EVALUATION OF THE TUBERCULOSIS EPIDEMIOLOGICAL SURVEILLANCE SYSTEM

AVALIAÇÃO DO SISTEMA DE VIGILÂNCIA EPIDEMIOLÓGICA DA TUBERCULOSE

EVALUACIÓN DEL SISTEMA DE VIGILANCIA EPIDEMIOLÓGICA DE TUBERCULOSIS

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ABSTRACT

Objetivo: Avaliar o sistema de vigilância epidemiológica da tuberculose em Maranguape. Esse foi um estudo avaliativo utilizando dados secundários do SINAN, disponíveis na plataforma DATASUS e baseado nas diretrizes do CDC, tendo em vista os atributos qualidade dos dados e representatividade. **Método:** Foram analisados 441 casos notificados, incluindo 15 variáveis obrigatórias e 13 essenciais. **Resultados**: A completitude das variáveis obrigatórias resultou em 99,8%, com uma frequência de 14 campos avaliados como excelente, e nas variáveis essenciais, obteve-se 89,5%, com resultado regular. Já na consistência, a qualidade dos dados foi classificada como excelente, obtendo valor ≥90,0%. **Considerações Finais:** O sistema representou de forma satisfatória a doença em tempo, pessoa e lugar. Portanto, foram identificadas falhas do sistema como a completitude regular dos campos essenciais, relacionadas ao preenchimento do boletim de acompanhamento da tuberculose. Todavia, os dados do sistema de vigilância da tuberculose foram considerados adequados e podem ser utilizados para orientação das ações de prevenção e controle da tuberculose.

Keywords: *Tuberculose; Sistemas de Informação em Saúde; Vigilância em Saúde Pública.*

RESUMO

Objective: To evaluate the tuberculosis epidemiological surveillance system in Maranguape. This was an evaluative study using secondary data from Sinan, available on the DATASUS platform, and based on CDC guidelines, considering the attributes of data quality and representativeness. **Methods**: Thus, 441 reported cases were analyzed, including 15 mandatory variables and 13 essential variables. **Results:** The completeness of the mandatory variables resulted in (99.8%), with a frequency of 14 fields evaluated as excellent, and in the essential variables, it was obtained (89.5%), with a regular result. In terms of consistency, the quality of the data was classified as excellent (≥90.0%). **Final considerations:** The system satisfactorily represented the disease in time, person and place. Therefore, system failures were identified, such as the regular completeness of the essential fields, related to the completion of the tuberculosis monitoring report. However, the data from the tuberculosis surveillance system were considered adequate and can be used to guide tuberculosis prevention and control actions.

Descritores: *Tuberculosis; Health Information Systems; Public Health Surveillance*.

RESUMEN

Objetivo: Evaluar el sistema de vigilancia epidemiológica de la tuberculosis en Maranguape. Estudio evaluativo, utilizando datos secundarios de Sinan, disponibles en la plataforma DATASUS, y basado en lineamientos del CDC, teniendo en cuenta los atributos de calidad y representatividad de los datos. **Métodos:** Así, se analizaron 441 casos notificados, incluyendo 15 variables obligatorias y 13 variables esenciales. **Resultados:** La completitud de las variables obligatorias resultó en (99,8%), con una frecuencia de 14 campos evaluados como excelente, y en las variables esenciales se obtuvo (89,5%), con un resultado regular. En cuanto a la consistencia, la calidad de los datos se clasificó como excelente (≥90,0%). **Consideraciones finales:** El sistema representó satisfactoriamente la enfermedad en tiempo, persona y lugar. Por lo tanto, se identificaron fallas en el sistema, como la completitud periódica de campos esenciales, relacionados con la cumplimentación del informe de seguimiento de la tuberculosis. Sin embargo, los datos del sistema de vigilancia de la tuberculosis se consideraron adecuados y pueden utilizarse para orientar las acciones de prevención y control de la tuberculosis.

Descriptores: *Tuberculosis; Sistemas de Información en Salud; Vigilancia de la Salud Pública.*

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INTRODUCTION

Tuberculosis (TB) is an infectious disease and is considered a global public health problem[1]. It is a disease so old that it almost merges with the history of mankind itself, affecting him since prehistoric times. TB can be caused by any of the species that make up the Mycobacterium tuberculosis complex, also known as Koch's bacillus or the white plague, which has decimated hundreds of thousands of people worldwide [2,3].

It is transmitted through inhalation, ingestion or traumatic inoculation of the pathogen. The most common clinical form found in treatment centers is pulmonary, observed in up to 90% of all cases. However, the pathogen can spread and settle in any organ, diagnosis can be performed through a number of procedures, such as: the Rapid Molecular Test (MRT); direct sputum smear microscopy, considered the primary method, and sputum culture, which is defined as the gold standard [5].

The World Health Organization's (WHO) Global Tuberculosis Report states that a total of 7.5 million people were diagnosed with the disease in 2022. In the same year, 1.3 million people died from TB, including 167,000 with HIV [6].

In Brazil, TB continues to be a serious public health problem, affecting around 70,000 people every year 7. As stated in the Ministry of Health's Epidemiological Bulletin, 80,369 new cases of the disease were reported in Brazil in 2022. During the same year, 5,596 deaths were documented nationally as a result of the disease [8].

In the state of Ceará, from 2010 to 2022, the average of new tuberculosis cases per year was 3,600. In 2022, this rate increased, remaining above the national average, with more than 4,000 new cases recorded. Also in 2022, the number of deaths reached 226 records [9].

Tuberculosis continues to be a significant morbidity endemic in the town of Maranguape, with approximately 37 new cases being reported every year between 2013 and 2022. The epidemiological rate of TB has risen, with a rate of 42.5/100,000 inhabitants in 2023, according to an epidemiological bulletin from the Ceará State Health Department [9,10].

Considering the social seriousness of tuberculosis in endemic areas, combined with the lack of studies on the subject, this study intends to assess the quality of the data (completeness and consistency), as well as the representativeness of the tuberculosis epidemiological surveillance system in the town of Maranguape.

METHODS

This is an evaluative study based on secondary data in the public domain concerning information extracted from the Notifiable Diseases Information System (SINAN), obtained through TABNET, and made available on the electronic platform of the Information Technology Department of the Unified Health System (DATASUS).

In this study, the population was built from the records in the Individual Investigation Files of patients who had a confirmed diagnosis of tuberculosis, living in the town of Maranguape, summing to 441 notifications of confirmed TB cases in Sinan, which were diagnosed between 2013 and 2022.

In order to characterize the data collected, a survey was carried out of the variables contained in the TB Notification/Investigation Form, based on mandatory and essential

fields. Thus, the following variables from the TB case report form were selected for data analysis: mandatory fields (age, gender, type of entry, clinical form, sputum smear microscopy at diagnosis, anti-HIV, sputum culture, pregnant woman in the case of females, closure status and identified contacts) and essential fields: (race/color=skin color, schooling, treatment start date, follow-up smear microscopy (sputum) performed in the 6th month of treatment in pulmonary cases, directly observed treatment, associated diseases and conditions (acquired immunodeficiency syndrome [AIDS], alcoholism and diabetes), TB contacts investigated).

The methodology recommended by the Centers for Disease Control and Prevention (CDC) was used to evaluate the tuberculosis epidemiological monitoring system, considering the aspects of data quality (completeness and consistency) and representativeness.

The parameters used to analyze data accuracy (completeness and consistency) were assessed following the adaptation of the study by Abath *et al* 2014 [11], stratified with increasing scores ranging from excellent with values equal to or greater than 90%; regular between 70% and 89% and poor with values less than 70%. For analyzing the completeness of the fields, we used the classification proposed by the Ministry of Health, in the Analysis Notebook for the use of SINAN NET, based on the adaptation of the score by Romero and Cunha 2007, defined as: excellent when the values were equal to or greater than 95%; good between 90-94%, regular between 70-89%, poor between 50-69% and very poor with values below 50%. The analysis was also based on the adaptation of the study by Abath et al 2014 [11,12].

In order to analyze representativeness in relation to the variable PLACE, it was decided to use, in an adapted form, the parameters and methods used in the study developed to analyze the attributes of the Sentinel Surveillance System for Influenza Syndrome in the Municipality of Rio de Janeiro[13]. With regard to the analysis of the representativeness of the variables TIME and PERSON, it was decided to use, in an adapted form, the parameters and methods used in the analysis of the Surveillance System for Drug-Resistant Tuberculosis in Brazil. For the final classification of representativeness, we used the classification proposed in the study that analyzed the representativeness, completeness, positive predictive value and timeliness of the Dengue surveillance system in Brazil[15], where the TB surveillance system would be considered highly representative if all three categories (time, person and place) were considered satisfactory, fairly representative if only two of them were satisfactory and poorly representative if only one was classified as satisfactory. The categories (time, person and place) were classified as having satisfactory or unsatisfactory representativeness [15] (Frame 1).

Data was analyzed using public domain software, the *Epi Info* statistical package version 7.2.3.1, as well as the *Microsoft Office Excel* version 2019, and the data was presented using a descriptive statistic, considering mean, frequency, absolute number and proportion, organized in tables and graphs.

Regarding the ethical aspects of the research, the data obtained through the Sistema de Informação de Agravos de Notificação (SINAN-Notifiable Diseases Information System), available at DATASUS, used exclusively publicly accessible

databases, with aggregated information and without the possibility of individual identification, thus guaranteeing the anonymity of the study, considering Resolution Nº. 510, of April 7, 2016, of the National Health Council (CNS), which exempts analysis by a Research Ethics Committee (CEP) [16].

Frame 1: Roadmap for analyzing the Representativeness attribute (PLACE, PERSON and TIME) of the Tuberculosis Surveillance System of Maranguape – CE, 2013 to 2022.

ATTRIBUTE	INDICATOR	PARAMETER	SOURCE
Representativeness	Place Variable: Proportion ratio between the number of tuberculosis cases of Maranguape city residents and the total number of tuberculosis cases reported in the town of Maranguape	● > = 80% **(Satisfactory)** ● > 50% e < 80% **(Regular)** ● < = 50% **(Unsatisfactory)**	Adapted from the study by Montalvão, 2017 – Analysis of attributes of the Sentinel Surveillance System for Influenza Syndrome in the Municipality of Rio de Janeiro, Brazil, 2013-2014. [13]
	Person Variable: Distribution (%) of TB cases by (1) sex, (2) age group, (3) schooling, (4) type of entry and (5) clinical form, in the municipality of Maranguape versus national literature.	● 4 ou + **(Satisfactory)** ● 3 (**Not very satisfactory**) ● < 3 **(Unsatisfactory)**	Adapted from the study by Tourinho (2020) - Analysis of the Drug-Resistant Tuberculosis Surveillance System, Brazil, 2013-2017. [14]
	Time Variable: TB cases (no.) living in Maranguape according to month and year of diagnosis.	● **Satisfactory** ● Unsatisfactory	
	FINAL CLASSIFICATION	**Número de Categorias Classificadas com Representatividade Satisfatória**	PACHECO, Carolina de Castro Araújo. Analysis of the representativeness, positive predictive value, completeness and timeliness of the dengue surveillance system in Brazil from 2018 to 2020. [15]
	High Representativeness	● 3 Categories	
	Regular Representativeness	● 2 Categories	
	Low Representativeness	● 1 Categories	

Source: Own Authorship.

RESULTS

When analyzing the 441 cases reported on SINAN between 2013 and 2022, the completion of the 17 variables selected for analysis showed 99.8% of the mandatory variables and 89.5% of the essential ones. Therefore, in terms of data quality, the classification of the 17 fields filled in between mandatory and essential showed a frequency of 14 fields analyzed in the excellent category. The fields of schooling, directly observed treatment and sputum smear microscopy in the sixth month of pulmonary cases, although considered essential fields, had a data quality below 90.0% and were analyzed in the regular category (Table 1).

The data quality in terms of consistency was rated as excellent, with percentages higher than 90.0% for the important variables in terms of outlining the conditions for tuberculosis surveillance, in the fields specified as: date of treatment start, male gender with Option "Not applicable" in the pregnant woman field, as well as patients presenting 'YES' in the AIDS field and with HIV "Positive," as shown in Table 2.

Table 1: Analysis of data quality, according to the completeness of the variables on the notification form and tuberculosis follow-up bulletin on SINAN, from 2013 to 2022, Maranguape-CE, (n=441).

FIELDS / VARIABLES	COMPLETENESS				Field Type	Analysis (Quality)
	Total filled in	%	Total not Filled In (Ign /Blank)	%		
Gender	441	100,0%	00	0,0%	**Required**	**Excellent**
Age	441	100,0%	00	0,0%	Required	**Excellent**
Input type	441	100,0%	00	0,0%	**Required**	**Excellent**
Clinical Form of TB	441	100,0%	00	0,0%	Required	**Excellent**
Sputum Bacilloscopy	441	100,0%	00	0,0%	Required	**Excellent**
HIV testing	441	100,0%	00	0,0%	Required	**Excellent**
Culture	441	100,0%	00	0,0%	**Required**	**Excellent**
Identified Contacts	439	99,5%	02	0,5%	**Required**	**Excellent**
Closure status	439	99,5%	02	0,5%	**Required**	**Excellent**
Pregnant Women (Female Population n = 126)	125	99,2%	01	0,8%	**Required**	**Excellent**
Start of treatment	432	98,0%	09	2,0%	**Essential**	**Excellent**
Associated Diseases and Conditions (AIDS)	424	96,1%	17	3,9%	**Essential**	**Excellent**
Total number of contacts examined	429	97,3%	12	2,7%	**Essential**	**Excellent**
Race/skin color	402	91,2%	39	8,8%	**Essential**	**Excellent**
Schooling	370	83,9%	71	16,1%	**Essential**	**Regular**
Directly Observed Treatment Carried out	360	81,6%	81	18,4%	**Essential**	**Regular**

| Sputum smear microscopy in the 6th month in pulmonary cases | 300 | 78,7% | 81 | 21,3% | **Essential** | **Regular** |

*Data quality adapted from the Abath et al. study, 2024.

Note: N-Refers to all tuberculosis patients in the study period.

Source: Ministry of Health. DATASUS. Tabnet. Brasília, DF: Ministry of Health, 2024.

Table 2: Consistency analysis of the variables on the SINAN tuberculosis notification form and follow-up bulletin, from 2013 to 2022, Maranguape-CE, (n=441).

Attribute	Indicators	No. Total	No. of Consistent Records	% Consistency	Consistency rating by field	Data quality
CONSISTENCY	Treatment Starting Date equal to or later than the Diagnosis Date.	441	421	95,5%	Excellent	**EXCELLENT (≥ 90%)**
	Male gender with "Not applicable" option in the Pregnant field.	315	315	100%	Excellent	
	Patients with "YES" in the AIDS field and with HIV "Positive".	25	25	100%	Excellent	

 Source: Ministry of Health. DATASUS.Tabnet. Brasília, DF: Ministry of Health, 2024.

*Data quality adapted from the study by Abath et al.,2014.

Regarding the variable PLACE, the indicator showed that the system's representativeness was sufficient (Frame 2), since 88.7% of the tuberculosis cases of Maranguape residents diagnosed between 2013 and 2022 were from notifications entered on the municipality's SINAN (Table 3).

Frame 2: Analysis of the Representativeness attribute (PLACE) of the Maranguape-CE Tuberculosis Surveillance System, 2013 to 2022.

Attribute	Indicators	Parameter	Results	SOURCE
Representativity	Place Variable: Percentage of cases of tuberculosis in Maranguape residents to the total number of tuberculosis cases reported in the town of Maranguape	● > = 80% **(Satisfactory)** ● > 50% e < 80% **(Regular)** ● < = 50% **(Unsatisfactory)**	**88,7%** **SATISFACTORY**	Adapted from Montalvão's study[13].
	Person Variable: Distribution (%) of TB cases by (1) gender, (2) age group, (3) schooling, (4) type of entry and (5) clinical form, in the town of Maranguape compared to the national literature.	● 4 ou + **(Satisfatório)** ● 3 **(Not very satisfactory)** ● < 3 **(Unsatisfactory)**	**Score: 5** **SATISFACTORY**	Adapted from the study by Tourinho[14].
	Time Variable: TB cases (no.) residents of Maranguape by month and year of diagnosis.	● **Satisfactory** ● **Unsatisfactory**	**SATISFACTORY**	

Source: Own Authorship**.**

As for the PERSON variable, as shown in the results of this study (Table 3), it was evident that the TB cases registered on SINAN occurred more frequently in the population aged between 20 and 39 years (42.2%), males (71.4%), illiterate or with less than 8 years of schooling (47.3%), 3%), with new cases (84.0%) and the pulmonary form (86.4%) prevailing, similar to those observed in other publications that analyzed the TB epidemiological monitoring system in Brazil classifying the representativeness as satisfactory (Frame 2).

In relation to TIME, the distribution of TB cases by month of diagnosis was constant over the period, with no seasonal pattern (Table 3), and the representativeness was considered satisfactory (Table 2). In terms of the representativeness of TB cases, it was clear that when comparing the findings with the literature, similar trends were found.

The system was analyzed with high representativeness, as the three categories analyzed (Time, Person and Place) were classified as satisfactory.

Table 3: Characterization of notified tuberculosis cases according to gender, age group, schooling, type of entry, clinical form, municipality of notification, month and year of diagnosis. Maranguape- CE, 2013-2022. (n=441).

Characteristics	YEAR OF DIAGNOSIS										Total	%
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
Gender												
Male	36	24	35	19	32	39	29	25	31	46	**316**	**71,7%**
Female	12	18	11	9	8	15	12	10	15	15	**125**	**28,3%**
Age group												
< 15 years	0	0	3	0	1	1	1	1	1	1	**9**	**2,0%**
15 a 19 years	1	5	1	1	4		3	2	3	8	**28**	**6,3%**
20 a 29 years	7	9	10	5	10	9	6	13	8	13	**90**	**20,4%**
30 a 39 years	13	9	13	7	5	13	11	8	3	14	**96**	**21,8%**
40 a 49 years	9	10	6	2	3	7	5	6	16	7	**71**	**16,1%**
50 a 59 years	12	5	7	7	8	7	8	3	9	9	**75**	**17,0%**
60 a 69 years	4	4	1	2	3	9	3	1	2	5	**34**	**7,7%**
70 ou +	2	0	5	4	6	8	4	1	4	4	**38**	**8,6%**
Schooling												
Not applicable	0	0	0	0	0	0	1	0	0	0	**1**	**0,2%**
None	25	20	22	11	22	1	3	0	2	7	**113**	**25,6%**
From 1 – 3	4	2	4	3	1	3	4	3	8	6	**38**	**8,6%**
From 4 – 7	3	10	9	7	3	7	3	3	4	7	**56**	**12,7%**
From 8 – 11	5	6	7	4	9	4	27	24	26	36	**148**	**33,6%**
From 12 ou +	2	3	1	0	1	1	0	2	0	3	**13**	**2,9%**
Ig /Blank	9	1	3	3	4	38	3	3	6	2	**72**	**16,3%**
Type of input												
New Case	45	40	43	22	33	42	34	27	39	45	**370**	**83,9%**
Recurrence	0	1	2	2	4	4	0	2	2	4	**21**	**4,8%**
Re-entry after dropping out	1	0	1	2	2	2	4	2	4	7	**25**	**5,7%**
Re-entry after dropping out	0	0	0	0	0	0	0	0	1	0	**1**	**0,2%**
Transfer	2	1	0	1	0	3	2	3	0	3	**15**	**3,4%**
Post-mortem	0	0	0	1	1	3	1	1	0	2	**9**	**2,0%**
Clinical Form												
Pulmonary	39	38	38	25	34	49	34	26	40	58	**381**	**86,4%**
Extrapulmonary	9	4	7	3	6	5	7	7	4	2	**54**	**12,2%**
Pulmonary+Extrapulmonary	0	0	1	0	0	0	0	2	2	1	**6**	**1,4%**
Notifying town												

											TOTAL	%
Caucaia	0	0	0	0	0	1	0	0	0	0	**1**	**0,2%**
Fortaleza	6	0	4	3	3	8	5	4	5	5	**43**	**9,8%**
Itaitinga	0	0	0	0	1	0	0	0	0	0	**1**	**0,2%**
Maracanaú	1	0	0	1	0	1	1	0	1	0	**5**	**1,1%**
Maranguape	41	42	42	24	36	44	35	31	40	56	**391**	**88,7%**
Notification Month												
January	4	4	4	0	7	6	0	6	5	4	**40**	**9,1%**
February	2	3	4	5	3	5	1	5	7	7	**42**	**9,5%**
March	8	5	5	4	5	6	4	3	1	4	**45**	**10,2%**
April	6	7	4	2	3	4	5	3	1	1	**36**	**8,2%**
May	3	1	1	3	2	7	1	1	2	6	**27**	**6,1%**
June	2	3	2	3	5	6	3	4	5	5	**38**	**8,6%**
July	3	5	7	2	1	3	8	5	9	4	**47**	**10,7%**
August	4	2	4	3	2	0	3	2	1	7	**28**	**6,3%**
September	4	3	6	1	4	6	4	1	6	5	**40**	**9,1%**
October	2	4	2	0	6	1	4	4	3	8	**34**	**7,7%**
November	5	3	5	3	1	4	1	1	2	8	**33**	**7,5%**
December	5	2	2	2	1	6	7	0	4	2	**31**	**7,0%**
TOTAL	**48**	**42**	**46**	**28**	**40**	**54**	**41**	**35**	**46**	**61**	**441**	**100,0%**

Source: Ministry of Health/SVSA – Notifiable Diseases Information System – Sinan Net. DATASUS.Tabnet. Brasília, DF, 2024.

DISCUSSION

The results of this study do not generally differ from other studies published in Brazil, especially in the north and northeast. Tuberculosis was predominantly found in males, with 71.4% of cases. The age ranges from 20 to 29 years, followed by 30 to 39 years, express a sociodemographic scenario of tuberculosis in young individuals. Schooling was another characteristic that was observed. The lack of schooling among the patients analyzed, most of whom (47.1%) had up to seven years of schooling, highlights their social vulnerability. Regarding clinical aspects, 86.4% of the patients had the pulmonary form, and there was a predominance of admissions of new cases, with an average of 84.0% of cases in individuals who had never undergone treatment. Therefore, a study carried out in the state of Ceará showed similarities with the results obtained in the town of Maranguape [20].

Schooling is a key parameter in the analysis of the study, as the incidence of tuberculosis is related to a low level of schooling, and is one of the risk factors which most contribute to non-adherence to treatment for the disease. The association between schooling and TB is well known in literature. Considering the quality of the data (completeness), the essential variable schooling showed 16.1% non-completeness, i.e. 71 fields not filled in, ignored or blank, highlighting the need to improve the quality of the data [21,22].

A further important aspect is related to gender, as a study aimed at analyzing aspects related to the experience of TB in men and women showed that the biological factors which explain the differences found are associated with lifestyle habits, favoring a higher incidence of the disease in men, as well as the possibility of women being more careful with their health than men. In accordance with studies carried out in 2023, both of which were carried out in the state of Pará, the results obtained in our study were similar in terms of gender, schooling and age group [20,23,24].

As for data quality, the complete nature of the mandatory fields on the notification form in the information system was rated as excellent. Nevertheless, the completeness of the essential fields: schooling, directly observed treatment and sputum smear microscopy in the sixth month, was rated as regular, reducing the efficiency and reliability of the data, due to the high number of missing important fields on the forms of confirmed cases, although not mandatory, considerably affecting the quality of the data [15].

On the basis of the analysis of the established criteria, using data on tuberculosis cases from SINAN, it was noticed that all the mandatory notification fields (diagnosis) and one follow-up field (treatment) had an excellent degree of completeness. The database therefore showed excellent completeness for all the mandatory variables and, when it came to the essential variables, it showed between fair and excellent completeness. Moreover, the results also showed excellent consistency for the three indicators analyzed, and the tuberculosis surveillance system in the municipality of Maranguape was considered to have excellent data quality analysis, as consistency was excellent and completeness was regular for the non-mandatory fields.

Since representation refers to the ability of the data collection to truly reflect the distribution of tuberculosis in a given population, this study decided to analyze the

representativeness of the tuberculosis cases notified in the municipality of Maranguape, by calculating the ratio between the number of tuberculosis cases of Maranguape residents and the total number of tuberculosis cases notified in the municipality, also enabling an analysis of the system's sensitivity. This showed that the local health system was primarily responsible for reporting cases, demonstrating that the health services are capable of capturing TB cases. Likewise, the representativeness of the time and person variables was analyzed as satisfactory. Thus, the system can be considered highly representative, making it possible to describe tuberculosis disease in the town of Maranguape in relation to time, person and place.

CONCLUSION

The analysis of data quality and representativeness revealed that the tuberculosis epidemiological monitoring system in the town of Maranguape has both excellent data quality and high representativeness. In overall terms, it was concluded that the system showed excellent completeness for the mandatory variables, although regular for the essential fields of the Investigation and Notification Form (FIN) and the follow-up bulletin. The system was highly representative, as it made it possible to find out the characteristics of notified cases according to time, person and place, by comparing it with the literature and previously published data.

The local system showed a high capacity for registering cases, with a constant distribution over time and similar characteristics to other studies carried out in Brazil. Despite its excellent quality and high representativeness, it is still essential to improve the quality of the information provided, especially in the essential fields analyzed as regular, since all the variables are very important for operational analyses related to tuberculosis. The results obtained in this analysis made it possible to consider the tuberculosis monitoring system to have an excellent performance in relation to the qualitative and quantitative attributes analyzed, but it is recommended that actions be carried out to improve the quality of the data in terms of the completeness of the essential fields, making it possible to improve the information and its use for planning and decision-making actions.

A main limitation of this research is that there have not been many published studies on the analysis of TB epidemiological monitoring in Brazil, which would make it possible to compare other studies, especially in an up-to-date scenario, i.e. studies on the completeness and consistency of the analysis of the TB epidemiological monitoring system are still scarce.

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