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Access to viral hepatitis care: distribution of health services in the Northern region of Brazil*

Acesso à atenção às hepatites virais: distribuição de serviços na região Norte do Brasil

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ABSTRACT: ***Objective***: To analyze the distribution of health care services for viral hepatitis and reported cases of viral hepatitis according to the health regions of Northern Brazil. ***Method***: It is an evaluative, descriptive and quantitative research considering viral hepatitis care services and reported cases in the Northern region of Brazil, using data collected from the National Registry of Health Establishments and the Notifiable Diseases Information System. Descriptive statistics and georeferencing, through software, were used to demonstrate the spatial distribution of services and reported cases. ***Results***: Viral hepatitis health services are distributed in a differentiated way; rapid tests are capillaries in the states; confirmatory tests and treatment are performed in some health regions, with a greater grouping of services in the capitals and their surroundings. Cases were reported across all regions, with areas of higher concentration near services. ***Conclusion***: The availability of services can favor access to prevention, diagnosis and monitoring of cases. However, organizational peculiarities of the health system and services highlight fragilities that have repercussions on the access and entirety of viral hepatitis care.

Keywords: Health evaluation. Health services. Comprehensive health care. Human viral hepatitis.

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RESUMO: ***Objetivo***: Analisar a distribuição dos serviços de saúde de atenção às hepatites virais e os casos notificados de hepatites virais segundo as regiões de saúde dos estados do Norte do Brasil. ***Método***: Trata-se de pesquisa avaliativa, descritiva e quantitativa considerando os serviços de atenção e casos notificados de hepatites virais na região Norte do Brasil. Foram coletados dados do Cadastro Nacional de Estabelecimentos de Saúde e do Sistema de Informação de Agravos e Notificação. Utilizou-se estatística descritiva e georreferenciamento por meio de *software* para visualizar a distribuição espacial dos serviços e os casos notificados. ***Resultados***: Os serviços são distribuídos de maneira diferenciada; testes rápidos apresentam-se capilarizados nos estados; demais exames para confirmar o diagnóstico e o tratamento são realizados em algumas regiões de saúde, com maior agrupamento de serviços nas capitais e suas cercanias. Verificam-se casos notificados de maneira pulverizada nas regiões, com áreas de maior concentração próximas aos serviços. ***Conclusão***: A disponibilidade de serviços pode favorecer o acesso e a adoção de medidas de prevenção, diagnóstico e monitoramento de casos. Entretanto, peculiaridades organizacionais do sistema e serviços de saúde evidenciam fragilidades que repercutem no acesso e na integralidade da atenção às hepatites virais.

Palavras-chave: Avaliação em saúde. Serviços de saúde. Assistência integral à saúde. Hepatite viral humana.

INTRODUCTION

Proposed as a constitutional right, the Unified Health System (SUS) has been characterized by the multiplicity of approaches in the conformation of health care practices[1], besides the challenge of a universal health care system in a territorial extension country, which impacts the organization of health services, the availability of intervention strategies and the access to diverse technologies.

The ordering of health services differs according to geographical conditions, as well as demographic and epidemiological aspects reflect the socioeconomic and political heterogeneity present. Regionalization, by adopting mechanisms for coordination, regulation and integration of services to provide equitable and timely access[2], considers peculiarities that favor regional institutional capacity.

In this context, management can benefit from evaluation strategies. Using tracer[3] is a useful evaluation approach, because it allows the horizontal and sequential analysis of the service rendered, in order to provide support for decision making and to develop management strategies.

This study contemplates viral hepatitis that meet the criteria of tracer condition proposed by Kessner et al.[3]. It is highlighted that they are among the diseases with the greatest impact of morbidity and mortality in the world[4]. Viral hepatitis are diseases of etiological plurality, whose causative agents are hepatitis A, B, C, D. The disease occurs in several ways, with a variation of prevalence and incidence according to the geographic region, associating with socioeconomic factors[5].

In the world scenario, in the year 2015, about 1.34 million hepatitis cases evolved to death, and it is estimated that 96% were due to hepatitis B and C[6]. In Brazil, hepatitis B is more prevalent in quilombola, indigenous and riverside populations, among others[7,8]. Northern Brazilian States present a higher prevalence of hepatitis A, B and C virus infection[9].

Facing viral hepatitis has been a major challenge, especially for countries with high prevalence of social vulnerabilities that make health care access difficult[10]. The World Health Organization (WHO) highlights the need for comprehensive care, articulating health services and actions to increase care, prevention of treatment, and follow-up of infected users[11]. Brazil adopts initiatives aimed at the prevention and control of viral hepatitis, broadening the discussions to articulate strategies and achieve the goals established in the WHO 2030 Agenda for Sustainable Development[12].

In considering the magnitude and transcendence of viral hepatitis, a public health problem in Brazil, the Ministry of Health has instituted since 2002, in the ambit of SUS, the National Program for the Prevention and Control of Viral Hepatitis, to be developed between the spheres of power[13].

In 2010, the Department of Surveillance, Prevention and Control of Sexually Transmitted Infections, HIV/AIDS and Viral Hepatitis (DIAHV) began to coordinate the National Program for the Prevention and Control of Viral Hepatitis[14], developing actions focused on expanding access, as well as increasing the quality and installed capacity of health services.

In general, in Brazil, attention to viral hepatitis is carried out in different SUS services, with a differentiated approach by state and linked to regional specificities agreed between managers in the competent instances. The rapid test is performed in a larger number in the Basic Health Units (UBS); however, this test used for serological screening is also performed in the Specialized Assistance Service (SAE), in laboratories and hospitals. According to the result, other confirmatory tests are required. Diagnostic confirmation for users with rapid reagent testing is done through molecular testing to detect viral load. The material for this examination is collected in a smaller number of UBS and/or SAE, and later carried out in centralized laboratories. Depending on the type of hepatitis, genotyping is necessary, which is a test done in a Southeastern capital laboratory centered, whose material is collected in a smaller number of UBS and/or SAE. Users with confirmed diagnosis are referred for treatment in SAE and/or hospitals, health services with lower distributions in the states.

It should be noted that the confirmed cases, according to the notification criteria, are inserted in Notifiable Diseases Information System (SINAN), since viral hepatitis is a serious condition of compulsory notification[5].

The magnitude of viral hepatitis justify this investigation and the focus on the states of the North region, because of the following aspects: its epidemiological aspects, socioeconomic implications for infected users and for the health system, geographical and vulnerability peculiarities of the population, the organization of health care resources in the health

system and services, in order to facilitate timely and qualified access, as well as the logistics to carry out coping strategies. It is understood that the results can contribute to management decision-making, considering the access to health services and comprehensive care to enhance care for viral hepatitis.

Taking into account the considerations presented, this study aimed to analyze the distribution of health care services for viral hepatitis and reported cases of viral hepatitis according to the health regions of the northern Brazilian states.

METHOD

It is an evaluative research, with descriptive approach of quantitative data. This study was developed in the northern region of Brazil, the largest in the country, with an area of 3,869,637 km², with a population of approximately 17,936,201 inhabitants[15]. Although it is the largest region in Brazil, it has a low demographic density (4.65 inhab/km²), and it is composed of seven states whose health systems are divided into 44 Regional Interagency Commissions (CIR).

This region is bordered by countries that have lower Human Development Index (HDI) than Brazil and are more prevalent for hepatitis A, B and C virus infection[9]. In addition, especially in the Amazon region, hepatitis B virus infection is also a condition for the development of Delta hepatitis[16].

Data collection consisted of the Sinan and National Registry of Health Establishments (CNES) documentary research on reported cases of viral hepatitis and of health services that carry out prevention, diagnostic and/or treatment for viral hepatitis in Northern Brazil health regions.

We included UBS, SAE and hospitals that perform diagnosis and treatment of viral hepatitis. For the reported cases, the data entered in SINAN were considered for the period 1999 to 2017. Secondary data were collected in the first half of 2018 by the researcher and stored in Microsoft Excel 2010 spreadsheets.

Georeferencing was used to better understand and analyze the distribution of health services and reported cases. For the health services, coordinates, latitude and longitude (decimal format) of the addresses of each establishment, obtained individually in Google Maps, were used, and the reported cases of viral hepatitis were coded by residence municipality and georeferenced.

From the data, thematic maps were constructed using the cartographic base of the North region of Brazil by municipalities in Universal Transverse Mercator projection (UTM), available on the website of the Brazilian Institute of Geography and Statistics (IBGE). The *software* used was Q.GIS, version 2.16.0.

The discussion was developed according to the proposal of Kessner, Kalk and Singer[17] for the tracer condition, because it allows the evaluation of the different articulation levels of attention and it favors the sequential analysis of access to attention to viral hepatitis.

This study was approved by the Research Ethics Committee (CEP) of the University of São Paulo at Ribeirão Preto College of Nursing (EERP/USP), under protocol No. CAAE 65154417.8.0000.5393.

RESULTS

The distribution of health services that perform rapid tests, collect material and/or perform viral load tests, as well as those that collect material for genotyping and for viral hepatitis treatment varies according to the state of the region studied. The data presentation includes the distribution by states (Table 1) and distribution according to the type of health service (Table 2).

Table 1. Quantitative distribution of health regions and services that perform rapid tests, viral load (sample collection and examination), sample collection centers for genotyping and treatment of viral hepatitis, according to the State of the Northern region of Brazil, 2018.

Northern States of Brazil	Number of health regions	%	Distribution of Services										Subtotal	%
			Rapid Test	%	Molecular Biology Test (Viral Load) *				Genotyping ** (Sample collection)	%	Treatment	%		
					Sample collection	%	Accomplishment of exam	%						
Acre	3	7	204	9	3	4	1	11	2	6	4	13	214	9
Amapá	3	7	12	1	3	4	1	11	2	6	3	10	21	1
Amazonas	9	20	401	17	22	32	2	22	1	3	6	19	432	17
Pará	13	30	1.044	44	23	34	2	22	17	53	8	26	1.094	44
Rondônia	6	14	330	14	11	16	1	11	6	19	2	6	350	14
Roraima	2	5	85	4	2	3	1	11	1	3	2	6	91	4
Tocantins	8	18	283	12	4	6	1	11	3	9	6	19	297	12
Total	44	100	2.359	100	68	100	9	100	32	100	31	100	2.499	100

Source: National Registry of Health Establishments (NHER).

*This examination is only done in the laboratories of the capitals.

**The material collected for the accomplishment of the genotyping exam is sent to the city of São Paulo, defined as a result of the bidding process developed by the Ministry of Health.

The quantitative distribution of care services for viral hepatitis totals 2,499 units, of which 2,359 (94.4%) are services that perform rapid tests; 68 (2.7%) services responsible for collecting and sending material to the 9 (0.4%) departments responsible for conducting this examination; 32 (1.3%) services collecting material for genotyping; and 31 (1.2%) services responsible for treatment.

Table 2 shows the distribution of care services for viral hepatitis according to the type of health unit.

Table 2. Quantitative distribution of services for diagnosis and treatment of viral hepatitis, according to the type of health service in the States of the North of Brazil, 2018.

Northern States of Brazil	Rapid Test	Distribution of Services										
		%	Molecular Biology Test (Viral Load) *				Genotyping ** (Sample collection)	%	Treatment	%	Subtotal	%
			Sample collection	%	Accomplishment of exam	%						
Basic Health Unit (UBS)	2122	90	12	18			12	38			2146	85.9
Specialized Assistance Services	41	2	7	10			8	25	26	84	82	3.3
Laboratory	1	0	18	26	9	100	7	22			35	1.4
Hospital	195	8	31	46			5	16	5	16	236	9.4
Total	2.359	100	68	100	9	100	32	100	31	100	2.499	100

Source: National Registry of Health Establishments (NHER).

*This examination is only done in the laboratories of the capitals.

**The material collected for the genotyping exam is sent to the city of São Paulo, a site defined as a result of the bidding process developed by the Ministry of Health.

Among the 2,499 units of care services for viral hepatitis, there are 2,146 (85.9%) UBS; 82 (3.3%) SAE; 35 (1.4%) laboratories; and 236 (9.4%) hospitals.

Considering that the Brazilian North has geographical peculiarities and limitations of access, the spatial visualization of both the health regions and the different care services for viral hepatitis may favor the understanding of the organization and the distribution of these services (Figure 1).

Regarding the offer of care services for viral hepatitis, a differentiated distribution can be observed; the services that perform rapid tests present capillarity in the states of the North region. A higher concentration of services near the collection sites for the detection of viral load and treatment, in general in the capitals and their surroundings, is highlighted.

Regarding the availability of services according to the health regions, Figure 1 shows that 44 (100%) health regions have services that perform a rapid test, that is, the initial diagnostic phase is available in all regions. However, only 13 (29.5%) of the regions consider material collection and/or testing to determine viral load. Treatment is present in 22 (50%) health regions. This finding allows us to infer that access to comprehensive care for viral hepatitis in the North region is limited.

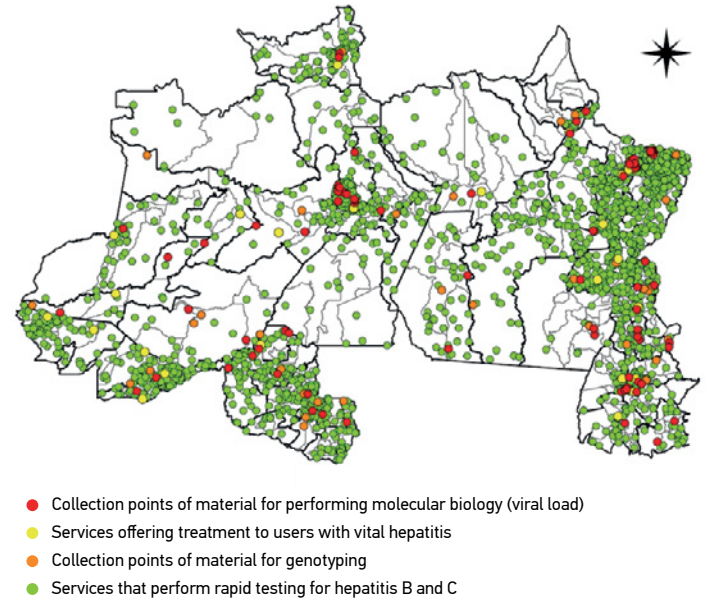

Figure 1. Spatial distribution of services that perform rapid tests, collection of biological material for viral load, genotyping and treatment of viral hepatitis, according to the health regions, in the States of the North of Brazil, 2018.

Source: National Health Establishment Registry (NHER).

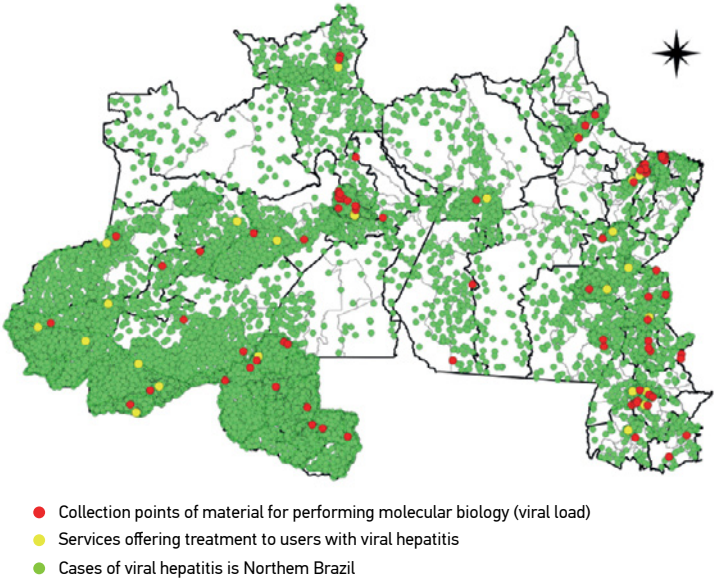

Figure 2. Spatial distribution of reported cases of viral hepatitis (1999-2017), health regions and health services that collect material for viral load and treatment in the States of the North of Brazil, 2018.

Source: Notifiable Diseases Information System (Sinan) and National Registry of Health Establishments (NHER).

It is understood that the availability of services may favor the adoption of prevention measures as well as the detection of cases and treatment. Regarding the notification at SINAN, between 1999 and 2017, there were 31,229 cases of hepatitis B, 6,650 cases of hepatitis C and 2,875 cases of hepatitis Delta.

Figure 2 shows the concentration of cases reported in locations close to hepatitis care services.

Figure 2 shows that, despite the higher concentration of cases in the health regions that offer material collection services for the viral load detection and/or treatment, there are reported cases in all regions.

DISCUSSION

Regarding the distribution of hepatitis care services in the studied region, the results show that 94.4% of them refer to the rapid test, an essential step in the attention to viral hepatitis, but that reveals a disparity when contrasted with services that offer treatment.

Providing qualified access to different health services is a basic requirement for comprehensive care, and also a factor that may favor adherence to treatment, when this is the case.

It is necessary to reflect on the distribution of health services and to consider the capacity that users have to appropriate care in order to provide conditions of equal access to people with equal needs[18].

In the context of this study, it becomes relevant to broaden the discussions about the decentralization of attention to viral hepatitis, since 50% of the health regions are not contemplated with SAE and/or hospitals responsible for the treatment of the user.

In addition to the organization of services available to the user, it is relevant to think from the perspective of Primary Health Care (PHC) as care guiding[11,19,20], considering that, for attention to viral hepatitis in an approach of access and entirety of care, PHC needs to be instrumented with more than the rapid test and collection of test material, as the results have shown.

With investiment, PHC has the power to develop preventive and educational actions for viral hepatitis, with early diagnosis and case monitoring, that is, it is possible to qualify attention to viral hepatitis for a more integral and articulating approach, actually bringing hepatitis for the centrality of discussions and actions, and offering care beyond the specialized services.

In the context of health regions organization northern Brazil, presented in this study, it should be noted that the collection of material for viral load tests confirming the diagnosis of viral hepatitis may not occur in the same health service where it was performed the initial serological screening, and may also be collected in another municipality and/or region. This is a complication for the user and even for the service where the serological screening was done, due to logistical, geographical and state conditions.

Treatment and follow-up of patients with viral hepatitis are restricted to SAEs and/or hospitals. It is clear that control of the disease situation, from the identification of existing

cases to treatment, should contribute to the breakdown of the transmission chain[21], which strengthens the importance of knowing the way services are organized, aiming to develop policies with a regional focus, considering the local reality, respecting historical and cultural aspects of the management processes and consolidating the equitable development of SUS[22].

According to WHO[20], to assess the effectiveness of diagnosis and treatment, it is essential to draw up strategies to ensure rapid test inputs, confirmation of diagnosis and initiation of treatment, as well as to encourage the decentralization of attention to viral hepatitis.

It should be noted that, regarding the treatment of viral hepatitis, the issues related to access to medicines are a field of disputes not totally free of intentionality and also not just user-centered. Nevertheless, it is pertinent to emphasize that the viral hepatitis treatment depends on medicines and technologies for the diagnosis and monitoring of the cases, resources made available in UBS, laboratories, SAE and hospitals.

The concentration of the cases reported in the health areas contemplated with services of biological material collection for the examination of viral load, mainly with the specialized services, evidences the impact of the attention services centralization to the viral hepatitis. Figure 1 also shows spatial emptiness, without case notification, a situation that may also be indicative of limited care supply, since new cases may not be notified due to lack of access to care.

These characteristics of organization and provision of health services are typical of systems that enhance the concentration of medium and high complexity services, coupled with the insufficient and heterogeneous supply of PHC[23].

It is added to this complex context the need to understand the spatial distribution pattern of viral hepatitis as a challenge, since these diseases do not occur in a homogeneously[24] and adopt characteristics differentiated both by the epidemiological scenario and by the offer of surveillance actions that favor the diagnosis, the active search and the follow-up of cases[25].

The region studied, besides presenting a higher prevalence for viral hepatitis, is an environment with geographical limitations due to the extent and the territorial characteristics that impact the access to the care. The distant population distribution of the municipalities in indigenous and riverside communities, distances that can exceed 500 kilometers, with displacement in days of terrestrial trips and, in some points, only by waterway, besides other limiting factors, such as financial restrictions[26]. Another aspect of this region is climatic conditions. In drought periods, some communities are geographically isolated, which is also a barrier to access health services.

Regarding evaluation as an instrument for management and decision making, understanding these geographical specificities as well as the socioeconomic conditions of users is essential to strengthen potentialities and overcome the gaps in the elaboration of strategies to expand access from the perspective of comprehensive attention to hepatitis viral infections.

Since 2017, the Ministry of Health, through DIAHV, has developed the Amazon Plan aiming to increase access to prevention, diagnosis and treatment of viral hepatitis, involving the three spheres of government. It is, therefore, a possibility to direct strategies and actions, together with managers from the North region, to favor attention to these diseases, strengthening the organization of health services for prevention, diagnosis and treatment of users[27].

This requires the manager to have a broad knowledge of health assessment instruments, including the conditions that chart the attention to hepatitis, which will aid in the analysis of the need to reorganize health services in the context of regionalization, involving local and regional spheres in construction of a resolute, comprehensive gateway with potential to strengthen care management beyond territorial demarcations[28].

Thus, in the perspective of entirety, attention to the conditions of service distribution presented in this study makes it possible to dialogue in health regions, besides allowing rearrangements in order to organize health services to favor access to care for viral hepatitis.

The use of evaluation to understand the scenario of hepatitis is essential to assist in the daily management of health. It is possible to understand the disputes of administrative, political and care interests for attention to viral hepatitis, contributing to achieve universalization[29], as well as strengthening the construction of strategies of the health regions, aiming to access comprehensive care, encouraging the construction of health care networks.

This study had the limitation of presenting the evaluation with a descriptive approach, but with subsidies for decision-making. It is also considered as a limitation the fact of not having contemplated the user's gaze in the evaluation; however, this is a demand for further studies.

FINAL CONSIDERATIONS

The peculiarities in the health regions and the organization of the system and services, observed by the spatial distribution, have repercussions on the access and entirety of attention to viral hepatitis, evidencing weaknesses of the health system in the attention to these diseases in the North of Brazil.

In this context, it is extremely relevant to use evaluation tools, considering the singularities and highlighting the weaknesses in order to identify, in a cooperative and integrative manner, the management, as well as locoregional solutions that address the needs of users residing in this region, avoiding errors that trigger obvious and permanent failures in the system, besides helping managers in the North to define strategies to overcome viral hepatitis.

Considering the aforementioned, the growing dispute between healthcare demands and the incorporation of new knowledge and technologies, as well as the need to rationalize public spending, highlight challenges for SUS sustainability. It is understood that the design and development of new studies will make it possible to deepen the understanding of the historical challenges, subsidizing proposals for strategies and interventions that favor full access to care for viral hepatitis, considering the peculiarities of the Brazilian regions, especially in the North of the country.

The multidimensionality of aspects involved in access to care for viral hepatitis requires the adoption of joint strategies, with multiple perspectives, regarding both the user and the organization of the network of services to care for these diseases. Confronting this reality is not simple and requires an institutional approach that considers regional specificities.

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