgs\\_for\\_tb/en/](http://www.who.int/tb/country/mdgs_for_tb/en/).