Chapter 109

Evaluation Of The Tuberculosis Surveillance System In The Municipality Of Uruguaiana/RS, In The Years 2019 And 2020

https://doi.org/10.56238/colleinternhealthscienv1-109

Silvia Muller de Moura Sarmento
Biomedical, MSc in Health Science, Uruguaiana City Hall
ORCID: 0000-0002-6872-406X

Rodrigo Silveira Pinto
Pharmacist, PhD in Pharmaceutical Sciences, Graduate Program in Pharmaceutical Sciences (UFRGS)
ORCID: 0000-0003-1053-9926

ABSTRACT
The Sistema de Informação de Agravos de Notificação (SINAN) was developed with the objective of collecting, transmitting and disseminating data routinely generated by the Epidemiological Surveillance System (SVE), especially for compulsorily notifiable diseases, including tuberculosis (TB). TB is a health emergency, according to the WHO, in Brazil it is considered a public health problem, and the municipality of Uruguaiana is a priority for combating TB in the state of Rio Grande do Sul (RS). Objective: to evaluate the Tuberculosis Surveillance System (SVT) in relation to data quality and representativeness of the information system, in Uruguaiana/RS, in the period 2019-2020. Methodology: A cross-sectional descriptive study was conducted to evaluate the data quality (consistency) and representativeness of the non-nominal SINAN database, with the aid of EpiInfo7™ software. Results: 76 notifications were found in the year 2019 and 74 in the year 2020, which pointed to an excellent completeness of the mandatory items of SINAN, and regular completeness of the essential items. Regarding representativeness, it showed that it has a greater male coverage, with age ± 41 years. Regarding the complementary data, it showed the predominance of pulmonary TB and its relations with HIV co-infection, population deprived of freedom and smokers, individuals susceptible to infections by the bacillus. Conclusion: The monitoring of the attributes should be continuous, and the results may assist in the decision-making of health surveillance and managers.

Keywords: Surveillance System, Tuberculosis, SINAN.

1 INTRODUCTION

More than ever, in a widely connected world, the search for reliable and quality information in all possible spheres is of great importance. In public health, the domain and knowledge of information can be the difference between a successful or unsuccessful public policy, and thus in Brazil, notification is the main strategy of choice in disease surveillance.

In Brazil, the Smallpox Eradication Campaign - CEV (1966-1973) is recognized as a milestone in the institutionalization of surveillance actions in the country, having encouraged and supported the organization of epidemiological surveillance units in the structure of state health departments. The CEV model inspired the Public Health Services Foundation (FSESP) to organize, in 1969, a weekly notification system of selected diseases and to disseminate pertinent information in an epidemiological bulletin of biweekly circulation. This process was the basis for the consolidation, at the national and state levels, of technical and operational bases that enabled the future development of actions of great impact on the control of diseases preventable by immunization. The main success related to this effort was the control of

poliomyelitis in Brazil in the 1980s, which opened perspectives for the eradication of the disease in the American continent, finally achieved in 1994[1] .

By recommendation of the 5th National Health Conference, held in 1975, the Ministry of Health established the National System of Epidemiological Surveillance (SNVE), through specific legislation (Law No. 6.259/75 and Decree No. 78.231/76). These instruments made mandatory the notification of selected communicable diseases, contained in a list established by an Ordinance. In 1977, the Ministry of Health prepared the first Manual of Epidemiological Surveillance, gathering and making compatible the technical norms that were then used for the surveillance of each disease in the scope of specific control programs . [1]

The Unified Health System (SUS) incorporated the SNVE, defining in its legal text (Law No. 8080/90), epidemiological surveillance as "a set of actions that provide knowledge, detection, or prevention of any change in the determining and conditioning factors of individual or collective health, in order to recommend and adopt measures to prevent and control diseases or illnesses. Besides expanding the concept, the actions of epidemiological surveillance began to be operationalized in a context of profound reorganization of the Brazilian health system, characterized by decentralization of responsibilities, universality, integrality, and equity in the provision of services[1] .

On the other hand, the profound changes in the epidemiological profile of the populations, in which the decline in mortality rates from infectious and parasitic diseases and the growing increase in deaths from external causes and chronic degenerative diseases are observed, have led to the incorporation of non-communicable diseases and illnesses to the scope of activities of epidemiological surveillance[1] .

To aggregate all the information, in the late 1990s, the Sistema de Informação de Agravos de Notificação (SINAN) was developed with the objective of collecting, transmitting and disseminating the data routinely generated by the Epidemiological Surveillance System of the three spheres of government, through a computerized network, to support the investigation process and provide subsidies for the analysis of the epidemiological surveillance information of compulsory diseases[2] .

1.1 IMPORTANCE OF THE EVENT FOR PUBLIC HEALTH

Even with all these tools available, we know that much must be improved, so that especially the underreporting does not harm the quality of the data generated, thus implying future compromises[3] .

Underreporting is when the case meets the necessary criteria for diagnosis and has been duly identified by the professional in charge, but has not been reported to the public health service in its specific notification system[4] .

Within the notification systems, we have the passive and active systems. In the passive system, notification is spontaneous, less sensitive, and more prone to high underreporting because there is a dependence on the service to correctly notify the epidemiological surveillance. In the active system, the

collection of information is done in the opposite direction, with epidemiological surveillance actively searching for this data through direct and regular contact with the sources of information[5] .

Different studies point to some causes, such as problems in diagnosis and identification of cases, complexity of the diseases, routines and protocols of the services themselves, technical capacity of human resources, and even the non-valuation of the Epidemiological Surveillance[6] . Another variable to be considered in some diseases are the requests from family members or from the patients themselves that the diagnosis be kept confidential, thus making the health service end up not notifying[7] .

Underreporting, in the end, brings as a major problem the decrease in the efficiency of disease control actions because it can induce distortions in the trend observed in its incidence or in the estimate of the attributable risk of contracting a disease and interferes in the accuracy of the evaluation of the impact of intervention measures[5] .

1.2 INFORMATION SYSTEM FOR NOTIFIABLE DISEASES - SINAN

With the main objective of contributing to the population's health actions, SINAN collects, transmits, and disseminates data generated in epidemiological surveillance, providing subsidies for dynamic diagnostic analyses of compulsorily notifiable diseases. SINAN is regulated by the Consolidation Ordinance No. 264 of February 17, 2020[8] .

SINAN is the main instrument for data collection, with a notification dynamic among the three spheres - Ministry of Health, State Health Secretariat, and Municipal Health Secretariat, respecting Annex 1 of Attachment V of the Consolidation Ordinance No. 4, September 28, 2017, which exposes the diseases and diseases of compulsory notification, and each sphere can add diseases or diseases of regional interest[8] . The frequency of notification must be performed as established in the ordinance, and in a correct manner to allow the use of information and consequently decision-making on health surveillance actions[10] .

1.3 SURVEILLANCE SYSTEM GRIEVANCE - TUBERCULOSIS

Tuberculosis (TB) is an infectious and contagious disease, transmitted by the bacteria *Mycobacterium tuberculosis* or better known as Koch's bacillus. It is considered to be one of the oldest infectious diseases on record, although it is 100% curable today, this was only possible in the mid 1950s. However, TB is still a major public health problem in developing countries .[11]

Its transmission occurs when symptomatic or asymptomatic individuals excrete the bacteria through droplets of saliva, sneezing or coughing. The bacilliferous pulmonary form is the most common form found, although there may be other types such as the visceral, bone, and brain forms, for example. Another worrying factor in the transmission of TB and the risk of developing the disease are the unfavorable socioeconomic conditions (malnutrition, alcoholism and drug addiction), clinical (immunocompromised)[11] and in the population deprived of freedom, which has a worrisome senario, leading to changes in prison health policies in Brazil[16] .

In 1993, the World Health Organization (WHO) declared TB a global health emergency and recommended *Directly Observed Treatment Short-Course* (DOTS) as a global response strategy for controlling the disease, considering it a set of good practices. It was only in 2006 that the WHO launched the STOP TB program worldwide, where it set out indicators for controlling the disease, which it pledged to reduce by 50% by the year 2015, when compared to the past decade[12] . In fact, the WHO strategy has improved the global TB scenario, reducing it by more than expected, 42% when comparing data from 1990 and 2015. However, it is still considered a global health emergency .[13]

In Brazil TB is a problem that plagues public health, in 2017 the number of new cases notified was 72,700, with incidence coefficients ranging from 10.0 to 74.7 cases per 100,000 inhabitants among the Federated Units[14] . The successful reduction of TB in Brazil is a result is due to economic growth, government initiatives to reduce inequality in access to health services, universal coverage of the Unified Health System (SUS), and prevention and control actions. One of the strategies is the National Tuberculosis Control Program (NTCP), which consists of a national plan with the objective of ending tuberculosis-related public health problems, aiming for goals of fewer than 10 patients per 100,000 inhabitants and fewer than 1 death from TB per 100,000 inhabitants[14] . In the state of Rio Grande do Sul in the year 2018, 5085 new TB notifications were made in the information systems, totaling a total of 7073 active cases of this pathology in the state .[15]

The NTCP is integrated into the health network with well-defined technical actions, standards, and assistance, allowing the universality of the program, covering both the distribution of medicines and necessary inputs, and actions to prevent and control TB. One of the strategies of the NTCP is the active search for respiratory symptoms, evaluation of contacts of TB patients, and the performance of directly observed treatment (DOT) in all patients[15] .

TB monitoring in the municipality encompasses actions in primary care, specialized care, strategic drug center, hospital, and epidemiological surveillance. The flow of positive patients and their contacts follows the "Manual of recommendations for the control of tuberculosis in Brazil" of the Ministry of Health[15] . However, as a complex system, it has some issues that can still be improved, such as the follow-up of positive patients, suspected patients with negative smears and household contacts.

1.3.1 Tuberculosis Scenario In Uruguaiana

The municipality of Uruguaiana is a component of the Western Border of the State of Rio Grande do Sul, and addresses the 10th Regional Health Coordinator of the State. In 2014, the state declared Uruguaiana a priority in the fight against and prevention of TB, as it is one of the municipalities with the highest rate of new cases every year in the state of Rio Grande do Sul, with an incidence of 44 cases per 100,000 inhabitants. According to data from the municipality's epidemiological surveillance, there are about 70 new cases of TB every year, regardless of the presentation of involvement, whether pulmonary or extrapulmonary[15] .

2 JUSTIFICATION OF THE SYSTEM EVALUATION

Estimating the number of cases of tuberculosis in a given population is a challenge for epidemiologists trying to plan methods to control the disease. Although there are active and passive methodologies to analyze the TB situation in a given region, methodological approaches aimed at evaluating TB surveillance actions are the best way to identify situations in which the TB notification data are at odds with the true incidence.

Even if all active cases of the disease are known, it is still difficult to certify that there will be no failures in the system, such as failure to notify, misreporting or incomplete notifications, which leads to a system failure and prevents a clear understanding of the disease in a given population. Therefore, the quality of diagnoses with data integrity in the notifications of tuberculosis cases is of utmost importance for the accuracy of the data in the surveillance system in question.

3 GENERAL OBJECTIVE

To evaluate the tuberculosis surveillance system regarding data quality and the acceptability of the information system in the municipality of Uruguaiana-RS in the period from January 1, 2019 to December 31, 2020.

4 METHODS

This is a cross-sectional descriptive study that evaluated the surveillance system of tuberculosis in the municipality of Uruguaiana/RS from non-nominal data from the National Disease Notification Information System (SINAN) and from notification sheets from the Epidemiological Surveillance Sector, both in the period from January 1, 2019 to December 31, 2020, formalized 2 years of notifications.

In order to evaluate the tuberculosis surveillance systems qualitatively, the attributes of data quality, timeliness and accessibility will be analyzed, and quantitatively, the system representativeness will be assessed, according to the *Center for Disease Control and Prevention* (CDC) manual[19,20,21] , from the non-nominal tuberculosis database of SINAN records made by the municipality of Uruguaiana.

4.1 DATABASE

4.1.1 - Computerization Of The Tuberculosis Printed Notifications Database Of The Municipality Of Uruguaiana/RS

Based on the printed form of notification of diseases of SINAN - Tuberculosis, a form was created via *Google Forms,* with all the questions on the form. A *posteriori*, the printed forms of the Epidemiological

Surveillance of Uruguaiana were typed into the online form and later converted into a data tabulation file for a spreadsheet in a data system (system of choice - EXCEL 2013)[2,14] .

This file will be used in this work as primary data, it was forwarded to the Epidemiological Surveillance of the Municipality, as one of the products of this work.

4.2 EVALUATION OF DATA QUALITY IN THE INFORMATION SYSTEM

The evaluation of data quality should reflect the completeness and consistency of the data recorded in SINAN, where the completeness is characterized by the number of variables that were filled out, considering the fields in not filled out and ignored. For this it was selected some fields that SINAN considers mandatory and essential for evaluation[17,18,22] .

The fields analyzed in the quality control of data according to SINAN[17,19] , are divided into Mandatory: date of notification, date of birth, sex, pregnant woman, date of typing, form, Extrapulmonary, X-ray, culture, HIV, number of contacts and closing date. As for the essentials: race/color, schooling district, histopathology, bacilloscopy 1st month, bacilloscopy 2nd month, bacilloscopy 3rd month, bacilloscopy after 6th month, date of treatment initiation, and number of contacts examined.

To perform the data evaluation focusing on the quantification of filled or *unfilled* items, the non-nominal SINAN database was imported into EpiInfo 7 software, and a simple frequency analysis of each item contained in Chart 1 was performed.

The parameters followed the score of Romero and Cunha[30] indicated by SINAN where for the completeness of completed items:[17,19] Mandatory rated as excellent (≥ 95%), good (90-95%), regular (70-90%), bad (50-70%) and very bad (≤ 50%); Essential rated as excellent (≥ 90%), regular (70-90%) and bad (≤ 70%);

In data consistency, which evaluates the degree of consistency of the data of a variable. We will take into consideration in this evaluation: discordant nomenclatures of localities (neighborhoods) with those indicated by the Brazilian Institute of Geography and Statistics - IBGE; date discrepancies (date of notification lower than the date of birth, date of notification lower than the date of diagnosis, date of treatment onset higher than the date of diagnosis); data inconsistencies (negative HIV test and AIDS comorbidity, diagnosis of pulmonary tuberculosis and extrapulmonary clinical form).

Accepted parameters are less than 10% inconsistency for excellent, 10-30% for fair, and greater than 30% bad[17,22] .

Consistency assessment was performed manually by reviewing the non-nominal data taken from SINAN and by using EXCEL 2013 and EpiInfo 7.

One of the points evaluated manually was the nomenclature used in the neighborhoods of residence of the reported individuals. In the municipality of Uruguaiana, there are 26 neighborhoods according to the Uruguaiana City Hall (IBGE), plus 5 districts in the interior. The changes that were considered were: nomenclatures, abbreviations, cognomen, and non-formal localities.

For date discrepancy analysis, variables were created with simple assignment, followed by variables with recoded value in EpiInfo 7 software and then frequency analysis:

Variables with simple assignment: Difference in days between date of notification and date of diagnosis; difference in days between date of birth and date of notification.

Variables with data recoding: recoding date of notification and date of diagnosis with 30-day interval; recoding the difference in days between date of birth and date of notification with 30-day interval.

Regarding the time between diagnosis and start of treatment, a variable was made with simple assignment in EpiInfo 7 between the fields date of diagnosis and date of start of treatment, followed by a variable recoded to group in months.

4.2.1 - Validity Of Primary And Secondary Banks

The validation of data quality with the comparison of two notification sources, a primary and a secondary one. The first source was the written notification found in the manual records performed in the investigation of cases by the Epidemiological Surveillance of Uruguaiana/RS; and the secondary source was the non-nominal database of SINAN. After merging the two spreadsheets, we evaluated the mandatory and essential items according to SINAN and assessed the relationship of completeness and equality of the data[2, 17,18] .

Comparing two data sources creates the expectation of equality, because the primary database is the basis for filling the secondary database. However, we can assess whether or not there is a difference between these two sources. Being considered:

a) the SINAN is better filled out than the written notification;

b) the written notification is better filled out than the SINAN;

c) both banks are equal;

In this context, the data quality was considered adequate if both banks are equal or with an acceptable data regularity, measured by the percentage of correctly filled out items. The relation of the parameters will be done according to Romero and Cunha's score[30] for mandatory and essential items, already described above. [17,19, 30]

4.3 PROFESSIONAL ACCEPTABILITY ANALYSIS

The item acceptability measures the willingness of professionals and institutions to participate in the surveillance system[22] , for which we evaluated the participation of professionals and the knowledge and opinions that these individuals have about the Tuberculosis Surveillance System, through the completion of a questionnaire.

An anonymous questionnaire was conducted on *Google Forms* with the professionals who work at some point of the flow in the tuberculosis surveillance system. This questionnaire, comprised thirteen

questions that refer to the relationship of knowledge to the Tuberculosis surveillance system and the notifications of suspected or confirmed cases of this grievance[20] .

Its evaluation occurred through the frequency of professionals who answered the questionnaire, and the analysis of the answers entered in the *Google Forms* platform, exposing in the professionals' view the weaknesses and strengths of the TB surveillance system in the municipality. The answers will be considered in the following way[31,32] : 1) Totally agree; 2) Little agree, 3) Indifferent: 4) Little disagree, 5) Totally disagree.

4.4 OPPORTUNITY

The attribute opportunity is evaluated by the agility of the system in responding to the various stages that comprise it, from the notification of the case to the distribution of epidemiological bulletins, when appropriate. Timeliness is the interval of time between two stages of a surveillance system, and is linked to the system's ability to take appropriate action on public health problems, based on the urgency and type of response required[2, 17, 22,37].

The determination and classification of the proposed opportunity intervals, with a quantification in days or months, were made according to the SINAN manual[2,37] . Being considered : [2, 14, 29]

- Up to 7 days to report 90% of the cases;
- Up to 7 days for investigation of 90% of the cases;
- Start of treatment on the same day of diagnosis for 100% of TB cases;
- Closure of 80% of cases within 60 days for acute events and up to 270 days for tuberculosis.

Table 2: Opportunity steps, intervals, and evaluation parameters[2] .

Opportunity Stages	Time interval (days or months), obtained by the difference of dates	Case Evaluation Parameters
Notifications	Notification Date and Diagnosis Date	90% of those reported within 7 days of onset of symptoms
Treatment	Date of diagnosis and start of treatment	100% of Treatments being started on the same day of diagnosis
Closing	Closing and notification	80% closed within 270 days after start of treatment

Source: SINAN

To assess timeliness of notification, treatment and closure, variables with simple assignment with difference of days were created, followed by variables with recoded value in EpiInfo7 software and after frequency analysis.

4.5 EVALUATION OF THE REPRESENTATIVENESS OF THE TUBERCULOSIS SURVEILLANCE SYSTEM

The evaluation of representativeness intends to accurately describe the occurrence of Tuberculosis in the municipality of Uruguaiana/RS with characterization of reported cases, regarding sex, age, race/color, education, form of involvement (pulmonary or extrapulmonary), type of entry (new case, reinfection, transfer, abandonment), population deprived of freedom, co-infection with HIV and comorbidities (smoking), throughout the years 2019 and 2020 and its distribution in the population of Uruguaiana/RS. It is believed that with the evaluation of this attribute it will portray the behavior of the disease for a long time analyzed . [23,24]

With the analysis of representativeness, it is possible to evaluate the system in an integral way with the objective of obtaining complete information, involving the action in the investigation of the event, interaction with the target population and the completion of forms by the professional, which demonstrates the adherence of both the professional and the population in the formation of data[25] . For this, the non-nominal database of SINAN will be analyzed with the help of the software EpiInfo7 .[24]

The evaluation will rely on the description of the population reported in the period already described, assessing the social, demographic and clinical distribution of tuberculosis in the municipality of Uruguaiana/RS, in comparison to the literature found on the epidemiological profile of the priority municipalities for tuberculosis, established in the 2019 Epidemiological Report of the state of Rio Grande do Sul[27] .

The following virtual databases were used to screen the articles: Virtual Health Library (VHL) and Google Academics which covers Scientific Eletronic Library Online (SCIELO), Latin American and Caribbean Literature on Health Sciences (LILACS), Medical Literature Analysyses and Retrieval System Online (MEDLINE)[28] .

The terms used were selected using the descriptors in health science (DeCS), being used: epidemiological profile, epidemiology, tuberculosis, patient profile, characteristics, name of some priority cities according to the 2019 Epidemiological Report of Rio Grande do Sul[28] .

4.6 ETHICAL ASPECTS

The database used in this analysis was provided by the Ministry of Health, which was subjected to the exclusion of duplicate cases and cases with inconsistencies, according to criteria adopted by SINAN[19], and a term of responsibility for the data was signed. The notification forms were provided by the Epidemiological Surveillance sector, through a formalization request.

Regarding the form to be filled out by the professionals who work in the tuberculosis surveillance system, it will be an online form, with spontaneous, anonymous, and non-mandatory participation.

5 RESULTS

With the analysis of the data from the non-nominal file of SINAN, 76 records were found in the year 2019 and 74 records in the year 2020, and these were not duplicated. And with respect to the form offered to professionals in the system, they had 20 returns. After, they were migrated to EpiInfo 7 for data analysis.

5.1 DATA QUALITY ASSESSMENT

5.1.1- Assessment Of Data Completeness Mandatory

The assessment of the completeness of mandatory data according to SINAN. The ratio found in Table 1 for the insertion of mandatory items, obtained an average of 98.7% of completed items, being above 95%, being considered excellent according to the SINAN completeness classification.

Table 1: Data completeness ranking of the mandatory typing items in SINAN Tuberculosis in the years 2019 and 2020.

Required	2019 (76)		2020 (74)		Average (%)	Classification[30]
	n	%	n	%		
Date of notification	76	100	74	100	100	Excellent
Date of birth	76	100	74	100	100	Excellent
Sex	76	100	74	100	100	Excellent
Pregnant	76	100	74	100	100	Excellent
Typing date	76	100	74	100	100	Excellent
Form	76	100	74	100	100	Excellent
Extrapulmonary	76	100	74	100	100	Excellent
Bacilloscopy	76	100	74	100	100	Excellent
X-Ray	65	85,5	72	97,3	91,4	Good
Culture	76	100	74	100	100	Excellent
HIV	76	100	74	100	100	Excellent
Number of contacts	76	100	74	100	100	Excellent
Closing Date	76	100	68*	91,9	95,9	Excellent*

Source: Unnamed SINAN sheets; * notifications not closed until June 28, 2021

5.1.2- Assessing Completeness Of Essential Data

The assessment of the completeness of essential data according to SINAN. The relation of the insertion of essential items found in Table 2 obtained an average of 81.5% of completed items, being considered regular according to the completeness classification of SINAN, however, only 10 items were selected, which may have a different reality if we were to evaluate all essential items by SINAN.

Table 2: Data completeness ranking of essential typing items in SINAN Tuberculosis in the years 2019 and 2020.

Essentials	2019 (76)		2020 (74)		Average (%)	Classification[30]
	n	%	n	%		
Race/Color	65	85,6	62	83,7	84,6	Regular
Education	59	77,6	67	90,5	84,1	Regular
Neighborhood	75	98,7	74	100	99,3	Excellent
Histopathology	75	98,7	70	94,6	96,6	Excellent
Bacilloscopy 1st month*	59	88,1	60	89.5	88,1	Regular
Bacilloscopy 2nd month*	59	88,1	56	83,6	85,8	Regular
Bacilloscopy 3rd month*	56	83,6	54	80,6	82,1	Regular
Bacilloscopy after 6 months*	6	9,00	5	7,5	8,25	Bad
Treatment start date	71	93,4	70	94,6	94 0	Excellent
Number of contacts examined	73	96,1	66	89,2	92,7	Excellent

Source: Non-nominal SINAN sheets; * Values referring to pulmonary tuberculosis form- 2019 (n=67), 2020 (n=67)

5.1.3 Consistency Evaluation

When analyzing the nomenclatures of the neighborhoods in the municipality of Uruguaiana, one notices the use of non-formal names, mainly. Another form found is the use of cognomen, "nicknames", such as Bairro Mascarenhas de Moraes, popularly known as Marduque, and distinctive nomenclatures, such as Interior, since the municipality of Uruguaiana has 5 districts in the interior.

Table 3: List of nomenclatures found in the Neighborhood field (NM_Barrio) of the non-nominal SINAN database

Register Name[1]	Formal Name Neighborhood[2]	Action
VILA VITORIA	Corporal Luiz Quevedo	Non-formal locations
COBEC	Salso de Baixo/União das vilas	Non-formal locations
PASTORIL	St. Ignatius	Non-formal locations
ALEXANDRE 20CHIA	Alexandre Zachia	Nomenclatures
VITORIA	Corporal Luiz Quevedo	Non-formal locations
INSIDE	Covers 5 Districts	Nomenclatures
MARDUQUE	Mascarenhas de Moraes	Cognomes
HYPICA 2	Jockey Club	Non-formal locations
JOAO PAULO	John Paul II	Cognomes
CRISTAL	Road District	Non-formal locations
TARRAGO	Francisca Tarragó	Cognomes
PROLAR	Tabajara Brites	Non-formal locations
PROFILE	Village Union	Non-formal locations

Source 1: Non-nominal SINAN files, Source 2: IBGE

Table 3: Ranking of data consistency in the discrepancy of neighborhood nomenclatures, in the notifications in SINAN Tuberculosis, in the years 2019 and 2020.

Neighborhoods	2019 (76)		2020 (74)		Average
	n	%	n	%	(%)
Correct Names	51	67,1	54	72,9	70,0
Incorrect Names*	25	32,8	20	27,0	46,3
Non-formal locations	9	11,8	7	9,45	10,6
Nomenclatures	3	3,94	1	1,35	2,64
Cognomes	3	3,94	2	2,70	3,32
In white	10	13,1	10	13,5	13,3

Source: Non-nominal SINAN sheets; *accumulated cases

Also with regard to data consistency, no differences in days between the date of diagnosis and the date of notification were found, showing no date of notification lower than the date of diagnosis. As for the analysis of the difference between the date of notification and date of birth, one patient was found in the year 2019 who presents notification for tuberculosis with 45 days of the date of birth (<1 years). When assessing data inconsistency the main grievance is AIDS, with negative marking for HIV, an inconsistency was reported in the year 2020, representing 0.97% of this year's notifications. And in the question marking pulmonary form with marking extrapulmonary was not found difference.

5.1.4 Evaluation Of Data Validity

The evaluation of the validity of the data was performed on 147 merged notifications, if we compare with the non-nominal SINAN database (secondary notifications), we see that three primary notifications were not found.

However, although both the primary and secondary notifications had a homogeneity of filling out, there was greater adherence to filling out the secondary notifications, noted in Table 4, where there was a higher incidence of items not filled out in the primary forms.