

### Tuberculosis among workers at a university hospital in Niteroi, Rio de Janeiro from 2005 to june 2011

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## RESEARCH

TUBERCULOSIS AMONG WORKERS AT A UNIVERSITY HOSPITAL IN NITEROI, RIO DE JANEIRO FROM 2005 TO JUNE 2011

TUBERCULOSE ENTRE TRABALHADORES DE UM HOSPITAL UNIVERSITÁRIO NO MUNICÍPIO DE NITERÓI- RIO DE JANEIRO ENTRE 2005 A JUNHO DE 2011

TUBERCULOSIS ENTRE LOS TRABAJADORES DE UN HOSPITAL UNIVERSITARIO EN NITERÓI, RÍO DE JANEIRO DE 2005 A JUNIO DE 2011

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## ABSTRACT

**Objective:** To describe the number of tuberculosis cases among employees of a university hospital in Niteroi, Rio de Janeiro, from 2004 to June 2011. **Methods:** This is a descriptive retrospective study, conducted from data obtained in the files of compulsory notification of employees. **Results:** 10 records were found of reported cases of TB in the period 2004 to 2011, with eight male employees, the average ages were 53 years old of professional standard deviation of 7.8 and compared to the average length of service was 21 years with a standard deviation of 9.2. **Conclusion:** there was an improvement in reported cases of tuberculosis, but we cannot guarantee this fact only to the implementation of the TB program at the University Hospital, but also to cases of probable subnotifications because even the stigma of tuberculosis. **DESCRIPTORS:** Pulmonary Tuberculosis, Health Personnel, Epidemiology.

## RESUMO

**Objetivo:** Descrever o número de casos de tuberculose entre os funcionários de um Hospital Universitário no município de Niterói, RJ, no período de 2004 a junho de 2011. **Métodos:** Trata-se de um estudo retrospectivo do tipo descritivo, realizado a partir de dados obtidos nas fichas de notificação compulsória dos funcionários. **Resultados:** foram encontrados 10 registros de casos notificados de TB no período de 2004 - 2011, sendo 8 funcionários do sexo masculino, a média das idades dos profissionais foram 53 anos com desvio padrão de 7,8 e em relação ao tempo de serviço a média foi de 21 anos com desvio padrão de 9,2. **Conclusão:** houve uma melhora de casos registrados de tuberculose, porém não podemos garantir esse fato somente à implantação do programa de tuberculose no Hospital Universitário, mas também aos casos de prováveis subnotificações em decorrência ainda do estigma da tuberculose. **DESCRIPTORES:** Tuberculose Pulmonar, Pessoal de Saúde, Epidemiologia.

## RESUMEN

**Objetivo:** Describir el número de casos de tuberculosis entre los empleados de un hospital universitario en Niterói, Río de Janeiro de 2004 a junio de 2011. **Métodos:** Se realizó un estudio retrospectivo descriptivo, realizado a partir de datos obtenidos en los archivos de la notificación obligatoria de los resultados de empleados. **Resultados:** 10 se encontraron registros de casos de tuberculosis en el período 2004 a 2011, con ocho trabajadores del sexo masculino, las edades promedio eran de 53 años de la desviación estándar de 7,8 profesionales y en comparación con la duración media de servicio fue de 21 años con una desviación estándar de 9,2. **Conclusión:** hubo una mejoría en los casos de tuberculosis, pero no podemos garantizar que este hecho sólo a la aplicación del programa de tuberculosis en el Hospital Universitario, sino también a los casos de subnotificaciones probables, porque incluso el estigma de la tuberculosis. **DESCRIPTORES:** Tuberculosis Pulmonar, Personal de Salud, Epidemiología.

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## INTRODUCTION

Although the gateway of choice for diagnosis of tuberculosis is primary care, it is known that in the medium and large urban centers the gateway to diagnosis of tuberculosis patients is often the urgent / emergency hospitals.

The characteristic occupational disease received attention only true in the late 1980s and early 1990s, in which factors were responsible: the resurgence of tuberculosis with reports of increased incidence of all forms of the disease even in countries where expected count with its control, the emergence of strains of the bacillus that causes the disease resistant to several drugs used in its treatment, and co-infection M. tuberculosis and HIV, which also contributes to increasing indications of hospitalizations of individuals, also favored the illness professionals to submit.<sup>1,2</sup>

Other important factors that contributed to the transmission of disease to health professionals were delayed diagnosis of tuberculosis,<sup>3</sup> the delay in detecting resistance of strains to drugs used for treatment,<sup>4</sup> and inappropriate decisions regarding the determination of the start and end accommodation of patients in private rooms, and there is no adequate physical infrastructure for respiratory isolation of patients suspected of pulmonary TB.

Several hospital outbreaks reported in recent years compromised both patients and health professionals, with many strains resistant to various therapeutic regimens.<sup>6</sup>

It should be noted that the risk of nosocomial transmission by *Mycobacterium tuberculosis* increases as the aspects related to the delay in the diagnosis of tuberculosis and inappropriate decisions as determining the start and end of the accommodation of the patients in R. pesq.: cuid. fundam. online 2013. abr./jun. 5(2):3567-71

private rooms, favoring the risk of tuberculosis infection among professionals health.<sup>7</sup>

Currently, the WHO suggests that especially in developing countries, biosecurity measures are adopted in health units whose environment provides high risk of infection TB.<sup>6</sup> Following the recommendations of the Centers for Disease Control and Prevention (CDC), U.S. and world Health Organization (WHO), Switzerland, also recommended by the Ministry of Health, measures to combat nosocomial transmission of tuberculosis are: a) administrative, b) environmental and c) respiratory protection.<sup>5</sup>

It is under this scenario that develops this work, aiming to: determine the number of cases of the disease among hospital staff Antonio Pedro University (HUAP) and UFF Niteroi, RJ from 2004 to July 2011.

This study may contribute to the monitoring and systematic monitoring of pulmonary tuberculosis in health care as well as preventive strategies used in-hospital environment.

## METHODOLOGY

This is a retrospective descriptive, cross made from data obtained in the compulsory notification forms for employees FFU, out of work by TB from 2004 to July 2011. We carried out a comparison with the last survey by Vilte *et al*, which were found in the period between 1997 and 2003, 30 professionals with TB in HUAP / UFF, with 07 doctors, 02 nurses, 05 aux. nurses, and 04 nursing technicians.<sup>8</sup>

The study included all new cases of the disease and all forms of TB clinics with records in the sectors of the Medical Skills HUAP and UFF. It was considered as a case of TB, smear-positive individuals, those confirmed by culture or histopathology, and the officials that after clinical

evaluation showed images suggestive of TB and epidemiological characteristics of the disease.

All information obtained through the reporting forms was stored in Microsoft Excel software for calculations of absolute and relative frequency and core measures.

The study was analyzed by the Ethics Committee of the Fluminense Federal University and records approved under 049/11, on 01/04/2011.

**Table 1-** Descriptive characteristics of professionals who became ill with pulmonary tuberculosis at the University Hospital and UFF, Niteroi, 2011.

It was found that 80% of professionals were male, the mean age was 53 years with a standard deviation of 7.8, and compared to the average length of service was 21 years with a standard deviation of 9.2, as shown in Table 1.

**Table 2:** Characteristics regarding the positions were affected by TB in HUAP / UFF, NITEROI, 2011.

VARIABLES	ABSOLUTE DISTRIBUTION	RELATIVE DISTRIBUTION
Administration	1	10,0
Administrative Assistant	1	10,0
Machine operator	1	10,0
Physician	1	10,0
Physics teacher	1	10,0
Work service	1	10,0
Technician in anatomy	1	10,0
Laboratory technician	1	10,0
Guard	1	10,0
Telephone Operator	1	10,0
<b>TOTAL</b>	<b>10</b>	<b>100,0</b>

Source: medical skills sector of UFF

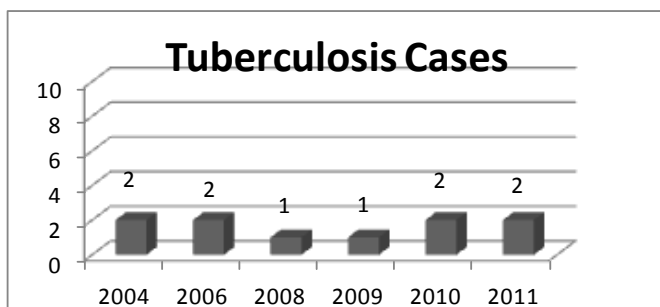
Table 2 shows the activities carried out by professionals who became ill with TB, where we observe that most cases of TB disease were not related to direct care to the patient with TB being the only post of physician 1 (10%), and technical in laboratório1 (10%) related activities of health care.

Regarding treatment, 10 patients received specific therapy for six months, and 2 still in treatment, the others were discharged after cure.

We observed a gradual decrease of tuberculosis in the last 7 years when compared with the first study, 30 cases of TB from 1997 to 2003, and 10 cases of TB between 2004 and June 2011, representing a decrease of 66.6%.

## RESULTS AND DISCUSSION

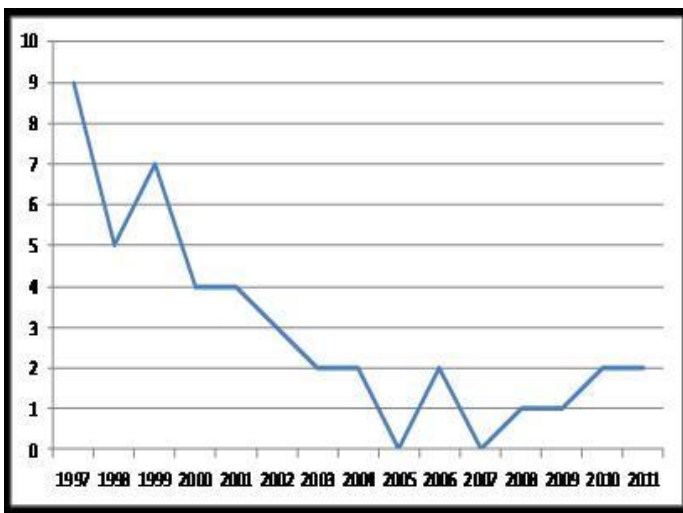
During the study period, there were 10 records of reported cases of TB among staff of the University Hospital / UFF corresponding 2 cases in 2004, 2 in 2006, 1 in 2008, 1 in 2009, 2 in 2010 and 2 in 2011 exception of 2005 and 2007 that there was no record (chart 1). All reported cases were of pulmonary tuberculosis.



**GRAPH 1** - Distribution of numbers of tuberculosis cases per year in the professionals of the University Hospital and UFF, from 2004 to July 2011, Niteroi.

Variable	Absolute distribution	Relative Distribution
<b>Gender</b>		
Female	2	20,0
Male	8	80,0
<b>Age ( average/ DP)</b>	<b>53/7,8</b>	
40-49	2	20,0
50-59	7	70,0
>60	1	10,0
<b>Time of service (average/ DP)</b>	<b>21/9,5</b>	
<9	1	10,0
10-20	2	20,0
21-29	5	50,0
>30	2	20,0

Source: Author



Source: Adapted from data supplied from the original article by Vilte *et al*, 2005 and the author.

One limitation of the study was the difficulty of fills of health documents, which lacked some of the variables of interest as comorbidities, sector, duration of treatment, among others, thereby precluding the collection of other variables that could be associated with the study.

Although suppose that this group of 10 workers at its main activity is carried out at the University Hospital, it was not possible to establish how many working exclusively on HUAP.

There is difficulty in determining the occupational risk related to tuberculosis in developing countries due to lack of data on the incidence of the disease in healthcare workers, there is a high prevalence of tuberculosis infection and disease in the general population, widespread use of the vaccine with the Bacillus Calmette-Guerin (BCG) and the difficulty of obtaining data on the prevalence of HIV infection in health care workers.<sup>9</sup>

In our study we observed a high rate of developing TB among staff of the University Hospital (HUAP / UFF) in the period from 1997 to 2004, a decrease from 2005, one of the reasons for the decrease in the second study may be related to implementation of the program of

tuberculosis control hospital (PCTH) of HUAP / UFF, started on March 15, 2006.

The program has the support and efforts of various departments of the Hospital, including the Office of Surveillance, Pulmonology, Infectious Diseases, Pediatrics, CCIH, Emergency Services, Board of Nursing, Microbiology Laboratory, Care Center and Research Professor in TB Mazzini Bueno, Division of Occupational Health and HUAP core.<sup>10</sup>

The performance of PCTH is associated with the promotion of engineering and administrative measures of individual respiratory protection, all seek through education, active surveillance of hospitalized patients with respiratory symptoms, joined the staff tuberculin (PPD), environmental control (exhaustion) and use of respirators (N95 masks) and control the spread of TB in HUAP.<sup>10</sup>

In the study population was predominantly male representing 80%, averaging 53 and 21 years of service time.

In a study of notified cases of tuberculosis among health professionals at University Hospital in Victoria, the prevalence was 56% in the sex masculino.<sup>11</sup> Regarding the age of the professionals a study in New York City, where they were analyzed cases TB in health care workers, between 1998 - 2002, it was found that the age group with the highest proportion of cases was 35 - 54 years. In our study, the results were similar.

In our study we can observe that most of the professionals who got sick were not related to patient care activities with tuberculosis, different from the first study and Vilte *et al*, where most of the activities were related professional health care, specifically the team nursing. This finding may be related to the free flow of patients within the unit, as well as in the areas of appointments and contact information to the public. Getting

these workers often exposed for not knowing the diagnosis of these patients.

### CONCLUSION

We can conclude that there was an improvement of reported cases of tuberculosis among professionals in relation to the previous study, but we cannot guarantee this fact only the implementation of the program of tuberculosis in HUAP, but also to cases of probable due subnotifications still the stigma of tuberculosis.

Although the Hospital has started the program of tuberculosis, we know that much still has to be done because it is necessary to implant an educational program aiming to raise awareness and train professionals to best practices possible institutional protection of health of their workers.

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