International Journal of Health and Surgical Research
ISSN 3086-2574

Epidemiological Profile of Tuberculosis in Men Deprived of Liberty in the State of Rio Grande do Sul (2023-2024)

Perfil epidemiológico da tuberculose em homens privados de liberdade no estado do Rio Grande do Sul (2023-2024)

Perfil Epidemiológico de la Tuberculosis en Hombres Privados de Libertad en el Estado de Rio Grande do Sul (2023-2024)

https://doi.org/10.5281/zenodo.18796007

Josimara Brunyelly Ximenes de Sousa
Graduada em Farmácia
Graduanda em Medicina
Pós-graduada em Prescrição Farmacêutica e Farmácia Clínica
Universidad Nacional de La rioja – UNLAR, La Rioja, Argentina
e-mail: josiximenes1@gmail.com

- **Tipo de Estudo**: Estudo transversal descritivo
- **Recebido**: 25/02/2026
- **Aceito**: 26/02/2026
- **Publicado**: 27/02/2026

CC BY-NC 4.0
LOCKSS Program
This work is licensed under a Creative Commons Attribution 4.0 International License, and a LOCKSS system..

International Journal of Health and Surgical Research
ISSN 3086-2574

ABSTRACT

Tuberculosis is caused by *Mycobacterium tuberculosis*, an airborne-transmitted bacillus. The disease remains an important public health problem in Brazil, especially among vulnerable populations such as people deprived of liberty (PDL). In Rio Grande do Sul, the high incidence, TB-HIV coinfection, and prison conditions such as overcrowding and poor sanitation favor transmission and hinder disease control. The objective was to analyze the epidemiological profile of tuberculosis in men deprived of liberty in Rio Grande do Sul in the years 2023 and 2024, considering TB-HIV coinfection, clinical form, and treatment outcomes. This is an epidemiological, observational, descriptive, and retrospective study based on secondary data from SINAN/DATASUS. Variables analyzed included year of notification, TB-HIV coinfection, clinical form, and outcomes (cure, treatment abandonment, and death), using descriptive statistics. A total of 905 cases were reported in 2023 and 806 in 2024, with coinfection rates of 12.3% and 13.2%, respectively. The pulmonary form predominated (more than 90% of cases). There was a reduction in treatment abandonment (from 132 to 93), deaths (from 14 to 9), and total cases in 2024. Health Region 10 accounted for the highest number of notifications. Cases of drug resistance were few but clinically relevant. TB-HIV coinfection remained high and was associated with worse outcomes. Smoking showed high prevalence. Despite advances, challenges persist regarding treatment adherence and continuity of care. Although some indicators improved, tuberculosis remains a serious problem in the prison system. The need for early diagnosis, expansion of HIV testing, strengthening of directly observed treatment, and integration between the prison system and the healthcare network is reinforced to ensure continuity of care and reduce transmission.

Keywords: TB-HIV coinfection; health team; male smokers; *Mycobacterium tuberculosis*; people deprived of liberty; underreporting.

RESUMO

A tuberculose é causada pelo *Mycobacterium tuberculosis*, bacilo transmitido por via aérea. A doença permanece como importante problema de saúde pública no Brasil, especialmente em populações vulneráveis, como pessoas privadas de liberdade (PPL). No Rio Grande do Sul, a elevada incidência, a coinfecção TB-HIV e as condições prisionais, como superlotação e insalubridade, favorecem a transmissão e dificultam o controle da doença.O objetico foi analisar o perfil epidemiológico da tuberculose em homens privados de liberdade no Rio Grande do Sul, nos anos de 2023 e 2024, considerando coinfecção TB-HIV, forma clínica e desfechos do tratamento. Estudo epidemiológico, observacional, descritivo e retrospectivo, com dados secundários do SINAN/DATASUS. Foram analisadas variáveis como ano de notificação, coinfecção TB-HIV, forma clínica e desfechos (cura, abandono e óbito), por meio de estatística descritiva.Registraram-se 905 casos em 2023 e 806 em 2024, com coinfecção em 12,3% e 13,2%, respectivamente. A forma pulmonar predominou (mais de 90% dos casos). Houve redução de abandonos no tratamento (132 para 93), óbitos (14 para 9) e casos totais em 2024. A Região 10 concentrou o maior número de notificações. Casos de resistência medicamentosa foram poucos, porém relevantes.A coinfecção TB-HIV manteve-se elevada, associada a piores desfechos. O tabagismo mostrou alta prevalência. Apesar de avanços, persistem desafios relacionados à adesão terapêutica e à continuidade do cuidado. Embora haja redução em alguns

indicadores, a tuberculose permanece como grave problema no sistema prisional. Reforça-se a necessidade de diagnóstico precoce, ampliação da testagem para HIV, fortalecimento do tratamento diretamente observado e integração entre sistema prisional e rede de saúde para garantir a continuidade do cuidado e reduzir a transmissão.

Palavras-chave: Coinfecção TB-HIV; equipe de saúde; homens fumantes; *Mycobacterium tuberculosis*; população privada de liberdade; subnotificação.

RESUMEN

La tuberculosis es causada por *Mycobacterium tuberculosis*, un bacilo transmitido por vía aérea. La enfermedad continúa siendo un importante problema de salud pública en Brasil, especialmente en poblaciones vulnerables, como las personas privadas de libertad (PPL). En Rio Grande do Sul, la alta incidencia, la coinfección TB-VIH y las condiciones penitenciarias, como el hacinamiento y la insalubridad, favorecen la transmisión y dificultan el control de la enfermedad. El objetivo fue analizar el perfil epidemiológico de la tuberculosis en hombres privados de libertad en Rio Grande do Sul durante los años 2023 y 2024, considerando la coinfección TB-VIH, la forma clínica y los desenlaces del tratamiento. Se trata de un estudio epidemiológico, observacional, descriptivo y retrospectivo, basado en datos secundarios del SINAN/DATASUS. Se analizaron variables como año de notificación, coinfección TB-VIH, forma clínica y desenlaces (curación, abandono y muerte), mediante estadística descriptiva. Se registraron 905 casos en 2023 y 806 en 2024, con tasas de coinfección de 12,3% y 13,2%, respectivamente. Predominó la forma pulmonar (más del 90% de los casos). Se observó reducción en el abandono del tratamiento (de 132 a 93), en las muertes (de 14 a 9) y en el total de casos en 2024. La Región 10 concentró el mayor número de notificaciones. Los casos de resistencia medicamentosa fueron pocos, pero relevantes. La coinfección TB-VIH se mantuvo elevada y asociada a peores desenlaces. El tabaquismo presentó alta prevalencia. A pesar de los avances, persisten desafíos relacionados con la adherencia terapéutica y la continuidad del cuidado. Aunque hubo reducción en algunos indicadores, la tuberculosis continúa siendo un grave problema en el sistema penitenciario. Se refuerza la necesidad de diagnóstico precoz, ampliación de la prueba de VIH, fortalecimiento del tratamiento directamente observado e integración entre el sistema penitenciario y la red de salud para garantizar la continuidad del cuidado y reducir la transmisión.

Palabras clave: Coinfección TB-VIH; equipo de salud; hombres fumadores; *Mycobacterium tuberculosis*; población privada de libertad; subregistro.

1. INTRODUCTION

Tuberculosis can be caused by seven species belonging to the *Mycobacterium tuberculosis* complex. Among these species, the most relevant in public health is *M. tuberculosis*, also known as the Koch bacillus (KB). It is a thin, slightly curved bacillus measuring 0.5 to 3 µm, acid-fast (AFB),

aerobic, and characterized by a lipid-rich cell wall composed mainly of mycolic acids and arabinogalactan. This composition confers low permeability, consequently reducing the effectiveness of most antibiotics and facilitating its survival within macrophages. Transmission occurs through the airborne route from individuals with pulmonary or laryngeal TB (index case) who expel bacilli while coughing, speaking, or sneezing, forming aerosols that are inhaled by another person. In this context, the probability of infection depends on exogenous factors such as the infectivity of the index case, duration of exposure, and the type of shared environment (Brazil, 2019).

In general, the clinical presentation includes impairment of general health status, low-grade fever—usually in the afternoon—episodes of night sweats, anorexia, weight loss, chest pain, and cough, initially dry and, when productive, accompanied or not by hemoptysis (Melo et al., 2022).

In the global scenario, according to the World Health Organization (WHO), in 2020 approximately 10 million people developed tuberculosis and 1.3 million died from the disease worldwide. In Brazil, the country has a high tuberculosis burden and is among the 30 countries with a high TB-HIV coinfection burden. Between 2011 and 2019, an average of 73,000 new cases were reported annually, placing Brazil among the priority countries identified by the WHO for global TB control. In 2020, Brazil reported 68,300 new TB cases, with an incidence rate of 32.0 cases per 100,000 inhabitants. Regarding mortality, 4,500 deaths were recorded in 2020, corresponding to a mortality rate of 2.1 deaths per 100,000 inhabitants (Rio de Janeiro, 2023).

Concerning the population deprived of liberty in Brazil, it is estimated that more than 700,000 individuals are currently incarcerated under different sentencing regimes, with a deficit of more than 350,000 prison vacancies. This places the country third in the ranking of the largest prison populations in the world, behind only the United States and China. It is noteworthy that 7.8% of newly reported TB cases are attributed to the prison population and that 54% of *M. tuberculosis* strains circulating in urban populations are related to strains from incarcerated individuals, reinforcing that TB control in these settings is essential to reduce disease incidence and prevalence both inside and outside prison environments (Ferreira et al., 2022).

Overcrowding and unhealthy conditions in the prison system favor the maintenance of the tuberculosis transmission chain. In this scenario, crowding and precarious living conditions—also observed in other Brazilian correctional facilities—contribute to illness among people deprived of liberty (PDL) and represent a major obstacle in combating the disease. Moreover, the constant

circulation of inmates, correctional officers, healthcare professionals—often without adequate personal protective equipment—visitors, and family members increases the risk of TB dissemination beyond prison walls, reaching the general population (Caldas et al., 2024).

Regarding tuberculosis treatment, the regimen is standardized and consists of two complementary phases: the intensive phase and the continuation phase. Initially, the intensive phase aims to rapidly reduce the bacillary population, eliminate naturally resistant bacilli, and decrease disease transmissibility. For this purpose, a fixed-dose combination of rifampicin 150 mg, isoniazid 75 mg, pyrazinamide 400 mg, and ethambutol 275 mg is administered for two months. Subsequently, the continuation phase aims to eliminate persistent bacilli and reduce the risk of relapse, using the combination of rifampicin and isoniazid in 300/150 mg or 150/75 mg formulations for four months, totaling six months of treatment. Additionally, Directly Observed Treatment (DOT) is recommended as a fundamental strategy to strengthen the bond between patient and healthcare team, promote treatment adherence, and prevent treatment interruption. However, in individualized situations, regardless of the presence of other comorbidities, when tuberculosis shows unsatisfactory clinical evolution, the continuation phase may be extended from four up to seven months, according to clinical evaluation (Rio de Janeiro, 2023).

In light of the above, the objective of this study is to analyze the epidemiological profile of tuberculosis in men deprived of liberty in the state of Rio Grande do Sul in the years 2023 and 2024, considering TB-HIV coinfection, the clinical form of the disease, and treatment outcomes.

2. METHODOLOGY

This is an epidemiological, observational, descriptive, and retrospective study conducted using secondary data obtained from the Department of Informatics of the Brazilian Unified Health System (DATASUS), through the Notifiable Diseases Information System (SINAN).

Reported cases of tuberculosis in men deprived of liberty in the state of Rio Grande do Sul were analyzed for the years 2023 and 2024.

The variables analyzed included: year of notification, TB-HIV coinfection, clinical form of tuberculosis, and treatment outcome (cure, treatment abandonment, and death). The data were organized into tables and analyzed using descriptive statistics, including absolute and relative frequencies.

As this study was based on publicly available secondary data without individual patient identification, submission to a Research Ethics Committee was not required, in accordance with Resolution No. 510/2016 of the Brazilian National Health Council.

3. RESULTS AND DISCUSSION

In Rio Grande do Sul, as in the rest of Brazil, tuberculosis is predominantly present among the economically active population and in males (State Health Department, 2025). Furthermore, people deprived of liberty largely originate from the population segments most affected by tuberculosis, typically characterized as young men with low educational attainment, unemployed or engaged in low-income occupations, living in disadvantaged urban communities and sometimes experiencing homelessness. They frequently present a history of tuberculosis and prior incarceration, as well as substance use, and have a higher prevalence of HIV infection compared with the general population (Melo et al., 2022).

Regarding the number of new TB cases among populations in situations of greater vulnerability, in recent years the prison population has shown a progressive increase in new tuberculosis cases, rising from 7,395 in 2021 to 7,650 in 2022 and 7,716 in 2023. However, in 2024 a reduction to 6,858 new cases was observed. Although this decrease may indicate advances in prevention and control strategies, it should be interpreted with caution due to the possibility of underdetection, underreporting, or changes in diagnostic and reporting processes (Ministry of Health, 2025).

The rapid growth of the prison population, combined with precarious confinement conditions—such as poor sanitation, overcrowding, and limited access to sanitation, food, education, and healthcare services—transforms prisons into environments conducive to the spread of infectious diseases. In this context, tuberculosis is particularly concerning, with incidence rates up to 28 times higher than in the general population. Additionally, closed environments with poor ventilation and limited access to healthcare services and health education contribute to the high prevalence of TB among people deprived of liberty, making it a significant public health problem (Silva et al., 2025).

In 2024, 5,317 new TB cases were reported in Rio Grande do Sul, corresponding to an incidence rate of 47.3 cases per 100,000 inhabitants, higher than the national incidence rate of 39.7 cases per 100,000 inhabitants during the same period (State Health Department, 2025). When analyzing data specifically among men deprived of liberty, 905 TB cases and 111 TB-HIV coinfection cases were

recorded in 2023. In 2024, a reduction was observed, with 806 TB cases and 106 coinfection cases. This decrease may reflect advances in disease control programs, although it may also be influenced by seasonal variations or underreporting.

Analysis of the distribution by health regions highlights Region 10—which includes the capital and the Gravataí Valley—as the area with the highest absolute number of cases in both years, recording 204 TB cases and 37 coinfections in 2023, and 168 TB cases and 37 coinfections in 2024. This concentration is expected due to population density and urban conditions that facilitate disease transmission. Other regions with high incidence include Region 9 (Carbonífera/Costa Doce) and Region 8 (Vale do Caí and Metropolitan area), which also presented significant numbers but with a marked reduction in 2024 (Table 1).

Conversely, some regions reported very low numbers, such as Region 12 (Portal das Missões) and Region 14 (Fronteira Noroeste), which may indicate either lower incidence or possible underreporting. Investigating these discrepancies is important to ensure adequate surveillance coverage.

Regarding TB-HIV coinfection, the proportion of cases varied across regions, being higher in urban areas. For example, in Region 10, approximately 18% of TB cases in 2023 were associated with HIV, highlighting the need for integrated management programs for both diseases. The relative stability in coinfection cases between 2023 and 2024 suggests that, despite some progress in TB control, HIV management remains a significant challenge.

Smoking prevalence was also noteworthy. In 2023, among patients with isolated TB, 489 were smokers (63.5%). Among individuals with TB-HIV coinfection, 53 were smokers (47.7%). In 2024, 431 TB patients were smokers (61.3%). In the same year, 15 individuals with coinfection were smokers, corresponding to 14.2% of coinfection cases and 1.9% of total cases. Tobacco and other psychoactive substance use are strongly associated with the prison population and are recognized as important risk factors for poor treatment adherence and reduced effectiveness, contributing to unfavorable clinical outcomes (Souza et al., 2025).

Regarding clinical manifestations, pulmonary tuberculosis was the most frequent and the most relevant form for public health, as bacilliferous pulmonary TB sustains the transmission chain, reinforcing the importance of active case finding among individuals with respiratory symptoms (Brazil, 2019).

Among people deprived of liberty, pulmonary TB accounted for 862 cases (95.3%) in 2023 and 756 cases (93.8%) in 2024. Among coinfected patients, pulmonary TB represented 100 cases (90.1%) in 2023 and 84 cases (79.2%) in 2024. Extrapulmonary TB accounted for 33 cases (3.6%) in 2023, including 8 coinfected cases, and 31 cases (3.8%) in 2024, including 14 coinfected cases. Extrapulmonary manifestations are organ-dependent and are more frequent and severe in HIV-infected patients, particularly those with advanced immunosuppression (Brazil, 2019).

Mixed pulmonary and extrapulmonary forms were recorded in 10 cases (1.1%) in 2023 and increased to 19 cases (2.4%) in 2024. Evidence suggests that mixed forms are associated with higher mortality among incarcerated individuals, reinforcing the need for attention to this clinical presentation.

Drug resistance patterns showed low absolute numbers but epidemiological relevance. Nationally, between 2015 and 2024, 20,628 new drug-resistant TB cases were reported, including 1,047 in 2024 (Ministry of Health, 2025). In this study, isolated isoniazid resistance was identified in three cases in 2023 and one in 2024. Isolated rifampicin resistance occurred in two cases in 2023 and none in 2024. Combined resistance to isoniazid and rifampicin was identified in four cases in 2024. Although numerically small, these findings are relevant in prison settings, emphasizing the need for active surveillance and strict monitoring.

Treatment abandonment decreased from 132 cases in 2023 to 93 in 2024. Despite this reduction, abandonment rates remain high and may contribute to therapeutic failure and drug resistance. Transfers between prison units, release without referral to primary healthcare, refusal of treatment, and loss to follow-up contribute to treatment interruption, perpetuating transmission (Silva et al., 2025).

Cure outcomes also varied. In 2023, 589 men achieved cure, compared to 467 in 2024. Among coinfected individuals, 63 were cured in 2023 and 40 in 2024. Mortality decreased from 14 deaths in 2023 to 9 in 2024; however, TB-related deaths in this vulnerable population reinforce the need for early diagnosis and adequate monitoring.

In summary, although some indicators improved during the evaluated period, tuberculosis among people deprived of liberty in Rio Grande do Sul remains a significant public health challenge, particularly due to drug resistance and persistent treatment abandonment rates. TB is curable in nearly all drug-sensitive cases when treatment is properly conducted. Early diagnosis, appropriate individualized therapy, correct prescription and duration, and strong adherence are essential to prevent bacterial persistence and drug resistance, ultimately ensuring cure (Brazil, 2019).

4. CONCLUSION

In light of the above, the study achieved its objective of analyzing the epidemiological profile of tuberculosis among men deprived of liberty in Rio Grande do Sul, demonstrating that the disease remains a significant public health problem within the prison context. Although a reduction in the absolute number of cases, deaths, and treatment abandonment was observed in 2024, the indicators remain high, particularly given the large proportion of pulmonary forms and the substantial TB-HIV coinfection rate, factors that contribute to the maintenance of the transmission chain and to unfavorable clinical outcomes.

It is noteworthy that structural conditions within the prison system—such as overcrowding, inadequate ventilation, and high population turnover—favor the spread of tuberculosis both within and beyond prison facilities. The occurrence of drug-resistant tuberculosis cases, although in small numbers, and the persistent rates of treatment abandonment reinforce the need for active surveillance, early diagnosis, and strengthening of Directly Observed Treatment, in addition to the effective integration of TB and HIV control actions.

It is concluded that addressing tuberculosis among people deprived of liberty requires continuous and targeted strategies, with coordination between the prison system and the healthcare network to ensure continuity of individual care both during incarceration and after transfers or release. Investing in prevention, expanded testing, treatment adherence, and improved structural conditions is essential not only to protect this population but also to reduce disease transmission in the broader community.

REFERENCES

BRASIL. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Vigilância das Doenças Transmissíveis. **Manual de recomendações para o controle da tuberculose no Brasil.** Brasília, 2019. 364 p. ISBN 978-85-334-2696-2.

BRASIL. Ministério da Saúde. Secretaria de Vigilância em Saúde e Ambiente. Departamento de HIV, Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis. Coordenação-Geral de Vigilância da Tuberculose, Micoses Endêmicas e Micobactérias não Tuberculosas. **Boletim Epidemiológico: tuberculose**. Número especial. Brasília, 2025.

CAMILLO, A. J. G. *et al.* Fatores associados ao óbito por tuberculose e HIV/aids em presídios: revisão integrativa. **Acta Paulista de Enfermagem**, São Paulo, v. 35, eAPE01606, 2022. DOI: https://doi.org/10.37689/acta-ape/2022AR016066.

CALDAS, A. C. L. *et al.* Análise dos casos de tuberculose em pessoas privadas de liberdade no sistema carcerário brasileiro. **Revista Foco**, Curitiba, v. 17, n. 3, e4767, p. 1-8, 2024.

FERREIRA, M. R. L. *et al.* Determinantes sociais da saúde e desfecho desfavorável do tratamento da tuberculose no sistema prisional. **Ciência & Saúde Coletiva**, Rio de Janeiro, v. 27, n. 12, p. 4451-4459, 2022. DOI: https://doi.org/10.1590/1413-812320222712.08632022.

GIOSEFFI, J. R.; BATISTA, R.; BRIGNOL, S. M. Tuberculose, vulnerabilidades e HIV em pessoas em situação de rua: revisão sistemática. **Revista de Saúde Pública**, São Paulo, v. 56, p. 43, 2022. Disponível em: https://doi.org/10.11606/s1518-8787.2022056003964. Acesso em: 20 fev. 2026.

MELO, R. L. B. et al. Análise epidemiológica dos casos novos de tuberculose em uma população privada de liberdade no Nordeste brasileiro. **Research, Society and Development**, v. 11, n. 1, e22411124903, 2022. Disponível em: http://dx.doi.org/10.33448/rsd-v11i1.24903. Acesso em: 20 fev. 2026.

RIO DE JANEIRO. Secretaria Municipal de Saúde**. Guia rápido**: tuberculose: atenção primária à saúde: transmissíveis. 2. ed. Rio de Janeiro, 2023. (Série F. Comunicação e Educação em Saúde). ISBN 978-65-86417-25-8.

RIO GRANDE DO SUL .Secretaria Estadual de Saúde. **Programa Estadual de Controle da Tuberculose – PECT-RS.** Centro Estadual de Vigilância em Saúde – CEVS/SES/RS; Hospital Sanatório Partenon – DUP – DGHE. Informe epidemiológico: tuberculose. Rio Grande do Sul, ago. 2025.

SILVA, K. N. *et al.* Protocolos e diretrizes clínicas da tuberculose no contexto da população privada de liberdade: revisão integrativa. ***Texto & Contexto Enfermagem***, v. 34, e20240259, 2025. Disponível em: https://doi.org/10.1590/1980-265X-TCE-2024-0259pt. Acesso em: 20 fev. 2026.

SOEIRO, V. M. S.; CALDAS, A. J. M.; FERREIRA, T. F. Abandono do tratamento da tuberculose no Brasil, 2012-2018: tendência e distribuição espaço-temporal. **Ciência & Saúde Coletiva**, Rio de Janeiro, v. 27, n. 3, p. 825-836, 2022. DOI: https://doi.org/10.1590/1413-81232022273.45132020.

SOUZA, P. C. de. *et al.* Tuberculose na população privada de liberdade: epidemiologia e análise espacial entre 2014 e 2020- Tuberculosis in the incarcerated population: epidemiology and spatial analysis between 2014 and 2020. **Cogitare Enfermagem**, v. 30, 2025. Disponível em: https://doi.org/10.1590/ce.v30i0.97841.

International Journal of Health and Surgical Research
ISSN 3086-2574

Table 1: Confirmed cases by health region in Rio Grande do Sul according to year of notification among men deprived of liberty, 2023 a nd 2024.

	Year 2023		Year 2024	
Region	**TB**	**TB-HIV Coinfection**	**TB**	**TB-HIV Coinfection**
Region 01 - Verdes Campos	22	3	26	2
Region 02 - Entre Rios	1	-	-	-
Region 03 - Fronteira Oeste	26	5	21	2
Region 04 - Belas Praias	5	1	1	-
Region 05 - Bons Ventos	29	1	20	3
Region 06 - Vale do Paranhana e Costa Serra	17	1	9	1
Region 07 - Vale dos Sinos	42	5	36	4
Region 08 - Vale do Caí e Metropolitana	125	17	109	12
Region 09 - Carbonífera/Costa Doce	156	16	120	7
Region 10 - Capital e Vale do Gravataí	204	37	168	37
Region 11 - Sete Povos das Missões	11	1	17	4
Region 12 - Portal das Missões	2	1	-	-
Region 13 - Diversidade	8	-	15	3
Region 14 - Fronteira Noroest	3	1	2	-
Region 15 - Caminho das Águas	17	-	11	-

International Journal of Health and Surgical Research
ISSN 3086-2574

Region 16 - Alto Uruguai Gaúcho	9	-	9	-
Region 17 - Planalto	36	6	48	4
Region 18 - Araucárias	1	-	3	1
Region 19 - Botucaraí	4	-	6	-
Region 20 - Rota da Produção	6	1	16	-
Region 21 - Sul	36	6	54	15
Region 22 - Pampa	37	2	18	3
Region 23 - Caxias e Hortênsias	37	1	44	3
Region 24 - Campos de Cima da Serra	14	-	16	2
Region 25 - Vinhedos e Basalto	11	2	13	1
Region 27 - Jacuí Centro	3	-	1	-
Region 28 - Vinte e Oito	34	4	16	1
Region 29 - Vales e Montanhas	9	-	6	1
Region 30 - Vale da Luz	-	-	1	-
TOTAL	905	111	806	106
Smoker	489	58	431	57
Pulmonary TB	862	100	756	84
Extrapulmonary TB	33	8	31	14
Pulmonary and Extrapulmonary TB (Mixed Form)	10	3	19	8
Cure	589	63	467	40

International Journal of Health and Surgical Research
ISSN 3086-2574