Research Article

Study of the profile of confirmed cases of viral hepatitis in Brazil from 2014 to 2023

Abstract

Introduction: Viral hepatitis (VH) is a group of diseases frequently caused by five agents: hepatitis A, hepatitis B, hepatitis C, hepatitis D and hepatitis E, with different epidemiological and clinical characteristics.

Objective: To study the epidemiological profile of viral hepatitis in Brazil from 2014 to 2023.

Methodology: epidemiological, cross-sectional, quantitative, descriptive, exploratory and time-series study, covering a decade, referring to the period from 2014 to 2023, carried out with secondary data from the Notifiable Diseases Information System (TABNET/DATASUS). The data were tabulated in Excel and presented in graphs and tables, absolute numbers and frequencies.

Results: There was a total of n=353694 confirmed cases of viral hepatitis in Brazil in the decade from 2014 to 2023. The year with the highest peak was 2015, which presented 42563 confirmed cases. The Southeast region presented 45% of the cases, males were more affected and represented 56% of the sample. Regarding race, the white race predominated with 162206 cases. In Brazil, the age group of 40-59 years had the highest number of VH cases of 158050. About the VH criterion of confirmation, the criterion of laboratory confirmation of VH predominated with 351713 confirmed cases. As regards the mechanical source of infection, most confirmed cases were classified as Ignored/Blank (n=221607), followed by Sexual source (n=48049).

Final Considerations: Viral hepatitis is still an epidemiological concern, although it has shown a decreasing trend in the decade under study, since after a decrease in 2020, a growing peak has resumed since then, currently remaining above the trend line.

Keywords: viral hepatitis, epidemiology, public health

Special Issue 11 - 2025

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Received: March 30, 2025 | **Published**: April 11, 2025

Introduction

Viral hepatitis is a group of diseases frequently caused by five agents: hepatitis A virus (HAV), hepatitis B virus (HBV), hepatitis C virus (HCV), hepatitis D virus (HDV) and hepatitis E virus (HEV), with different epidemiological and clinical characteristics.[1] Between 2000 and 2021, approximately 718,651 cases of viral hepatitis were recorded in Brazil, with regional differences indicating a prevalence of cases caused by HAV (30.1%) in the Northeast region and HBV (34.2%) and HCV (58.4%) in the Southeast region.[2]

The clinical presentation of viral hepatitis varies according to the viral family present, with self-limiting conditions, with sudden onset of nausea and vomiting, followed by jaundice and choluria, frequent in hepatitis A, or chronic conditions, with symptoms of fatigue, diarrhea, abdominal pain and extra-hepatic manifestations, frequent in hepatitis C.[3]

Monitoring of viral hepatitis cases encompasses the different levels of health care, where primary health care (PHC) is limited to performing rapid tests and collecting samples, representing the largest share of action in the face of this public health problem. In this sense, treatment and monitoring of these cases are intended only for hospitals and specialized services.[4]

There are other aspects that hinder access to comprehensive care for patients with viral hepatitis, such as the delay in referring diagnosed patients compared to the reference service. Other difficulties include the lack of monitoring of referred patients and coordination of services.[5]

From this perspective, assessing the reality of the health-disease process of viral hepatitis constitutes an important public and collective health strategy, with a direct impact on prevention and health promotion actions. Therefore, the study aims to investigate the profile of viral hepatitis in the Brazilian epidemiological context between 2014 and 2023.

Methodology

This study carried out a broad investigation on viral hepatitis in Brazil, through an epidemiological study, of a cross-sectional, quantitative, descriptive, exploratory and time series nature, covering a decade, referring to the period from 2014 to 2023. The data used are secondary data from TABNET/DATASUS, SUS Information System, Ministry of Health, Brazil, 2025, through the Notifiable Diseases Information System - Sinan Net. The variables under study were: Brazil, Region, year, sex, race, age group, education, mechanical source of infection and final classification. They were collected from SINAN, via TABNET and exported to Excel, in which the data were tabulated and tables and graphs were created. The results were expressed in absolute numbers and frequencies and presented in graphs and tables.

Ethical precepts were followed, since this work does not require submission/approval by a Research Ethics Committee because it explored secondary data from the SUS public information system (TABNET/DATASUS), which presents population data, without individual identification, therefore we comply with the precepts established in Brazilian and global legislation on Research with Human Beings, such as Brazilian law no. 14,874/2024, the Declaration of Helsinki (1964) and the Nuremberg Code (1949).

Results

The data on viral hepatitis in Brazil are extremely relevant epidemiologically due to the high number of confirmed cases and require attention in the public health field to reduce the exorbitant number of cases of this pathology in all Brazilian territories in future years.

The confirmed cases of Viral Hepatitis in the Brazilian territory (Graph 1), in all regions, had a total of n=353694 in the decade under study, showing an oscillating downward trend, in which most of the years observed were above the trend line. In 2014, the data demonstrate a high number of hepatitis cases, with n=33756, an increase in this number occurred in the following year, in which 2015 had n=42563, representing the largest upward peak of the decade under analysis.
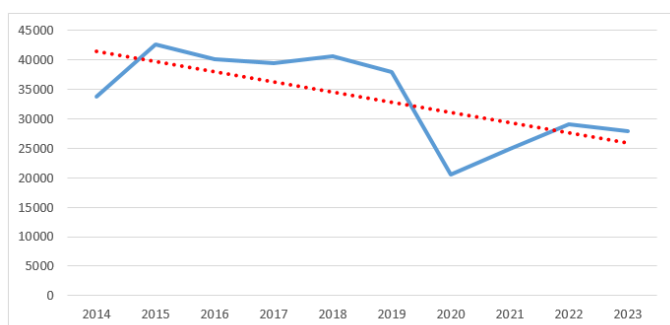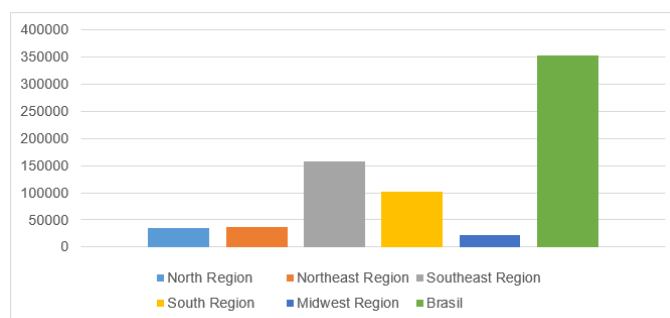

Graph 1 Distribution of confirmed cases of viral hepatitis in Brazil, by year, from 2014 to 2023.

Source: Prepared by the authors with data from the Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net, 2025.

In 2016 (n=40133) there was a change in trend with a decrease in the number of cases, followed by 2017 with n=39392, slightly lower than the previous year, while in 2018 there was the second largest upward peak in the number of cases of this disease, with n=40574. In subsequent years, a new downward trend was observed, in 2019 (n=37915) and in 2020 (n=24804), where the largest downward peak of the decade was noted, while in 2022 (n=29013) this number exceeds the trend line, an upward behavior that is also noted in 2023, with n=27830, in a slight decrease in cases of hepatitis in Brazil (Graph 1).

In respect of the confirmed cases of hepatitis distributed across Brazilian regions (Graph 2), the Southeast had the highest number of confirmed cases, with n=158044, representing 45% of the number of confirmed cases in Brazil. The second region with the highest number of confirmed cases was the South, with n=102208, representing 29% of cases in Brazil. As regards the Northeast and North regions, both obtained data that showed a share of 10% of cases, with n=37160 and n=34957, respectively. Regarding the Midwest region, it is the region with the lowest number of confirmed cases, representing 6% of these cases, with n=21325.

Graph 2 Distribution of confirmed cases of viral hepatitis in Brazil, by region, from 2014 to 2023.

Source: Prepared by the authors with data from the Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net, 2025.
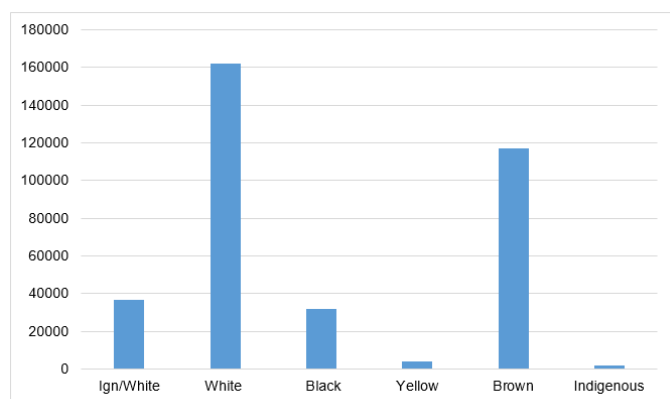
Regarding the confirmation of viral hepatitis cases by sex (Graph 3), the male population was the most affected, representing 56% of confirmed cases, with n=199318, while the female portion represented 44% of these, with n=154249 in Brazil, during the 10 years studied. In all regions, males prevailed. In the Southeast, men had a high number of confirmed cases, with n=89259, while the number of women was relatively lower, with n=68747. In the South, male cases numbered 58988, while female cases represented a comparatively lower number, with n=43165. In the Northeast, male cases numbered 19990, while female cases numbered 17151. In the North, the number of men was 18995 and the number of women was 15951. Finally, the Central-West region had a significantly lower number of confirmed male cases than the other regions, with n=12086, and the number of female cases was also low, with n=9235.
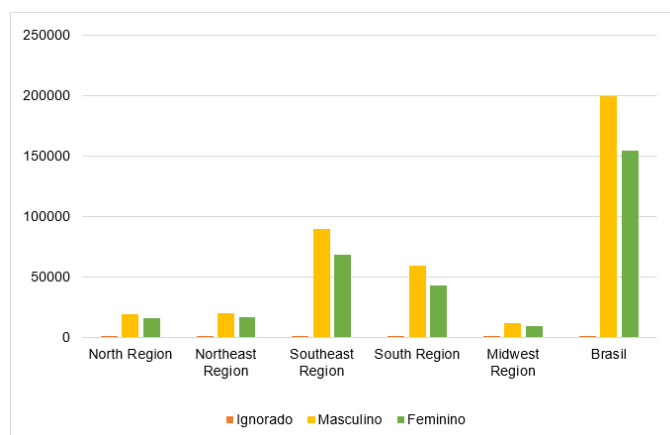
Graph 3 Distribution of confirmed cases of viral hepatitis in Brazil, by sex, by region, from 2014 to 2023.

Source: Prepared by the authors with data from the Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net, 2025.
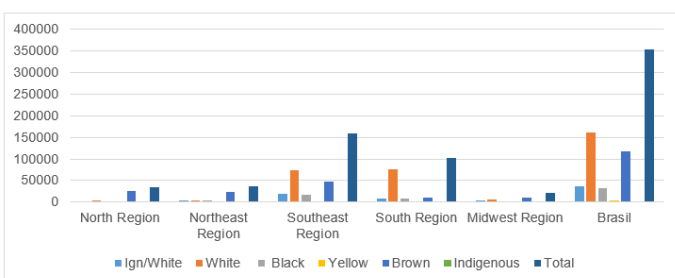
About confirmed cases of viral hepatitis related to race (Graph 4), the most prevalent race in Brazil was White, with n=162206, the second most prevalent was the Brown race, with n=117190, the third position was occupied by the race classified as Ignored/White with n=36811, followed by the Yellow race with n=3915 and the Indigenous race represented the smallest number of confirmed cases of viral hepatitis in the national territory, with n=1892.

Graph 4 Distribution of confirmed cases of viral hepatitis in Brazil, by race, from 2014 to 2023.

Source: Prepared by the authors with data from the Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net, 2025.
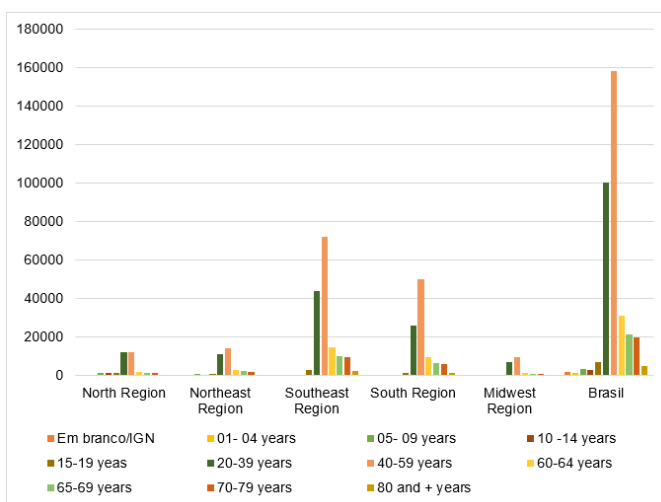
In respect of the distribution of confirmed cases of viral hepatitis by region (Graph 5), the most prevalent race in the Southeast was White (n=72776), followed by Brown (n=47264), and the least affected was Indigenous (n=319). In the South region, there was also a greater predominance of the White race (n=75932), in second place by the Brown race (n=9715), and the lowest number of cases in the Indigenous race (n=222). In the North region, the prevalent races reversed positions, where the largest number of cases occurred in individuals of the Brown race (n=26470), followed by the White race (n=3480), and the least predominant is the Yellow race (n=289). In the Northeast region, the Brown race predominated (n=23,348), followed by the Black race (n=4468) and, to a lesser extent, the Indigenous race (n=149). In the Midwest region, the highest prevalence was among the Brown race (n=117190), followed by the White race (n=5610) and the lowest prevalence among the Indigenous race (n=157).

Graph 5 Distribution of confirmed cases of viral hepatitis in Brazil, by race/region, from 2014 to 2023.

Source: Prepared by the authors with data from the Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net, 2025.

What corresponds to the age group with the highest prevalence of confirmed cases of Viral Hepatitis (Graph 6), in Brazil, the age group that predominated was 40-59 years, with n=158050 cases, the second age range with the highest number of confirmed cases of this pathology was people between 20-39 years, with n=100457 cases, while the age group with the lowest prevalence was between 01-04 years, with n=1525 confirmations.
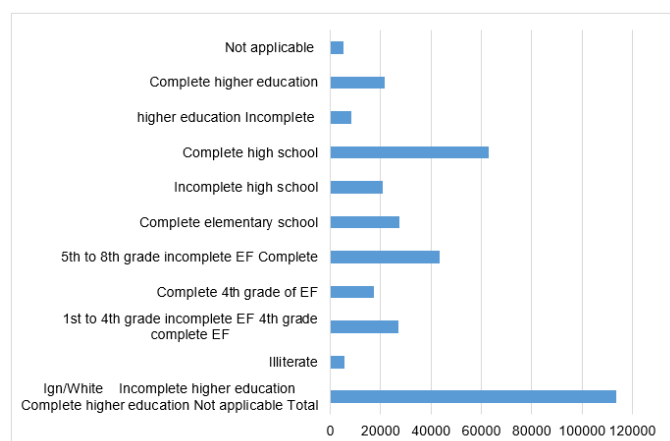

Graph 6 Distribution of confirmed cases of viral hepatitis in Brazil, by age group, by region, from 2014 to 2023.

Source: Prepared by the authors with data from the Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net, 2025.

As for the regions (Graph 6), in the Southeast region the number of cases prevailed among the age group of 40-59 years, with n=72032, the second position was occupied by the range of individuals between 20-39 years, with n=43872, while the lowest number of cases occurred in those between 01-04 years, with n=260. In the South, confirmations predominated in patients between 40-59 years old, with n=50096, followed by cases in people between 20-39 years old, with n=26094 and the lowest prevalence was in the age group between 01-04 years old, with n=118. In the Northeast region, cases also predominated in those between 40-59 years old, with n=14,372, in second place there was a greater confirmation in cases between 20-39 years old, with n=11,221 and the lowest number was observed in the Blank/Ignored classification, with n=384.

In the North, the two age groups with the greatest predominance reversed positions, in which the age group between 20-39 years old (n=12335) prevailed over the age group between 40-59 years old (n=12040) and the lowest number of confirmations occurred in the Blank/Ignored classification (n=307). Finally, in the Midwest region there was a greater predominance of cases in the age range between 40-59 years, with n=9510, followed by cases between 20-39 years, with n=6935 and the lowest number of confirmed cases in individuals between 01-04 years, with n=127 (Graph 6).

Regarding the distribution of confirmed cases of viral hepatitis according to the education level of the Brazilian population (Graph 7), there was a significant predominance of cases in the Ignored/Blank classification (n=113740). The second most prevalent classification was the education level of individuals with Complete High School, with n=63042, followed by the education level of those with Incomplete 5th to 8th grade with Complete Elementary School, with n=43408 and in third place, the education level of Complete Elementary School, with n=27382. The smallest number of confirmed cases was observed in the Not Applied classification, with n=5174 and the education level of Illiterate individuals was the least prevalent, with n=5519, followed by the education level of Incomplete Higher Education, with n=8501.

Graph 7 Distribution of confirmed cases of viral hepatitis in Brazil, by education level, from 2014 to 2023.

Source: Prepared by the authors with data from the Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net, 2025.

In respect of the distribution of viral hepatitis cases by final classification criterion (Table 1), in Brazil the criterion by Laboratory Confirmation predominated, with n=351713, and the classification criterion by Clinical-epidemiological Confirmation, presented a n=1981. Regarding this criterion by regions, in the Southeast there were n=157755 cases confirmed by Laboratory Confirmation and n=289 cases confirmed by Clinical-epidemiological Confirmation. In the South, the Laboratory Confirmation classification also prevailed, with n=102,169, while Clinical-epidemiological Confirmation (n=39)

obtained the lowest number of cases. The Northeast showed n=36,303 cases confirmed by Laboratory Confirmation and n=857 confirmations by the Clinical-epidemiological criterion. In the North, Laboratory Confirmation led to the confirmation of n=34,301 cases, and Clinical-epidemiological Confirmation was the criterion for n=656 cases. In the Midwest region, n=21185 cases were obtained by Laboratory Confirmation, while Clinical-epidemiological Confirmation represented n=140 confirmations.

Regarding the mechanical source of infection (Table 1), in Brazil the largest number of documented cases was classified as Ignored/Blank, with n=221607. The second largest value found showed that the Sexual source prevailed, with n=48049, followed by contamination through Injectable Drug Use, with n=18177, and infection by Transfusion, with n=13785. While the source with the lowest prevalence was Work Accidents, with n=1045. In the Southeast, the largest number of cases was classified as Ignored/Blank (n=108305), followed by the number of infections by the Sexual source (n=16575), then by Injectable Drug Use (n=8733), and by Transfusion (n=7,518), with the smallest number occurring in Work Accidents (n=403). In the South region, the Ignored/Blank classification predominated, with n=57830, followed by the Sexual source (n=14958), then by infection caused by Injectable Drug Use (n=7804) and by Transfusion (n=4351), among the sources, Work Accident represented the lowest number of infections, with n=319. The Northeast also had a significant number of cases documented with the Ignored/Blank source (n=22868), thus, the Sexual source was repeated as the one with the highest number of infections, with n=4875, while Transfusion occupied the third place for the highest number of cases, with n=1180 and Injectable Drug Use the fourth position, with n=915, while Work Accident represented the lowest number of n=174.

Table 1 Distribution of confirmed cases of viral hepatitis in Brazil, by region, classification criteria and mechanical source of infection, from 2014 to 2023

Region of residence	North	Northeast	Southeast	South	Midwest	Brazil
Final classification						
Laboratory confirmation	34301	36303	157755	102169	21185	351713
Clinical-epidemiological confirmation	656	857	289	39	140	1981
Total	34957	37160	158044	102208	21325	353694
Mechanical source of infection						
Ign/Blank	18508	22868	108305	57830	14096	221607
Sexual	8542	4875	16575	14958	3099	48049
Transfusion	341	1180	7518	4351	395	13785
Injectable Drug Use	220	915	8733	7804	505	18177
Use Vertical	172	230	976	2259	212	3849
Work Accident	81	174	403	319	68	1045
Hemodialysis	34	224	476	334	42	1110
Home	764	604	1260	2496	368	5492
Surgical Treatment	124	622	2484	2905	118	6253
Dental Treatment	455	818	2587	2562	312	6734
Person/Person	840	493	1832	1969	1009	6143
Food/Water	4048	2155	2284	803	624	9914
Other	828	2002	4611	3618	477	11536

Source: Ministry of Health/SVS - Notifiable Diseases Information System - Sinan Net, 2025.

Still in Table 1, in the North, the behavior of infectious sources was slightly different from the other regions, in which the classification ignored/blank (n=18508) predominated, followed by the mechanical source of infection via sexual route (n=8542), then by contamination by food/water, with an impressive n=4048 and by the source of

person/person, with n=840 and the smallest source by Hemodialysis, with n=34. In the Center-West, the classification ignored/blank also prevalent with n=14096, followed by the number of contaminations by Sexual source (n=3099), the third largest amount was observed in the infection of person/person (n=1009), in fourth position the

infectious source of food/water (n=624) and the smallest number of infection by hemodialysis (n=42).

Discussion

During the study period, a downward trend in the number of cases of viral hepatitis was observed, with emphasis initially on the period from 2015 to 2019. This fact may be related to the health promotion actions instituted during this period, such as the creation and updating of clinical protocols and therapeutic guidelines (PCDT) with a focus on updating and universalizing treatment regimens and preventive actions regarding post-exposure prophylaxis (PEP) and vertical transmission.[6]

However, it is evident that there was a considerable drop in the number of cases reported in 2020, which may be linked to the specific public health context experienced during the COVID-19 pandemic. In this context, the lack of integration between the different spheres of public health for the effective organization of the care network is evident, in addition to the reduction or interruption of services provided by reference centers for viral hepatitis during this period.[7]

From a regional perspective, the largest proportion of cases is concentrated in the southeast and south regions of Brazil. The highest number of notifications could be associated with the fact that individuals living in the north and northeast regions have more precarious access to healthcare, which makes it difficult to more reliably monitor the diagnosis of viral hepatitis at a regional level.[8]

The study highlights the male population as the most affected by viral hepatitis and this trend is unanimous among Brazilian regions. This data may be linked to the fact that men, in general, do not tend to attend basic health units, participate little in the health activities offered and are unaware of men's health regulations, which include prevention against sexually transmitted infections (STIs), with a focus, in this case, on viral hepatitis.[9]

Most cases of viral hepatitis affect white individuals. This reality could be explained by the more restricted access to health services for the black population (brown and black), since, historically, these social groups face socioeconomic, cultural and educational barriers that directly influence universal access to health services.[10] It is important to highlight that, although with a small number of notifications per Brazilian region in the indigenous population, these individuals face numerous challenges of health vulnerability regarding STIs, influenced by sociocultural factors, access to health services, poverty and low education levels.[11]

In respect of the age group, the 40-59 and 20-39 age groups stood out in all regions of Brazil, which follow the pattern of age-related incidence of viral hepatitis, as explained by Bandeira et al.,[12] and Luz et al.[13]

Regarding education, the predominance of cases among people with higher education may be related to common behavioral patterns among university students, which include sexual activities without the use of condoms, associated with the use of alcohol and illicit drugs, which increases the risk of acquiring STIs, including viral hepatitis.[14]

In the context of the classification criteria, there was a predominance of laboratory confirmation in all regions of the country, which can be explained by the wide dissemination, through protocols and guidelines, of the use of rapid tests and serological exams in the confirmation of cases of viral hepatitis.[15] Furthermore, PHC teams play a crucial role in this process, as they carry out prevention and health promotion actions, such as vaccination and testing, which

are simple and effective in addressing the public health problem in question.[15]

There was a predominance of sexually transmitted infections in all regions of the country, which can be explained by the lack of knowledge of many people about the forms of transmission of viral hepatitis; since, in general, it is the social groups with the highest level of education that know the forms of transmission and prevention.[16] It is worth noting that, unlike other regions, in the North there was a high number of notifications of cases resulting from contamination by food/water. This fact reveals the close relationship between low rates of basic sanitation and contamination by hepatitis, one of the main groups of diseases closely related to environmental health indexes.[17]

Final considerations

Viral hepatitis is still an epidemiological concern, although it has shown a decreasing trend in the decade under study, since after a decrease in 2020, it has started to increase again since then, currently remaining above the trend line.

Regarding the epidemiological profile affected, sexual contamination, as well as cases with unknown classification regarding the mechanical source of infection are alarming factors, since these data need to be better explored with the care network to discover the sources and thus better act with regard to preventive programs. The age group between 40-59 years old has the highest number of cases, a very productive age range in the workplace. Therefore, the incidence of this age group represents deficits in the economic production chain, with repercussions on the entire health system, as well as on their family contexts and on Brazilian society as a whole.

Therefore, the lack of preventive measures in this social group can trigger the spread of this disease among this population, if measures to control the disease are not improved, such as health education, access to care, early diagnosis and awareness of the Brazilian population about hepatitis.

Acknowledgments

Conflicts of interest

Funding

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