

Epidemiology of compulsorily notifiable diseases in the municipality of Sinop, Mato Grosso, Brazil

Epidemiologia das doenças de notificação compulsória no município de Sinop, Mato Grosso, Brasil

Epidemiología de las enfermedades de declaración obligatoria en el municipio de Sinop, Mato Grosso, Brasil

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Abstract

The present study aimed at the elaboration of an epidemiological profile for the municipality of Sinop-MT and the possible related causal factors. A descriptive study was carried out, with data collected from the Notifiable Diseases Information System (SINAN), on the 10 Notifiable Diseases (CNDs) most reported for the municipality of Sinop-MT for the period 2015-2017, using the filters: Municipality of residence (Sinop), period (2015-2017), sex, age group, case evolution and other most relevant indicators for each condition. When evaluating the main NCDs, it was found that those that occupied the first ten positions regarding the occurrence rate were: dengue, leprosy, domestic, sexual and/or other violence, accident by venomous animals, American cutaneous leishmaniasis, exogenous intoxication, viral hepatitis, infant deaths, AIDS and tuberculosis; which represented around 97.5% of the total notifications. It was found, therefore, that the NCDs, although highly present in Sinop-MT, are presented in a heterogeneous way, which reveals the need for resolute strategies that act in diversified and multifactorial ways and the need for in-depth studies to determine the profile epidemiology within each disease.

Keywords: Disease notification; Descriptive epidemiology; Health information systems.

Resumo

O presente estudo objetivou a elaboração de um perfil epidemiológico para o município de Sinop-MT e os possíveis fatores causais relacionados. Foi realizado um estudo descritivo, com dados coletados do Sistema de Informação de Agravos de Notificação (SINAN), sobre os 10 Agravos de Notificação (CNDs) mais notificados para o município de Sinop-MT no período 2015-2017, utilizando os filtros: Município de residência (Sinop), período (2015-2017), sexo, faixa etária, evolução do caso e outros indicadores mais relevantes para cada condição. Ao avaliar as principais DCNT, verificou-se que as que ocuparam as dez primeiras posições quanto à taxa de ocorrência foram: dengue, hanseníase, violência doméstica, sexual e/ou outras, acidente por animais peçonhentos, leishmaniose tegumentar americana, intoxicação exógena, hepatite viral, óbitos infantis, AIDS e tuberculose; que representou cerca de 97,5% do total de notificações. Constatou-se, portanto, que as DCNT, embora muito presentes em Sinop-MT, apresentam-se de forma heterogênea, o que revela a necessidade de estratégias resolutivas que atuem de forma diversificada e multifatorial e a necessidade de estudos aprofundados para determinar as perfil epidemiológico dentro de cada doença.

Palavras-chave: Doença de notificação compulsória; Epidemiologia descritiva; Sistema de informação de agravo de notificação.

Resumen

El presente estudio tuvo como objetivo la elaboración de un perfil epidemiológico para el municipio de Sinop-MT y los posibles factores causales relacionados. Se realizó un estudio descriptivo, con datos recolectados del Sistema de Información de Enfermedades de Declaración Obligatoria (SINAN), sobre las 10 Enfermedades de Declaración Obligatoria (CND) más notificadas para el municipio de Sinop-MT para el período 2015-2017, utilizando los filtros: Municipio de residencia (Sinop), período (2015-2017), sexo, grupo de edad, evolución de casos y otros indicadores más relevantes para cada condición. Al evaluar las principales ENT, se encontró que las que ocuparon los diez primeros puestos en cuanto a la tasa de ocurrencia fueron: dengue, lepra, violencia doméstica, sexual y/u otra, accidente por animales ponzoñosos, leishmaniasis cutánea americana, intoxicación exógena, hepatitis viral, muertes infantiles, SIDA y tuberculosis; lo que representó alrededor del 97,5% del total de notificaciones. Se constató, por tanto, que las ENT, aunque muy presentes en Sinop-MT, se presentan de forma heterogénea, lo que revela la necesidad de estrategias resolutivas que actúen de forma diversificada y multifactorial y la necesidad de estudios profundos para determinar las perfil epidemiológico dentro de cada enfermedad.

Palabras clave: Enfermedad de declaración obligatoria; Epidemiología descriptiva; Notificación sistema de información de quejas.

1. Introduction

Compulsory Notification Diseases (CNDs) correspond to pathologies and other health problems determined in the National List of Compulsory Notification by Ordinance No. 4 of September 27, 2017. The mandatory notification of these diseases - whether in cases of suspicion or confirmation - applies to all health professionals and aims to establish an adequate epidemiological surveillance and thus guide and assist in the planning of actions related to public health issues (Almeida et al., 2021). In this sense, from the analysis of data included in the National System of Notifiable Diseases (SINAN), as well as the investigation of scientific epidemiological studies, it was found that in the municipality of Sinop – Mato Grosso (MT), Brazil, although some CNDs integrate a framework of high incidence and prevalence, the number of studies in the academic literature that deal with this subject at the municipal level is still very scarce.

Thus, under such perspective, this work aimed to evaluate the epidemiological profile of CNDs during the period from 2015 to 2017 in the municipality of Sinop-MT, in order to analyze important factors in possible future projects of improvement in public health, as well as to expand the theoretical production regarding the subject in question.

2. Methodology

This is a descriptive study of CNDs in the municipality of Sinop-MT, from 2015 to 2017, taking into account the national list of CNDs defined by Ordinance No. 104 of January 25, 2011 and by consulting the DATA-SUS database, section "Health Information, Epidemiological and Morbidity", "Compulsory Notifiable Diseases from 2007 onwards (SINAN)", the ten CNDs with the highest average number of reported cases in the municipality of Sinop-MT were selected. The interval used - from 2015 to 2017 - was selected in order to analyze the behavioral pattern of the diseases over a considerable period of time. Thus, from the stratification of the most incident cases for the city of Sinop-MT, some general filters were selected: municipality of residence (Sinop), period (2015-2017), gender, age group, evolution of the case, and other more relevant indicators for each grievance, using as a selection criterion the influence on the prognosis of each case. In the case of the grievance leprosy, specifically, the number of deaths was obtained in "Vital Statistics" and "Mortality - 1996 to 2018, by ICD-10". The data were tabulated using Microsoft® Office Excel software, allowing the preparation of tables and graphs, and analyzed through descriptive epidemiology to determine the epidemiological profile of NCDs in the municipality in order to identify the diseases with the greatest impact on health services in the region.

3. Results

During the period from 2015 to 2017, the city of Sinop-MT recorded 8,310 notifications involving 25 compulsorily

notifiable diseases, so that the 10 diseases that had the most notifications totaled 7,979 cases (Table 1).

Table 1 - Number of Cases of Notifiable Diseases in the Municipality of Sinop, Mato Grosso, in the period 2015-2017.

Type of Aggravation	Period (in years)						Total (100%)
	2015		2016		2017		
	n	%	n	%	n	%	
Dengue	2,537	59.3	1335	31.2	404	9.5	4276
Leprosy	106	9.9	333	30.9	637	59.2	1076
Violence Domestic/Sexual and/or other violence	217	21.7	497	49.6	287	28.7	1001
Accidents by venomous animals	133	30.1	145	32.9	163	37	441
American Cutaneous Leishmaniasis	131	34.1	127	33.1	126	32.8	384
Exogenous Intoxication	81	25.8	145	46.2	88	28	314
Viral Hepatitis	67	29.9	91	40.6	66	29.5	224
Infant Mortality	22	24.4	36	40	32	35.6	90
Aids	30	34	26	29.6	32	36.4	88
Tuberculosis	22	25.9	31	36.4	32	37.7	85
Total	3349	42	2761	34.6	1863	23.4	7979

Source: Information System for Notifiable Diseases.

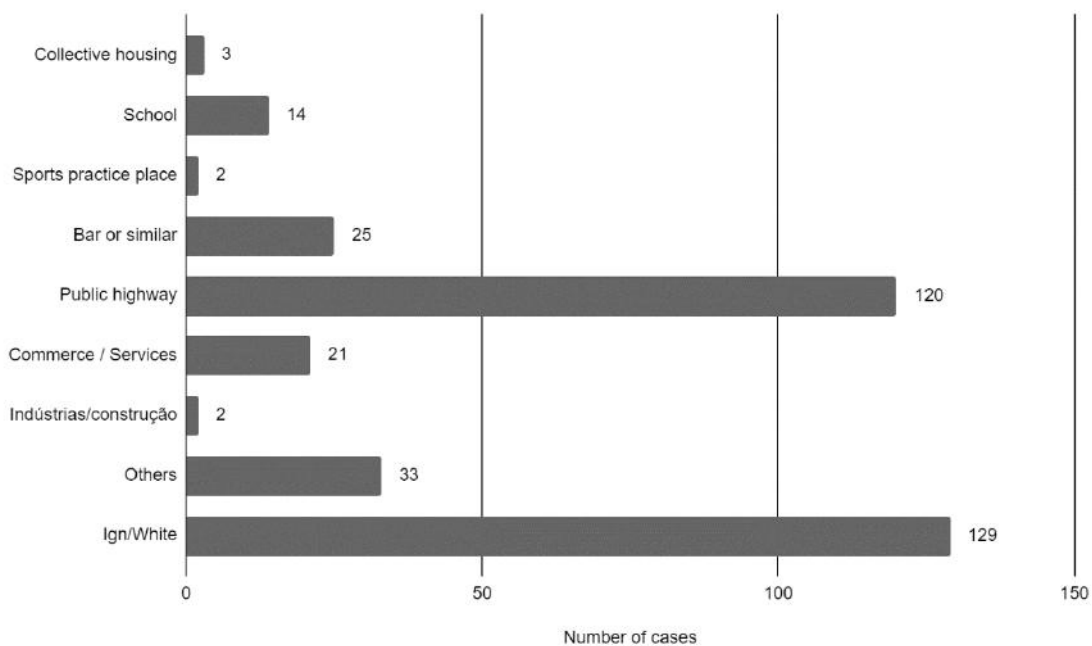
Regarding dengue, it was noted that, according to the year, the disease showed a drop in the number of reported cases, making a total of 53.6% of these 10 most reported diseases. Regarding gender, it expressed a discrete increase of about 6% in relation to women and obtained a record of 68.2% of cases among adults, 16.7% among adolescents, 8.5% among children, and 6.6% among the elderly. It also presented a profile predominantly marked by good recovery when checking the type of evolution shown, with 4,253 cases of cure against 3 deaths by the disease reported. In addition, to verify the severity with which dengue cases developed and its consequent impact on public health services, the filter referring to hospitalization was used, thus, 64.2% of cases were observed in which hospitalization was not necessary and 1.6% in which it was, besides 34.2% of cases in which the information was ignored, representing an imbroglio in gauging the magnitude of this data.

Leprosy, in turn, expressed an upward behavior when analyzing its development during the period delimited, totaling 1076 notified cases. In analyzing the gender profile, it was noted that there was a higher rate of occurrence in females, with 60.6% of cases and males were represented by 39.4% of cases. Moreover, in relation to the age group, the disease showed a behavior of 79.6% cases among adults, 13.8% among the elderly, 5.4% among adolescents, and 1.2% among children. The type of evolution of the grievance was obtained through analysis of the filter "type of exit", which had as results: 380 cases of cure, 2 deaths by the grievance notified b, 6 deaths by other cause, 5 changes or misdiagnosis, 65 abandonments, 38 transfers to the same city, 40 transfers to another city, 11 transfers to another state, and 529 ignored/blank cases. In order to trace its development profile and then determine the therapeutic courses most used, the filter referring to its clinical form was analyzed. Thus, it was found that the dimorphic form represents the main clinical form of the disease, accounting for 95.6% of cases, followed by 1.4% of the virchowian form and 1.1% of the tuberculoid form. In addition to 1.4% of cases categorized as

indeterminate, 0.3% were not classified, being categorized as "others" and 0.2% were ignored.

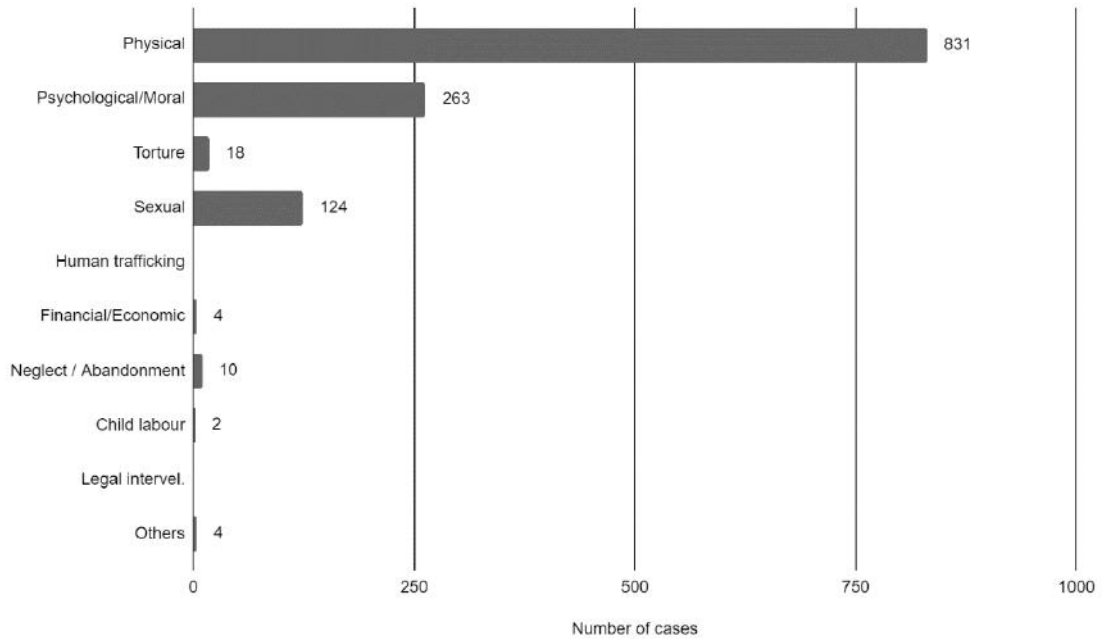
The grievances of domestic violence, sexual and/or other violence representing 12.5% of the cases. Regarding gender, 68.3% of the cases occurred among females, and 31.7% among males. When analyzing its behavioral pattern, regarding the age range affected, this grievance presented 62.5% among adults, 26.7% among adolescents, 6.7% of cases among children, 2.9% among the elderly, and 1.2% of ignored cases. The analysis of the offense could not be done about the type of evolution, since all cases of the sample were categorized as "ignored/blank". Regarding the place of occurrence and its type, 65.1% of the injuries occur in a residential environment, followed by 12% in public roads, 2.5% in bars or similar, 2.1% in commerce/services, 1.4% in schools, 0.3% in collective dwellings, 0.2% in places of sports practice and 0.2% in industries/buildings. Furthermore, 33.3% cases were categorized as "others", and 12.9% were ignored/ left blank (Figure 1). About the types of violence c, 831 cases of physical violence, 263 cases of psychological/moral violence, 124 cases of sexual violence, 18 cases of torture, 10 cases of abandonment/neglect, 4 cases of financial/economic violence, and 2 cases of child labor were registered, besides 4 cases classified as "others" (Figure 2).

Figure 1 - Number of cases by place of occurrence of domestic, sexual and/or other violence in Sinop from 2015 to 2017.



Source: Information System for Notifiable Diseases.

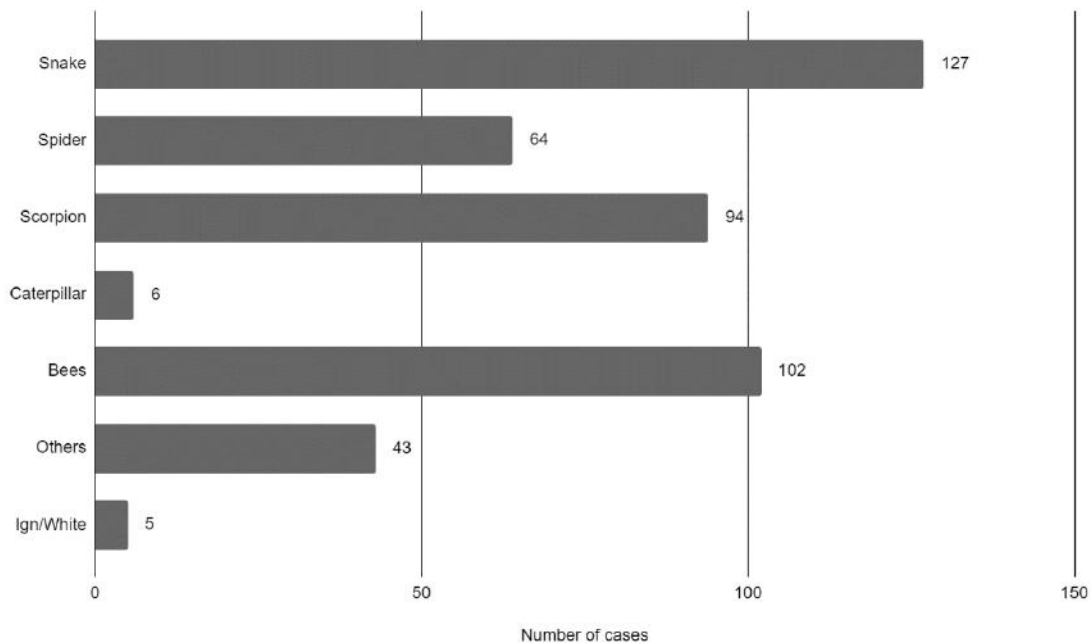
Figure 2 - Number of cases¹ by type of domestic, sexual and/or other violence in Sinop from 2015 to 2017.



Source: Information System for Notifiable Diseases. ¹The total does not correspond to 100% as this is a multiple choice question.

As for venomous animal accidents, denoting an increase of 5.5% of these cases. Regarding gender, it was observed that 61.9% of the cases were related to men and 16.1% to women. Regarding the age group, 61.2% of cases were registered among adults, 18% among children, 13.6% among teenagers, and 7.2% among the elderly. When evaluating the type of evolution, it was verified the majority occurrence of a good recovery, with cure in 93.2% of the cases and 0.5% of deaths by the reported grievance, while 6.3% of the cases were blank. Regarding the types of venomous animal accidents, it was revealed that the main forms of the grievance are the ophidian (28.8%), scorpionic (21.3%), and bee (23.1%) accidents, with accidents with spiders (15.5%) and caterpillars (1.4%) also being reported. And 9.7% of cases categorized as "others" and 1.1% recorded as "ignored/blank" (Figure 3).

Figure 3 - Number of cases by type of Accident by venomous animals in Sinop from 2015 to 2017.



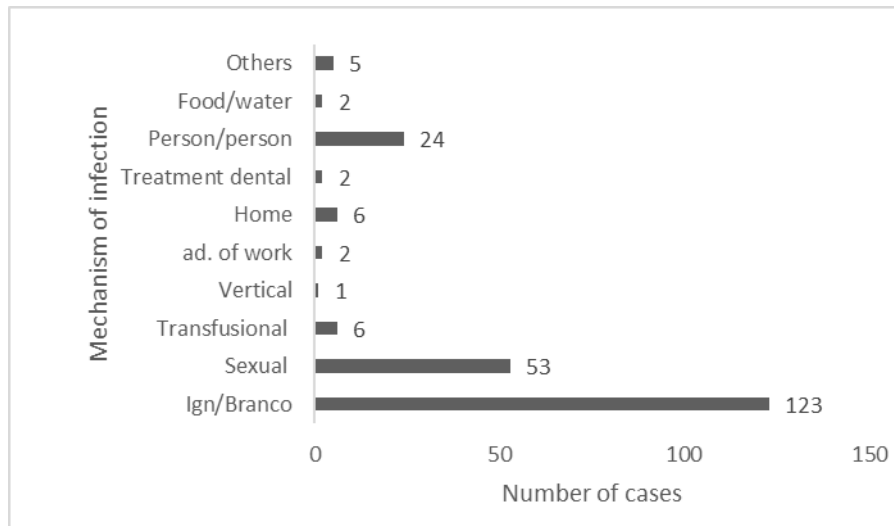
Source: Information System for Notifiable Diseases.

In American cutaneous Leishmaniasis (ACL), there was a decrease in the number of cases throughout the analyzed period. The disease also had 83.9% male cases against 16.1% female cases. Regarding the age range affected, 81.8% of notifications were observed among adults, 8.6% among adolescents, 8.3% among the elderly, and 1.3% among children. The type of evolution of the disease, in turn, showed a heterogeneous profile, with 267 cases of cure, 3 changes or misdiagnoses, 2 deaths from other causes and 2 abandonments, besides 110 ignored cases, which hindered the effective analysis of this variable. Moreover, in the case of American Cutaneous Leishmaniasis, as in the case of leprosy, the index referring to its clinical form was also investigated. Thus, as expected, according to the epidemiological pattern of the disease, a greater occurrence of the cutaneous form was observed, with 96.3% of the cases; the mucosal form, in turn, presented only 3.7% of the cases.

In the period 2015-2017, it showed a higher prevalence in women with 60.9% of the occurrences, expressing a relevant difference in relation to men, who obtained 39.1% of the records. Exogenous Intoxication presented 22.6% of the events in children, 15.7% in adolescents, 60.1% in adults, and finally 1.6% in the elderly. It is noted that it has an excellent prognosis, presenting 98.4% cases of healing without sequelae, only 3.5% of deaths by the cause analyzed, besides 0.6% of cases in which the evolution was ignored or was blank at the time of cataloging the SINAN (Information System of Aggravated Diseases of Notification). The Circumstances in which the Exogenous Intoxication occurred present a varied profile, although it is centered in some causes such as suicide attempt, with 35.3% of the declared cases, accidents with 35.1% and by abuse 10.2%. Other causes listed are in a smaller number of occurrence are habitual use of some potentially toxic substance was responsible (4.46%), environmental factors (4.45%), therapeutic use (1.27%), administration error (1.6%), self-medication (2.54%), food ingestion (1.27%), abortion attempt (0.95%), other cause (0.32%) and cases in which the circumstance was ignored or was blank at the time of registration (2.54%). Viral Hepatitis showed a similar pattern, throughout the analyzed period 54% of cases were male and 46% female, denoting 2 records in children, 5 in adolescents, 198 in adults and finally 19 in the elderly. In this grievance of the sources of infection mechanism, 23.67% were by sexual contact, 2.67%

by blood transfusion, 0.44% by vertical transmission, 0.9% by work accident, 2.67% by household contact, 0.9% by dental treatment, 10.71% by person/person, 0.9% by food/water, 2.23% by other causes, and in 54.91% of the cases, unknown/white. Moreover, in relation to the evolution, the outcome of the grievance was not recorded in SINAN, making the final analysis for the cases presented inconclusive (Figure 4).

Figure 4 - Source of the Mechanism of Infection of Viral Hepatitis in Sinop from 2015 to 2017.



Source: Information System for Notifiable Diseases.

Regarding Infant Deaths totaling 90 cases (Table 2). Among the reported infant deaths, 51.1% of the cases were female and 47.8% were male. In this grievance, it is important to analyze the duration of pregnancy because it reveals a critical period in which the child's birth has an increased risk for the evolution of fatalities. Thus, from the totality of occurrences, 28.9% happened in the period from 22 to 27 weeks, 16.7% in the period from 28 to 31 weeks, 21.1% in the period from 32 to 36 weeks, 18.9% in the period from 37 to 41 weeks, and 14.4% cases the gestational period was ignored (Figure 5). Moreover, in relation to Birth Weight, 3.3% of deaths occurred in children weighing less than 500g, 28.9% with weight between 500 to 999g, 13.3% with weight between 1000 to 1499g, 21.1% with weight between 1500 to 2499g, 8.9% with weight between 2500 to 2999g, 10% with weight between 3000 to 3999g, 1.1% with 4000g or more, and in 13.4% ignored (Figure 6).

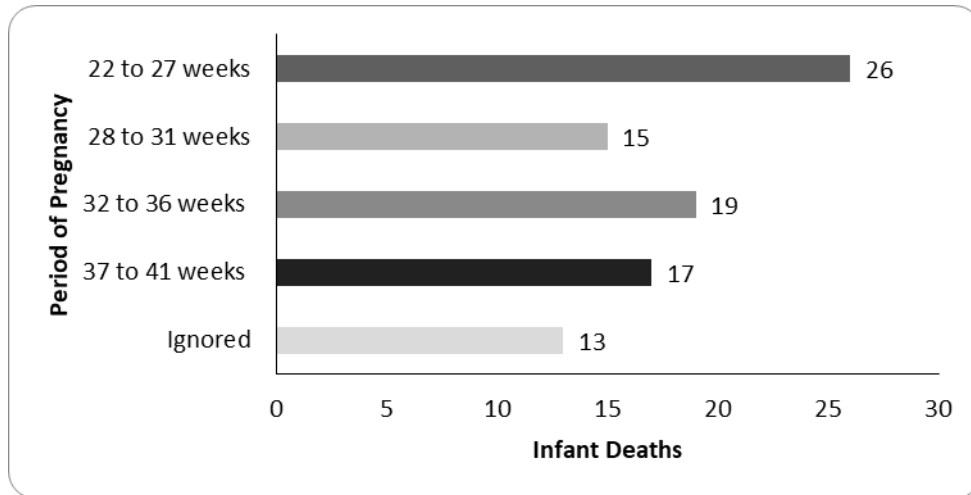
Table 2 - Number of cases of Notifiable Diseases, according to sex, in the municipality of Sinop, Mato Grosso, in the period 2015-2017.

	Sex						Total (100%)
	Male		Female		Ign/White		
	N	%	N	%	N	%	
Dengue	2011	47	2265	53	0	0	4276
Leprosy	424	39.4	652	60.6	0	0	1076
Violence Domestic/Sexual and/or other violence	317	31,7	684	68.3	0	0	1001
Accidents by venomous animals	273	61.9	168	38.1	0	0	441
American Cutaneous Leishmaniasis	322	83.9	62	16.1	0	0	384

Exogenous Intoxication	123	39.1	191	60.9	0	0	314
Viral Hepatitis	121	54	103	46	0	0	224
Infant mortality	43	47.8	46	51.1	1	1,1	90
Aids	60	68.1	28	31.9	0	0	88
Tuberculosis	60	70.6	25	29.4	0	0	85

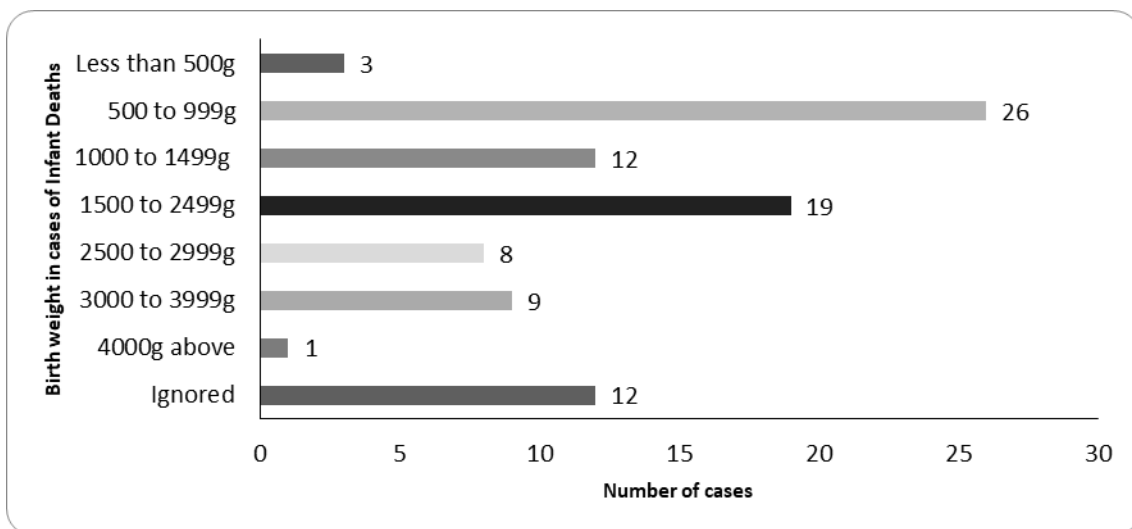
Source: Information System for Notifiable Disease.

Figure 5 - Period of Pregnancy in relation to Infant Deaths in Sinop from 2015 to 2017.



Source: Information System for Notifiable Diseases.

Figure 6 - Birth weight in cases of Infant Deaths in Sinop from 2015 to 2017.



Source: Information System for Notifiable Diseases.

As for AIDS cases, 68.1% were male, while the female gender was responsible for covering 31.9% of the occurrences, being expressed mainly in adults, so that 2.3% of cases were recorded in adolescents, 90.9% in adults and 6 6.8% in the elderly. In this grievance, Sexual Orientation is an extremely relevant factor to draw a profile of greater population exposure and consequently allow the development of public health measures for the prevention of such infection. Of the total number of cases, 34% were presented in people who considered themselves heterosexual, 11.3% in homosexuals, 1.2% in

bisexuals, and in 53.5% the sexual orientation was ignored.

Finally, with regard to Tuberculosis of these cases, 70.6% were male while the female was responsible for the coverage of 29.4% notes (Table 3). In this grievance, 7% of the cases occurred in children, 4.7% in adolescents, 74.2% in adults, and finally 14.1% in the elderly. Regarding the outcome, there were 82.3% of cure cases, 2.4% of abandonment cases, 3.5% of deaths from other causes, and 11.8% of transference cases. In Tuberculosis, the type of entry into the health care system is an important epidemiological marker, since it cooperates with the direction of preventive actions for the contexts in which there are greater chances of infection. Thus, in the period studied, 84.7% of the cases were recorded as new cases, 3.5% due to relapse of the disease, 5.9% due to reentry after abandoning treatment, and in 5.9% cases there was a transfer of care unit.

Table 3 - Number of records of notifiable diseases in relation to the age group of residents of the municipality of Sinop, Mato Grosso, Brazil, in the period 2015-2017.

Type of Aggravation	Age range (in years)														Total (100%)	
	Child				Adolescent				Adult			Elderly		Ign/White		
	<1	1-4	5-9	(%)	10-14	15-19	(%)	20-29	30-39	(%)	60+	(%)	N	(%)		
Dengue	50	121	191	8.5	243	469	16.7	1880	1038	68.2	284	6.6	0	0	4276	
leprosy	0	1	12	1.2	23	35	5.4	328	529	79.6	148	13.8	0	0	1076	
Domestic, sexual and/or other violence	8	26	33	6.7	74	193	26.7	431	195	62.5	29	2.9	12	1.2	1001	
Accident by venomous animals	3	36	40	18	35	25	13.6	169	101	61.2	32	7.2	0	0	441	
American cutaneous leishmaniasis	0	1	4	1.3	12	21	8.6	178	136	81.8	32	8.3	0	0	384	
Exogenous intoxication	10	56	5	22.6	10	39	15.7	137	52	60.1	5	1.6	0	0	314	
Viral hepatitis	1	0	1	0.9	0	5	2.2	108	90	88.4	19	8.5	0	0	224	
AIDS	0	0	0	0	0	2	2.3	45	35	90.9	6	6.8	0	0	88	
Tuberculosis	1	3	2	7	2	2	4.7	40	23	74.2	12	14.1	0	0	85	

Source: Information System for Notifiable Disease.

4. Discussion

The Notifiable Diseases (DNC), evaluated for the municipality of Sinop-MT, showed patterns that are in line with national indicators and others that are endemic to the region, and, of the 25 DNC analyzed, 10 correspond to almost all of the existing cases.

Regarding Dengue, it was observed that the disease occupies the first position in relation to the most present NCDs in the Sinop continues to show disease incidence rates higher than those found in Mato Grosso and Brazil (Alves, 2021). This, in large part, is associated with climatic issues, such as high rates of precipitation, maximum temperature and relative humidity, factors that, associated with the deforestation typically present in the region, may have given rise to the endemic situation in the municipality (Alvim, et al., 2020).

Dengue was more expressive in adolescents and adults, with considerable manifestation in the latter group. It represents a serious public health problem for the municipality, considering that this portion corresponds to the economically active population (EAP) (Aquino et al., 2020; Bochner & Freire, 2020).

When analyzing the cases in which there were hospitalizations due to Dengue, a large number of blank or ignored records were observed, which certainly hampered the analysis on this issue. In short, by understanding the factors involved in the predisposition of dengue, epidemiological control measures, such as home visits developed and intensified before the rainy season, can be an effective instrument to combat this endemic disease Brasil (2009).

In relation to leprosy, it was observed that the disease expressed a considerable upward behavior associated with the number of cases over the years analyzed. This CNDs, in addition to being typically endemic in the country, presented incidence and prevalence rates in the municipality above the national average. Although it is possible that this situation is multifactorial linked to social, economic and environmental issues, this scenario may actually illustrate an improvement in the diagnostic services of the disease in Sinop, since the municipality has a high detection rate for leprosy, which was even more optimized due to the services provided by the residency in family and community medicine (Brasil, 2010). Furthermore, leprosy also has a higher incidence among adolescents and adults, which represents an important public health problem, since, due to its disabling content - present in about 1/3 of patients -, such condition directly impacts the socioeconomic scenario in which it is inserted (Brasil, 2013). Regarding the evolution of leprosy cases, it was found that in most cases the type of disease exit was ignored or was blank in the registration form, making its analysis unfeasible. Thus, it was found that the borderline form was the one that occurred most significantly, representing almost all cases. This, in line with the pathophysiological aspects of this presentation of the disease, highlights the need for attention directed towards early treatment, an active search for contacts, as well as health education by the responsible services, since it has a high rate of contagion of the disease, in addition to being able to generate conditions considered disabling (Brasil, 2010).

It is known that the Center-West region presents a pattern of violence higher than that presented nationally, with the state of Mato Grosso present in the critical range (Brasil, 2016). The profile of the affected public was mostly composed of female adolescents and adults. Thus, although the Brazilian legislature deals with the management of such a problem, its applicability does not always occur in an effective way, as well as it is insufficient if adopted in isolation (10 Brasil, 2017). In this sense, it was observed that the home environment remained the one with the highest rates of notification of the disease, followed by public roads. Also, violence of a physical nature, followed by those of a psychological and sexual nature, presented the highest rates of injury. Thus, it is noted that such a CNDs represents a public health issue intrinsically associated with a cultural structure, making it necessary, therefore, to adopt measures that go beyond health and make up the socio-educational field (Brasil, 2019). Regarding Accidents by Venomous Animals (Brasil, 2020). It is found that adult males are the most affected by the disease, which, in turn, can be explained by the fact that this public is more often associated with risk situations and contact with these animals (Brasil, 2020). Furthermore, it was observed that the accidents of a snake nature, together with those caused by bees and scorpions, respectively, constituted the highest rate of occurrence of the disease. This result is directly associated with the issue of the Sinopean municipality being inserted in the middle of the Amazon biome which contributes to the survival of these animals, as well as the fact that agribusiness is dominant in the region favoring the occurrence of this type of accident. In the midst of work environments such as crops (Brasil, 2020). However, no specialized actions were found on the part of the municipality aimed at meeting such a demand. Yet, on the other hand, it was observed that the antivenom serum, an antidote against the main type of accident by venomous animal in the country, has been constantly scarce in the state of Mato Grosso since 2014 (Chesnais, 1999).

ATL showed a stable behavior in relation to the number of cases registered annually in the analyzed period, representing an adequate management in view of the epidemiological preferences of the disease by the place (Churchyard, et al. 2017). In addition, the disease exhibited a higher rate of occurrence among adult men, individuals who are naturally considered more vulnerable to contamination due to exposure to occupations associated with the great proliferation of the vector (Costa, et al., 2014). In addition, when analyzing the clinical form in which this condition manifests itself, it was

observed that the mucosal form represented a minority of cases, while the cutaneous form, in accordance with the general epidemiology of the disease, continued to be the main form. This essentially reveals a lower possibility of overloading the municipal health system, since this clinical form, in general, presents less severe signs and tends to spontaneous healing (Ferreira, and Silveira, 2004). In an attempt to control the number of cases, the Department of Environment and Sustainable Development of Sinop, in partnership with the Federal University of Mato Grosso – Sinop campus, has been identifying sand fly species in different areas of the city with the aim of helping to prevent disease outbreaks. It is relevant to carry out analyzes of later periods to evaluation of interventions.

In addition to this, it was observed that women are the most affected population, unlike the data found by Silva et al. (2014, 2015, 2019, 2021) in which men are more affected by this type of intoxication, this fact can be understood due to the female public is recognized for using medication more frequently and/or for the fact that women work with great frequency in family farming, having direct and recurrent contact with pesticides (Hayashi, 2012). In this perspective, the intense agricultural production in the region and the consequent use of pesticides in plantations in the state of Mato Grosso, considerably by the crops that surround the city of Sinop, constitutes a major factor responsible for part of the poisoning (França et al., 2009). Furthermore, it is known that excessive exposure to agrochemicals leads to an increase in neuropsychological disorders, which may indirectly increase suicide rates in that municipality (França et al., 2009). In addition, the abusive use of drugs and other chemical products at home in the suicide attempt reveal the need for public policies on the part of the municipality to avoid the occurrence of such situations, given the still difficult access to specialized mental health care, especially in primary care (Knauth et al., 2020; Soares, et al., 2019).

The cases of exogenous intoxication showed a good evolution, with the main outcome being cure. When evaluating this situation, it is noted that a large part of the events happened by accidents, justifying the restriction on the access of potentially harmful products to people not prepared for the proper handling. In addition, comparing the number of cases to the scenario mentioned above, there are suicide attempts, which makes evident the need for planned interventions in mental health, for the population of the city of Sinop-MT (Mato Grosso, 2022). because it is a an avoidable condition, in which Matos, and Ignotti (2020). (2021) denotes the importance of carrying out preventive actions, especially by the primary care teams of the health network, from the identification of the emergence of a person's first suicidal ideas. These teams are closer to the population and carry out a longitudinal follow-up of the citizens, which allows an adequate targeting of the ideal social facilities for each case. Thus, there is an effective contribution to the reduction of suicide episodes in general, including those that may occur due to exogenous intoxication (Negrão & Ferreira, 2014).

In the present study, the Source of the Mechanism of Transmission was analyzed, verifying a predominance of infections through sexual contact, showing that there is, among other factors, a social lack of knowledge regarding the means of dissemination of the disease and lack of prevention in sexual contact, the which can also lead to the transmission of STIs (Sexually Transmitted Infections) (Oliveira, et al., 2017).

Regarding Infant Deaths in the city of Sinop, there was a certain increase in the number of cases in 2015, and although these average rates are still lower than the national average, they did not reach the ideal levels recommended by the WHO. This indicator may demonstrate a failure in public policies to care for pregnant women and children. In this context, it is known that the strengthening of Primary Health Care (PHC) is a factor of great importance for the decrease in the infant mortality rate (IMR) as it allows the access of the most vulnerable families to adequate prenatal care and childcare, being a major mechanism involved in the reduction of fatalities related to this population group (Oliveira, et al. 2019).

In addition, the analysis of the Gestational Period in which the childbirth took place and later the child's death reveals one of the critical periods in which this birth is considered an aggravating factor for infant mortality (Organização Mundial de Saúde (1998). Thus, the earliest time of pregnancy analyzed, from 22 to 27 weeks, revealed the majority of cases, although the

occurrence of fatalities occurred in a partially homogeneous way in all analyzed intervals, as the insufficient number of prenatal consultations is directly related to a greater risk of unfavorable events (Pasinato, 2009).

In addition, following the same reasoning mentioned above, Birth Weight is considered another conditioning and decisive element in Infant Deaths, it was noted that children born weighing between 500 and 999g are more predisposed to this fatality, although significant cases of deaths in relation to different birth weights. As for childbirth, almost all cases occurred after the delivery was fully completed, requiring further analysis to indicate the existence of failures in childbirth care in the city of Sinop (Prefeitura Municipal de Sinop, 2022).

AIDS, may represent some effectiveness of STI prevention campaigns of life. In this sense, the municipal government of Sinop-MT, aiming to improve epidemiological indices and supported by actions of the Ministry of Health (MS) in the application of public policies for medium and high complexity services, established the opening of a Specialized Assistance Service unit. (SAS) becoming a regional reference for the management of patients with STIs (Prefeitura Municipal de Sinop, 2022; Prefeitura Municipal de Sinop, 2022). In addition, other measures, such as the creation of Law No. stabilization in the number of new infections with decreasing trends and control of preexisting (Ribeiro, et al., 2015; Pasklan, et al., 2021).

According to the survey carried out, Tuberculosis maintained a certain regularity in its behavior, representing the adequacy of health services in the provision of medication and vaccination, essential factors for its control (Pinto, et al., 2021). According to Belchior, there are population profiles that are more susceptible to the contamination of the disease and it is of fundamental importance for the health team to recognize risk factors such as AIDS, alcoholism, mental illness (Rotoli, et al., 2019). diabetes, among others, which allows the indication of appropriate tests for the relevant public by which it evidences the effectiveness of public health in a given territory (Romaguera et al., 2020; Varela, et al., 2019; Vega, 2019; Veloso, et al. 2017). In this context, the indicators analyzed point out that the new cases represent almost all the events that occurred, for the municipality of Sinop-MT, followed by the re-entry after abandonment of treatment, which highlights a certain adequacy in the recognition and interruption in the chain of treatment. transmission from patients with the disease and expresses the need to guide patients about the importance of continuing therapy until the end to obtain satisfactory results.

5. Conclusion

In this way, an evident reflection of the efficiency of local health services for some diseases and the need for greater interventions in policies public services and attention given to other health problems. It is undoubted that an epidemiological condition intrinsic to the scenario of the municipality, whose resolution, therefore, would have to be based and executed through a multifactorial strategy, including more in-depth studies that aim to describe the epidemiological profile of the municipality.

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