DOI: https://doi.org/10.36489/saudecoletiva.2020v10i52p2080-2093

Epidemiological profile of Hepatitis B: Knowing to prevent

Perfil epidemiológico da Hepatitis B: Conocer para prevenir

Perfil epidemiológico da Hepatite B: Conhecer para prevenir

Linking of the manuscript: From monographic study.

RESUMO

Objectives: To describe the epidemiological profile of the reported cases of Hepatitis B in the municipality of Santa Cruz do Sul, Rio Grande do Sul, from 2011 to 2016, obtained from the Municipal Serology Center. Develop a map containing the number of notified cases of hepatitis B, arranged in the municipality. Method: Descriptive epidemiological study, based on secondary data from the Notification Aggravation Information System, performed in the outpatient clinic for viral hepatitis. Results: 54 cases of hepatitis B, predominantly of males, aged between 40 and 50 years, urban area, 46 cases reported with absence of HBV vaccine and 36 were ignored regarding the probable source of infection. Conclusions: The scenario unfavorable to the effective registry of disease and vaccination status, evidenced how much it is necessary to invest in health education and to increase coverage to the adult population.

DESCRITORES: Hepatitis B; Nursing; Epidemiology.

ABSTRACT

Objetivos: Describir el perfil epidemiológico de los casos notificados de Hepatitis B del municipio de Santa Cruz do Sul, Rio Grande do Sul, en el período de 2011 a 2016, obtenido junto al Centro Municipal de atención a la serología. Elaborar un mapa conteniendo el número de casos notificados de hepatitis B, dispuestos en el municipio. Métodos: Estudio epidemiológico descriptivo, a partir de datos secundarios del Sistema de Información de Agravios y Notificación, realizada en el ambulatorio de hepatitis virales. Resultados: Se notificaron 54 casos de hepatitis B, con predominio del sexo masculino, grupo de edad de 40 a 50 años, área urbana, 46 casos notificados con ausencia de la vacuna contra el VHB y 36 ignorados en cuanto a la probable fuente de infección. Conclusiones: El escenario desfavorable al efectivo registro notificatorio de la enfermedad y condición vacunal, evidenció cuán necesario es invertir en la educación en salud y ampliar la cobertura a la población adulta.

DESCRIPTORS: Hepatitis B; Enfermería; Epidemiología.

RESUMEN

Objetivos: Descrever o perfil epidemiológico dos casos notificados de Hepatite B do município de Santa Cruz do Sul, Rio Grande do Sul, no período de 2011 a 2016, bem como, elaborar um mapa contendo o número de casos notificados de hepatite B, dispostos no município. Método: Estudo epidemiológico descritivo, a partir de dados secundários do Sistema de Informação de Agravos e Notificação, obtido junto ao Centro Municipal de atendimento à sorologia realizada no ambulatório de hepatites virais. Os dados foram organizados no programa Microsoft Office Excel e após, conduzida a análise da frequência absoluta e média aritmética. Resultados: Foram notificados 54 casos de hepatite B, com predomínio do sexo masculino, faixa etária de 40 a 50 anos, área urbana, 46 casos notificados com ausência da vacina contra o VHB e 36 ignorados quanto à provável fonte de infecção. Conclusões: O cenário desfavorável ao efetivo registro notificatório da doença e condição vacinal, evidenciou o quanto é necessário investir na educação em saúde e ampliação da cobertura à população adulta.

DESCRIPTORES: Hepatite B; Enfermagem; Epidemiologia.

RECEIVED ON: 12/15/2019 **APPROVED ON:** 12/15/2019

Anelise Miritz Borges

Nurse, PhD in Nursing from the School of Nursing at the Federal University of Rio Grande (FURG). Professor of the Nursing Course. Department of Nursing and Dentistry, University of Santa Cruz do Sul (UNISC), Santa Cruz do Sul (SCS), Rio Grande do Sul (RS), Brazil. https://orcid.org/0000-0002-3279-7849

Alessandro Sulzbacher
Nurse, by the Nursing Course at UNISC. Works at Transul Emergências Médicas in Candelária, RS, Brazil. https://orcid.org/0000-0003-3734-2752

Marlise Capa Verde de Almeida de Mello
Nurse, PhD in Nursing from the School of Nursing at the Federal University of Rio Grande (FURG). Technical Nurse at the Laboratory of Nursing Practices (LabEnf) and Socioenvironmental Laboratory in Occupational Health (LASTRA) at the School of Nursing at FURG. Rio Grande, RS, Brazil. https://orcid.org/0000-0002-8466-3420

INTRODUCTION

World's population has already been exposed to the hepatitis B virus (HBV), an estimated 240 million people are chronically infected[1]. The disease is responsible for approximately 780,000 deaths per year worldwide, being the tenth cause of death, a fact that has become a public health problem, both in Brazil and worldwide[2]. In Brazil, this disease represents the second leading cause of deaths among viral hepatitis, from 2000 to 2016, 14,172 deaths were identified, most of them in the Southeast - 41.7%[3].

According to information from the 2018 Epidemiological Bulletin, the Notifiable Diseases Information System (SINAN) had 200,839 confirmed cases for hepatitis B between 1999 and 2017, that is, 34.2% of the Brazilian population, which reflects approximately one third[3]. This assertion proves the high rate of people with serological evidence of infection with this antigen, whether in the past or present[4].

HBV has high transmissibility and is the most serious type of hepatitis, its manifestation can be severe acute or cause chronic liver disease[5,6]. It is included in the list of compulsory notification diseases, therefore, health professionals have an important role in the notification and monitoring of carriers, symptomatic or not[6].

Among the cases notified at SINAN from 1999 to 2017, it was found that the main clinical form when confirming cases was chronic, representing 72.4% of the total[3], which denotes that most people are unaware of their serological condition, further aggravating the transmission chain of the infection due to the time they live with the disease without knowing they have it.

In 2016, only one in 20 people, who contracted viral hepatitis, was aware of their infection, and only one in 100 patients received treatment[5]. This condition contributes to the manifestation of complications of acute forms, followed by chronic[2].

Furthermore, misinformation is one of the main problems in the face of the manifestation of the disease, for this reason, it is important to carry out health education campaigns with the community. Action that contributes to the reduction of public expenditures, largely from prolonged hospitalizations, requiring monitoring throughout the course of the disease, often at the three levels of health care[2].

According to the Pan American Health Organization (PAHO) and the World Health Organization (WHO), the first global goals and strategies to reduce viral hepatitis in the world were created, whose action is to treat eight million people who suffer of hepatitis B or C by 2020 and, to reduce by 90% the incidence of viral hepatitis and, by 65%, the mortality of these diseases by 2030, which would represent its elimination as a public health problem[7]. Therefore, acting through epidemiological studies contributes to assess the impact of diseases and health interventions[8].

Therefore, it presents itself as a guiding question: What is the epidemiological profile of the notified cases of hepatitis B in Santa Cruz do Sul? What is the number of hepatitis B carriers by sex and age group, available in the districts and districts of the municipality?

Thus, the aim was to describe the epidemiological profile of notified cases of hepatitis B in the municipality of Santa Cruz do Sul and to elaborate a map containing the number of hepatitis B carriers by sex and age group, arranged in the districts and districts of the municipality.

METHODOLOGY

This is an epidemiological study of a descriptive character, based on secondary data, conducted in the city of Santa Cruz do Sul, in Rio Grande do Sul (RS), next to the Municipal Serology Service Center (CEMAS), which provides medium complexity care within the scope of the Unified Health System (SUS).

All cases of hepatitis B confirmed in the period from 2011 to 2016 were analyzed, in adults, aged over 18 years old, residing in that municipality, notified in the investigation form of the Notifiable Diseases Information System (SINAN).

Data collection occurred from August to September 2017, by defining the following variables: sex, age, vaccination coverage, risk factor, probable source/infection mechanism, type of exposure and location.

For data analysis, they were organized in the Microsoft Office Excel program and afterwards, the analysis of the absolute frequency and arithmetic mean of the data was conducted, which were structured in tables, graphs and maps.

The map was elaborated with the support of Professor Bruno Depra, linked to the public management nucleus of the University of Santa Cruz do Sul. For this purpose, it was requested to structure a map containing the territorial division by neighborhoods and districts in which there were basic health units. in the municipality and, together with them, include the number of notified cases and the female or male gender, according to SINAN.

As for the ethical precepts, these were respected, and authorization was requested from the Municipal Health Department, with justification for the absence of the Free and Informed Consent Term, obtaining the favorable opinion for the conduct of the study.

RESULTS

Fifty-four cases of hepatitis B were reported from 2011 to 2016, in the city of Santa Cruz do Sul (Chart 1), in which a significant increase can be seen in the year 2013, with 11 cases and later in 2016, 18 notifications.

Chart 1. Distribution of hepatitis B notifications, according to the year of notification and the trend line. Santa Cruz do Sul, RS, Brazil, 2017.

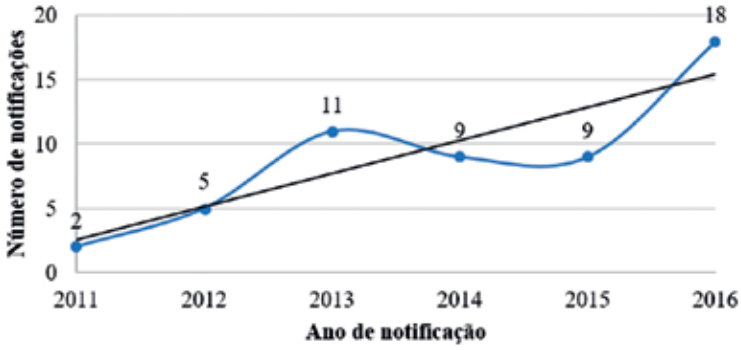


Chart 2. Distribution of notifications for hepatitis B according to sex. Santa Cruz do Sul, RS, Brazil, 2017.

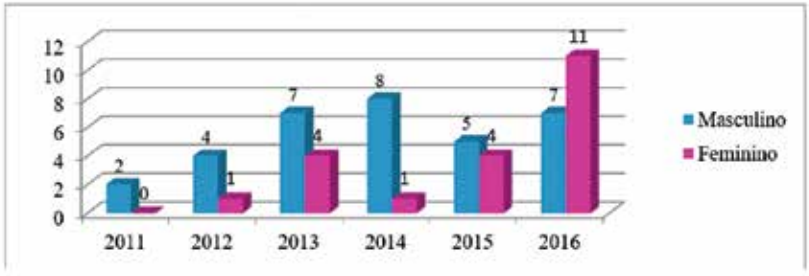


Table 1. Risk factors identified by laboratory confirmation among the 54 cases reported for hepatitis B. Santa Cruz do Sul, RS, Brazil, 2017.

VARIÁVEIS	2011 (N: 02)	2012 (N: 05)	2013 (N: 11)	2014 (N: 09)	2015 (N: 09)	2013 (N: 18)	TOTAL
INSTITUCIONALIZADO							
Não	02	05	11	08	08	17	51
Sim (Penitenciária)	-	-	-	01	01	01	03
CONTATO COM PACIENTE PORTADOR VHB							
Domiciliar (não sexual)	-	-	01	02	02	03	08
Sexual	-	-	-	-	01	02	03
Ocupacional	-	-	-	-	01	01	02
Não	-	04	08	07	05	11	34
Ignorada	02	01	02	-	02	03	10

Note: HBV: Hepatitis B virus. Ignored: Don't know. I didn't want to answer. It was not asked.

As for the profile of cases reported for hepatitis B (Chart 2) in Santa Cruz do Sul, there was a predominance of 33 male cases and 21 female cases. Despite the predominance of males in the analyzed period, in 2015 the number of cases among men decreased, unlike females, when in 2016, the number of cases almost tripled.

The age group most affected by hepatitis B in the analyzed period was 40 to 50 years, followed by those between 51 and 61 years, and in this age period, no elderly people were identified. However, between the ages of 62 and 72 years, seven elderly people were identified, which means that in the face of life stages, adults are more affected by the disease.

Another aspect evaluated was vaccination coverage, which sent an alert to the primary care service, since, of the total number of notifications, seven presented the complete schedule for hepatitis B and 46 did not have the vaccine.

As for risk factors (Table 1), of the 54 cases, three were institutionalized and linked to the prison home of SCS. Of these, two cases had no contact with HBV carrier and the other was ignored. However, when relating exposure to the disease, the three detainee participants used injectable drugs and inhalable or crack drugs. Two of them also used injecting drugs, had three or more sexual partners and had undergone dental treatment.

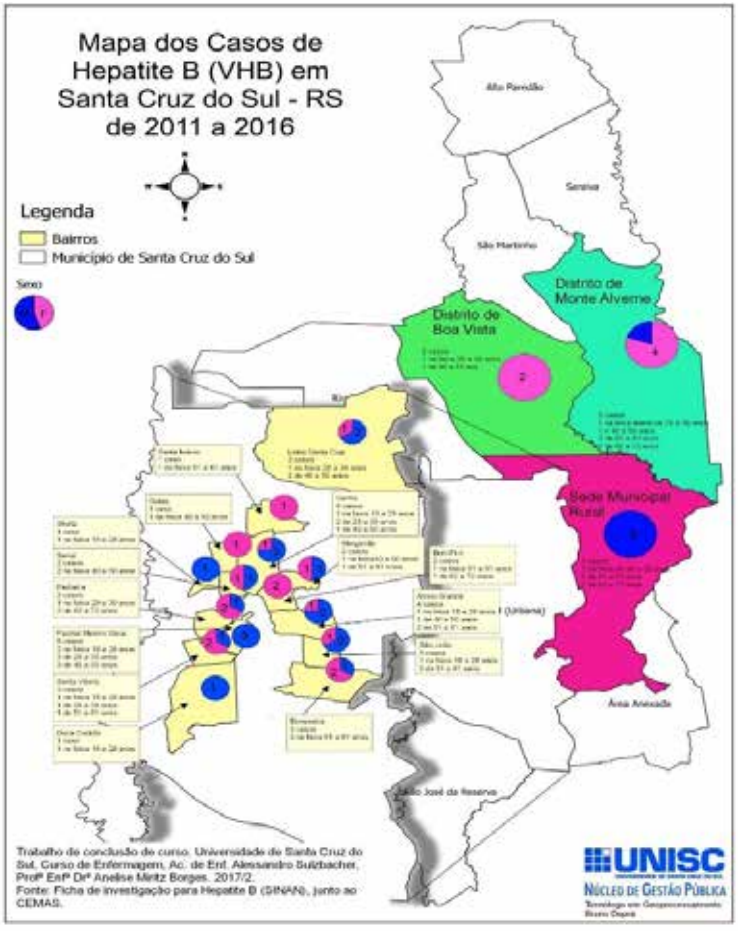
Among the 51 non-institutionalized cases, 34 did not have contact with a patient with HBV, and there are also other factors that potentially increased the likelihood of the disease occurring, such as home, sexual or occupational pathways.

Another worrying factor concerns the probable source of infection (Table 2), since 36 cases were ignored in the analyzed period, which means that the patient did not know, did not want to answer or even, who made the notification did not ask the patient about the origin . This fact weakens the interpretation of the results and emphasizes the importance of attentive professionals in handling the notification.

Table 2. Probable source/mechanism of hepatitis B infection in the 54 cases notified from 2011 to 2016. Santa Cruz do Sul, RS, Brazil, 2017.

VARIÁVEIS	2011 (N: 02)	2012 (N: 05)	2013 (N: 11)	2014 (N: 09)	2015 (N: 09)	2013 (N: 18)	TOTAL
Sexual	-	-	03	01	03	02	09
Transfusional	-	-	01	-	-	02	03
Uso de drogas	-	-	-	01	-	-	01
Vertical	-	-	02	01	-	-	03
Acidente de trabalho	-	-	-	-	-	-	-
Hemodiálise	-	-	-	-	-	-	-
Domiciliar	-	-	01	-	-	-	01
Tratamento cirúrgico	-	-	-	-	-	-	-
Tratamento dentário	-	-	-	-	-	-	-
Pessoa/pessoa	-	-	-	-	-	-	-
Outros	-	-	-	-	-	01	01
Ignorado	02	05	04	06	06	13	36

Figure 1. Map of cases of hepatitis B. Santa Cruz do Sul, RS, Brazil, 2011 to 2016.



When redirecting the look to Table 2, it appears that the most common source of infection was through sexual intercourse, in addition, it is reported that this mechanism prevailed for men, with eight cases reported and only one for women, and that the age of these participants ranged from 21 to 49 years of age, a significant and worrying fact, since many of them are still young, perhaps they did not take due care when performing sexual activity.

About the 54 reported cases, five had some associated disease, of these, three had Human Immunodeficiency Virus (HIV/AIDS) and two had other Sexually Transmitted Infections (STIs). As for the sex of these five participants, four were men and only one was a woman, the age ranged from 21 to 40 years and all had been exposed to some risk factor, such as inhalable drugs or crack, three or more sexual partners, tattoo/piercings , acupuncture, surgical treatment and dental treatment.

As for the location of cases notified with HBV within the territory of the municipality of Santa Cruz do Sul (Figure 01), it was possible to perceive that there was a certain difficulty on the part of the professionals who handle SINAN, to make the distinction between the rural area and urban, this fact is explained by the lack of disclosure of the correct territorial division. Therefore, to present the data next to the map, the territorial division was considered, being possible to identify that the greatest number of notifications occurred next to the Faxinal/Menino Deus neighborhood, with eight cases, all of them male and aged between 18 and 50 years. Followed by the central region of the city aged between 26 and 42 years and the Arroio Grande district between 27 and 55 years old, both locations with four cases each.

DISCUSSION

Among the goals for 2030, set by the Pan American Health Organization (PAHO) in the face of viral hepatitis, is the performance of 90% of tests and 80% of the offer of treatments for hepa-

titis B and C[9]. Such initiatives are important, given that the mortality rate in 2016, in Brazil, for the sex ratio, was 28 deaths among men, for every 10 deaths among women[3].

The detection rates of hepatitis B in our country, since the beginning of the compulsory notification of the disease in 1999, were higher for the South, North and Central West regions, compared to the national rate(1). When looking to the South, in Santa Cruz do Sul, it appears that the high notification numbers in 2013 can be justified by the greater mobilization of health services in primary care, in the detection of cases by the rapid testing of hepatitis B and C[7].

In view of the distribution of notified cases of hepatitis B at the State Health Surveillance Center of RS, for every 100,000 inhabitants there was a tendency to increase cases from 2011 to 2015 and after, a reduction in the year 2016[6]. When comparing with the SCS data, it appears that this last year was atypical and impacting for the municipality, as it doubled the number of cases compared to the previous year, which may be related to the impact of education work, encouraging care in health, risks and conducts for diagnosis and treatment.

There was also a great mobilization in 2016 by the Municipal Health Secretariat to carry out prevention and awareness campaigns on hepatitis B in SCS. Trainings were conducted by the Central Public Health Laboratory of Rio Grande do Sul (Lacen), effective action by SMS representatives, support from the University of Santa Cruz do Sul, in addition to the presence of a bus with trained professionals to carry out information activities on prevention of the disease to the Santa Cruz community[10]. All these actions refer to a major commitment by the municipality to prevent and report hepatitis B, which may have contributed to the increase in confirmed cases.

In stratification by sex, in 2017, the highest percentage of cases notified in Brazil was for men, aged between 30 and 44 years (36.8% of cases), which also occurred in the accumulated cases between 1999 to 2017, obtaining male prevalence between the ages of 25 to 49 years (60.5%). Among female cases, in this period of more than a decade, the age with the highest notification was between 20 and 39 years - 53.7%[3]. The opposite in relation to sex was identified in Espírito Santo, with a predominance of female cases and ages between 20 and 49 years. Fact possibly explained due to the tendency for women to use health services more[11].

The trend of hepatitis B notifications for males was evidenced in other studies, such as in Salvador, in the State of Bahia[12] and in Montes Claros, Minas Gerais[13], the latter points out that 90.2% were adults aged up to 44 years, obtaining the elderly age group with the lowest prevalence, which is compatible with the present research in SCS.

It appears that the probable source or mechanism of hepatitis B infection, between 2007 and 2017, in Brazil, was sexual[3], which agrees with the findings in the present research. Nevertheless, the Hepatitis Technical Manual points out the other possible sources, such as: parenteral route (sharing needles and syringes, dental/surgical procedures, tattoos, piercings), as well as personal hygiene objects (toothbrushes, nail pliers, razors or shaving), breast milk and vertical transmission (from mother to child). In addition to work accidents, hemodialysis and home[3]. Risk behavior is possibly linked to sexual contamination, but also to the presence of multiple partners and the lack of protection during sexual intercourse, in which the spread of STIs is imminent[13].

It is important to recognize that the approach to sexual experience needs to overcome stigmas and prejudices related to heteronormative perspectives and, yes, to consider the values and inequalities permeated in each culture and human evolution, in order to adequately welcome the diversity and uniqueness of each subject[14].

The appearance of the condition resulting from hepatitis B was also related to surgical treatment[3], therefore, you need to know that the virus can survive on a dry surface for up to seven days and is considered much more infectious than HIV.

Attention to tattoos, mostly with homemade methods (inside the prison units or in your own residence), as well as the use of injectable drugs and low education[15]. In riverside locations on the Madeira River, dental extraction and surgery history were the most cited[4].

In addition to the use of injectable drugs, dental treatment and sexual contagion with indication of multiple partners, home contact with another person infected with HBV was also highlighted[11]. HIV co-infection among notified cases of hepatitis B was observed in 5.2% of the cases accumulated in the period from 2007 to 2017, with an increase in the Southeast region of Brazil, which reiterates the importance of the diagnosis, facilitated free of charge through of rapid tests[3].

In Rio Grande do Sul, in 2017, 235,697 rapid tests for hepatitis B were carried out, with availability in 457 municipalities, in at least one health unit, an event to be expanded to all municipalities in Rio Grande do Sul by the year 2019, according to the goal foreseen in the State Health Plan[6].

Another reason is the low adherence to immunization, often due to a lack of guidance, which gives less protection to hepatitis B infection(13). Health education programs are essential, addressing the importance of vaccination in preventing the disease in question, as well as the inclusion of active search for those who have not completed the vaccination schedule[16]. This attention needs to be encouraged, since the immunobiological is available free of charge by SUS in primary care units in the municipalities[7], which denotes vigilance, especially among populations with low or no education and living in rural areas[17]

The WHO Global Health Sector

Strategy in 2015 pointed to an estimate that 2.7 million people were co-infected with HBV, with 257 million people living with the virus in a chronic form worldwide. One of the justifications was related to the unavailability of the vaccine when these people were born[18], because the immunobiological against hepatitis B has existed since 1982[5].

It should be noted that the expansion of the hepatitis B vaccine for the age groups from one to 19 years old occurred in 2001, which started to provide greater prevention[16]. As of 2016, the vaccine was universalized to all age groups[14]. Nevertheless, the low vaccine adherence of the cases notified by hepatitis B interferes considerably in the results and in the implementation of possible policies for the prevention and treatment of the disease[12]. Because, the notifications that occurred in the period from 1999 to 2016, more than half of the cases, 58.6% had the source of infection registered with the ignored option[1].

For that, the notification records depend on the interpretation of the responsible professional[3], as well as the service user, who may not report the real risks to which they are exposed, which suggests a more detailed approach and description process at the time of exposure. As well as, investment in primary prevention, including vaccination and better infection control, such as improving the diagnostic process and planned management of confirmed cases[19]. There is also a mechanism that assesses the effectiveness of the hepatitis B vaccine through the anti-HBs test, however, unlike the vaccine, the test is not routinely available in the public health system after vaccination.

Another relevant aspect concerns the location of infected users, who, in their majority, belong to the urban area and use the Testing and Counseling Centers (CTA), as well as the Primary Health Care services to receive the support due in their linked municipalities[17].

It should be noted that these Centers were implemented in the early 90s by the Ministry of Health, through the National Program for Sexually Transmitted Infections and AIDS. The inclusion of serological testing for viral hepatitis in CTAs began in 2004, contributing to the restructuring of the reference network and the training of professionals on the modes of transmission, control measures and interpretation of serological markers of these diseases[14].

From the data analyzed in the period from 2011 to 2016, it was possible to verify that the trend line has been increasing, with a highlight for 2016, in which there was a doubling in the number of cases reported in relation to 2015.

Thus, knowing the geographic distribution of the notified cases allows viewing the disposition of these, as well as the spatial voids, where notifications do not occur, a situation that may also be an indication of limitation of the assistance offer, since new cases may not be notified for lack of access to care[20]. Therefore, the identification of the profile of the notified cases, the construction of maps and the monitoring of adherence to treatment, are mechanisms for monitoring and stimulating investment in vaccination campaigns, as well as educational actions aimed at the greater dissemination of care in health and possible risk behaviors for HBV infection.

CONCLUSION

From the data analyzed in the period from 2011 to 2016, it was possible to verify that the trend line has been increasing, with a highlight for 2016, in which there was a doubling in the number of cases reported in relation to 2015. This significant increase it is strongly related to disease prevention campaigns, which should be praised, as they make it possible to inform the community in general, about the real risk that HBV brings to the individual and, above all, about ways to prevent the disease.

The unfavorable scenario for the vaccine condition among the notified cases of the research was somewhat surprising, mainly because it is a disease that can be easily controlled with the vaccine, and it is available in any unit of Primary Health Care. then create strategies to expand vaccination coverage, especially among adults and in the urban area, the most vulnerable group for the disease in Santa Cruz do Sul.

Knowing the profile of the population affected by HBV and, through the map, locating such results and guiding

health professionals is a simple step, but of great impact to subsidize health education, especially with regard to disease prevention, whose performance of professionals of health becomes relevant, both as facilitators of the notification process and as educators in the face of the alarming situation of the disease in the research scenario.

REFERENCES

1. Ministério da Saúde, Secretaria de Vigilância em Saúde. Departamento de DST, Aids e Hepatites Virais (BR). Protocolo clínico e diretrizes terapêuticas para hepatite B e Confecções [Internet]. Brasília, DF: Ministério da Saúde; 2017. [citado em 07 nov 2019]. Disponível em: http://www.aids.gov.br/pt-br/pub/2016/protocolo-clinico-e-diretrizes-terapeuticas-para-hepatite-b-e-coinfeccoes.

2. Carvalho LRB, Cruz JN, Coelho LS, Carvalho HEF, Lima CHR, Almeida CAPL. Prevenção da hepatite B: formação e atuação do enfermeiro de Estratégia Saúde da Família. Rev. Prev. Infecç. Saúde. [Internet]. 2015 [citado em 20 nov 2019]; 1(2):83-90. Disponível em: https://ojs.ufpi.br/index.php/nupcis/article/view/4114/pdf.

3. Ministério da Saúde, Secretaria de Vigilância em Saúde (BR). Boletim epidemiológico. Hepatites virais 2018 [Internet]. Brasília, DF: Ministério da Saúde; 2018. [citado em 15 nov 2019). Disponível em: http://portalarquivos2.saude.gov.br/images/pdf/2018/julho/05/Boletim-Hepatites-2018.pdf.

4. Silva ACB, Souza LFB, Katsuragawa TH, Lima AA, Vieira DS, Salcedo JMV. Perfil soroepidemiológico da hepatite B em localidades ribeirinhas do rio Madeira, em Porto Velho, Estado de Rondônia, Brasil. Rev Panamazonica Saude. [Internet]. 2015 [citado em 21 nov 2019]; 6(2):51-59. doi.org/10.5123/S2176-62232015000200007

5. Organização Pan-Americana de Saúde. Organização Mundial da Saúde. Dia mundial da hepatite 2016: Conheça a hepatite e aja agora; 2016.

6. Centro Estadual de Vigilância em Saúde (Rio Grande do Sul). Divisão de Vigilância Epidemiológica. Programa Estadual de Hepatites Virais. Dia mundial de luta contra as hepatites virais 2018. Rio Grande do Sul: Secretaria de Saúde; 2018.

7. Ministério da Saúde, Secretaria de Vigilância em Saúde. Departamento de Vigilância, Prevenção e Controle das Doenças Sexualmente Transmissíveis, Aids e Hepatites Virais (BR). Manual Técnico para o Diagnóstico das Hepatites Virais. Brasília: Ministério da Saúde; 2018.

8. Silva, MGC da; Rouquayrol, MZ (Org.). Rouquayrol: epidemiologia & saúde. 8. ed. Rio de Janeiro: Editora Medbook; 2018. 752p.

9. World Health Organization. Organização Pan-Americana de Saúde. Novos dados sobre hepatites destacam necessidade de uma resposta global. 2017. Brasília, DF: Ministério da Saúde; 2017.

10. Assessoria de Comunicação da Prefeitura de Santa Cruz do Sul (Santa Cruz do Sul), Campanha de prevenção contra as hepatites virais ocorre do dia 26 a 29. Santa Cruz do Sul: Assessoria de Comunicação da Prefeitura de Santa Cruz do Sul; 2016.

11. Fontes AM, Ardisson JS, Souza MA, Freitas RR, Pancoto JA. Epidemiology of hepatitis B virus in the cities of the northern region of Espírito Santo, Brazil. An. acad. bras. ciênc. [Internet]. 2016 [citado em 10 nov 2019]; 88(3):1549-55. doi.org/10.1590/0001-3765201620150140.

12. Martins MMF, Veras RM, Costa EAM. Hepatite B no Município de Salvador, Bahia, Brasil: Padrão epidemiológico e associação das variáveis sociodemográficas. Rev. bras. ciênc. saúde. [Internet]. 2016 [citado em 10 nov 2019]; 20(3):189-196. doi.org/10.4034/RBCS.2016.20.03.03.

13. Gusmão BM, Pereira FS, Rocha AP, Fernandes MBS, Dias OV, Costa SM. Análise do perfil sociodemográfico de notificados para hepatite B e imunização contra a doença. Rev. pesqui. cuid. fundam. (Online). [Internet]. 2017 [citado em 15 nov 2019]; 9(3):627-633. doi.org/109789/2175-5361.2017.v9i3.627.633.

14. Ministério da Saúde, Secretaria de Vigilância em Saúde. Departamento de Vigilância, Prevenção e Controle das Infecções Sexualmente Transmissíveis, do HIV/Aids e das Hepatites Virais (BR). Diretrizes para organização do CTA no âmbito da Prevenção Combinada e nas Redes de Atenção à Saúde [Internet]. Brasília, DF: Ministério da Saúde; 2017. [citado em 07 nov 2019]. Disponível em: http://www.aids.gov.br/pt-br/gestores/diretrizes-para-organizacao-e-funcionamento-dos-cta-no-ambito-da-prevencao-combinada.

15. Negreiros DEH, Vieira, D.S. Prevalência de hepatites B, C, sífilis e HIV em privados de liberdade - Porto Velho, Rondônia. Rev. Interd. [Internet]. 2017 [citado em 15 nov 2019]; 10(1):43-52. Disponível em: https://revistainterdisciplinar.uninovafapi.edu.br/index.php/revinter/article/view/1058.

16. Francisco PMSB, Donalisio MR, Gabriel FJO, Barros MBA. Vacinação contra hepatite B em adolescentes residentes em Campinas, São Paulo, Brasil. Rev. bras. epidemiol. [Internet]. 2015 [citado em 13 dez 2019]; 18(3):552-567. Disponível em: http://www.scielo.br/scielo.php?pid=S1415-790X2015000300552&script=sci_arttext&tlng=pt.

17. Dias JA, Cerutti Junior C, Falqueto A. Fatores associados à infecção pelo vírus da hepatite B: um estudo caso-controle no município de São Mateus, Espírito Santo. Epidemiol. serv. saúde. [Internet]. 2014 [citado em 03 nov 2019]; 23(4):683-690. doi.org/10.5123/S1679-49742014000400010.

18. World Health Organization. Global Hepatitis Report 2017. Geneva: World Health Organization; 2017.

19. Lanini S, Pisapia R, Capobianchi MR, Ippolito G. Global epidemiology of viral hepatitis and national needs for complete control. Expert rev. ant. infect. ther. 2018; 16(8):625-639.

20. Almeida EC, Gleriano JS, Pinto FKA, Coelho RA, Vivaldini SM, Gomes JNN, Santos AF, Sereno LS, Pereira GFM, Henriques SH, Chaves LDP. Acesso à atenção às hepatites virais: distribuição de serviços na região Norte do Brasil. Rev. bras. epidemiol. [Internet]. 2019 [citado em 10 nov 2019]; 22(Suppl 1):e190008. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1415-790X2019000200405&lng=en.