The importance and challenges of health surveillance in an international border: a case study

Importância e desafios da vigilância em saúde em uma região de fronteira internacional: um estudo de caso[1]

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Abstract

The objective of This article was to identify the main challenges of promoting health surveillance in a triple border region of the Brazilian legal Amazon. A single explanatory case study was carried out, with a qualitative approach, which used documentary data and interviews. The Results demonstrate that health surveillance is essential for disease control in the studied region. In addition, the differences between the health systems of the three countries that make up the triple border (Brazil, Colombia, and Peru) showed to be the main challenge for establishing health policies.

Keywords: Border Areas; Border Health; Public Health Surveillance; Health Management; International Cooperation.

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Resumo

O objetivo deste artigo foi identificar os principais desafios da promoção da vigilância em saúde em uma região de tríplice fronteira da Amazônia Legal brasileira. Foi realizado um estudo de caso único, explicativo, com abordagem qualitativa, que utilizou dados documentais e entrevistas. Os resultados demonstram que a vigilância em saúde é fundamental para o controle de doenças na região. Além disso, as diferenças dos sistemas de saúde dos três países que compõem a tríplice fronteira (Brasil, Colômbia e Peru) se mostraram o principal desafio para o estabelecimento de políticas sanitárias.

Palavras-Chave: Áreas de Fronteira; Saúde na Fronteira; Vigilância em Saúde Pública; Gestão em Saúde; Cooperação Internacional.

Introduction

Historically, international border regions have been considered barriers with strong divisions and unique characteristics. However, over the years, this definition has undergone a process of resignification, gaining new concepts (Fabriz et al., 2021). Thus, international borders represent a contact zone between different territorial domains constituted by specific government spheres and with their own management models (Andrade; Granziera, 2021; Fabriz et al., 2021).

International border regions have different forms of migration control, which regulate the flow of people in and out of countries. This process of human mobility is primarily responsible for the political, social, cultural, and economic interrelationships that characterize border territories (Londoño Niño, 2020).

In the social field, international borders should be analyzed not only as geographical regions, but also as a space that involves social and human issues. Therefore, these spaces should be understood both from the closed concept of political border and from the peculiarities of the migratory movements that take place there (Pereira; Cunha; Rosa, 2020).

In international border regions characterized by territorial porosity and high human mobility, especially in twin cities, their inhabitants establish relationships and coexistence. In this scenario, commuting occurs, as individuals move from their country to another neighboring country for work, study, etc. (Fabriz et al., 2021; Santos-Melo et al., 2019).

In Brazil, the main attraction for this phenomenon is the existence of a free and universal national health system, which serves diverse populations in a comprehensive and equal way (Fabriz et al., 2021). As a result, migration has become a major health problem, as the system becomes overloaded, hindering the control and elimination of diseases and

increasing budget costs, since the foreign population is not accounted for (Granada et al., 2017).

Governmental and nongovernmental debates on the right to health in international border regions are guided by an understanding of the duties and responsibilities of each country in terms of its political aspects of health management. The issue significantly affects the guidelines of the Brazilian Unified Health System (SUS), since the transit between the health system itself and the actions of managers in cross-border areas is not carefully evaluated (Nogueira; Fagundes, 2015).

Factors such as human mobility, the provision of health care to foreigners, and commuting are a reality in international border regions throughout Brazil (Fabriz et al., 2021; Ferreira; Mariani; Braticevic, 2015), which can affect the health condition of the population living on these territorial borders. Thus, health surveillance (HS) is an essential tool for disease control, even though it represents a challenge for local health management (Aikes; Rizzotto, 2018).

According to the National Health Surveillance Policy (*Política Nacional de Vigilância em Saúde* – PNVS), HS is a continuous and systematic process aimed at planning and implementing public health actions to promote, prevent, and control health risks (Brasil, 2018). In international border regions, while HS follows the same regulations applied in other national territories, it also depends on strategies based on international and national disease control and prevention policies. Studies show that cooperation agreements signed between federal governments of border countries allow the development of joint actions to implement HS policies and control health events in international border regions (Aikes; Rizzotto, 2018; Santos-Melo; Andrade; Ruoff, 2018).

Establishing the boundaries between local actions remains a major challenge for HS, given the lack of instructions and regulations regarding the attributions of each side, human and material resources, and regional funding. This raises questions about the obligations and duties related to health in international border regions and suggests an insufficient management of HS at the organizational level (Albuquerque et al., 2021).

Considering these peculiarities, this study aims to identify the main challenges of promoting HS in a tri-border region of the Brazilian Legal Amazon.

Methods

This analysis is part of a qualitative single, explanatory qualitative case study (Yin, 2015), performed in the tri-border region between Brazil, Colombia, and Peru, in the municipality of Tabatinga, Amazonas, Brazil. The municipality of Tabatinga, located 1,105 kilometers from the capital of the state of Amazonas, borders Colombia and Peru, which includes a land border with the city of Leticia, Amazonas Department, Colombia; and a river border (Solimões River) with the island of Santa Rosa de Yavarí, in the province of Mariscal Ramón Castilla, Loreto Department, Peru.

This study used documentary data and interviews as sources of evidence. Information was collected from March 2017 to January 2018, in the physical archives of the Municipal Health Department of Tabatinga, Amazonas, and on the websites of the Amazonas State Health Department. Administrative acts, decrees, decree-laws, normative instructions, laws, technical standards, ordinances, resolutions, and minutes of meetings were included, all produced from 2005 to 2017. This time frame was considered from the implementation of the Integrated Health System of Borders (SIS-Fronteiras) in Brazil (Brasil, 2005). The search resulted in a database of 98 documents.

Interviews were conducted from April to November 2017 with 12 health managers from the Municipal Health Department and Municipal Health Council of Tabatinga and the Amazonas State Health Department. The meetings were held by prior appointment

with the managers. A digital voice recorder and a semi-structured script were used for the interviews.

Data were organized using MaxQDA12® software, with data analysis and the creation of codes and subcodes. The theoretical proposition of the case study was used as an analytical strategy and the construction of explanations as an analysis technique, which enabled the relevance of the phenomenon studied to be identified.

This study complied with Resolution 466/12 of the National Health Council (Brasil, 2012) and was previously approved by the Research Ethics Committee of the Universidade Federal de Santa Catarina, under Opinion No. 2,047,137. To maintain the confidentiality of documents and the anonymity of interviewees, the documents collected were identified as DOC1 to DOC23 and interviewees as G1 to G12.

Results and discussion

After data analysis, the evidence presented allowed the creation of two categories that represented the importance and challenges of promoting HS on the Brazilian side of the border region studied.

The importance of health surveillance in an international border region

HS is essential for all levels of health care (Costa et al., 2020). This tool develops skills in programming, planning, and implementing public policies, such as the PNVS, which includes actions related to epidemiological surveillance, environmental HS, occupational HS, and sanitary surveillance—all aligned with the SUS—aimed at promoting, preventing, and recovering the health of the population, without neglecting the transversality of actions on the determination of the health-disease process (Brasil, 2018).

In international border regions, HS is particularly important both from a socioeconomic perspective and in fostering integrative processes between South American cross-border countries (Aikes; Rizzotto, 2020). In the region analyzed in this study, interviewees pointed HS as a relevant factor for the promotion and prevention of diseases. In fact, for the managers, investing in HS in international border areas is key to maintaining local health. Interviewees stated that the HS-related strategies adopted in the region go beyond those standardized for other regions of Brazil.

> these days the secretary of health was in Peru, on the other side of the river, and he had a conversation with some Peruvian doctors, to check on the issue of the Zika virus and chikungunya, because the municipality has been receiving a lot of demand from foreigners infected with these viruses. (G8)

According to the managers, these attitudes are necessary in the studied region, as Brazil and Colombia share a border and entry into Peru is via a river crossing, which is estimated to take less than 15 minutes. This facilitates the entry of diseases into the municipality and the free movement of possible vectors, as two interviewees suggested: "*health issues don't respect borders, for example, vectors, mosquitoes, viruses like dengue, Zika, chikungunya, and others, they don't respect borders*" (G3); "*During the cholera period, more than 20 cases were identified within the municipality of Tabatinga, coming from Colombia, from Peru, and they were cases that migrated from there to here, not from here to there*" (G7).

Diseases enter countries by several mechanisms, such as migratory flows of people crossing the border into Brazil (Antunes et al., 2021). In recent decades, the Brazilian economic scenario has become attractive to foreigners, thus increasing human mobility in international border regions, with a consequent increase in the demands related to diseases and access to health care for these populations (Granada et al., 2017).

The same occurs in other border regions in Brazil, in which managers promote, in addition to normatively established actions, specific HS actions for disease control in these border regions. DOC3 provides for one of these actions, since "*the action plan presents the actions of the Sanitary Surveillance regarding the control of foreign products that enter our Municipality without any control*" (DOC3).

HS actions are usually established by a process of collecting, consolidating, and analyzing data and disseminating health-related information, thus aiming to plan and implement public health measures, such as action on the factors that condition and determine health, in order to ensure the promotion of the health of the population and the prevention of diseases and their complications (Brasil, 2018).

However, in international border regions, other actions are necessary, since Brazil borders 10 countries in South America, totaling more than 15,500 kilometers in length (Brasil, 2017). This long strip of land is characterized by intense human mobility, which directly interferes in the health-disease process of border residents regarding the pattern of occurrence of diseases, the circulation of pathogens, and the functioning of the SUS (Peiter et al., 2013).

In the border region studied, this human mobility is due to several factors, including the purchase and sale of industrialized and agricultural products in small informal establishments (Santos-Melo et al., 2019). These factors tend to increase the risk of health problems in the population living in the municipality, who buy products without knowing their origin and challenge the local health authorities.

Thus, according to one of the managers interviewed, when a problem related to products of this nature occurs, local managers cannot proceed according to national health regulations, since these products are not regulated by Brazilian legislation.

> The problem is that they (foreigners) have already left it in our municipality, and this problem ends up not being identified, not being notified to the Ministry of Health or to the State Department of Health so that these agencies take action, because we do not know what this product is. (G1)

Previous studies have already addressed the circulation of products on the border between Brazil, Colombia, and Peru, highlighting the entry of Peruvians and Colombians in Brazil in search of a source of income in the informal trade of food, clothing, and products in general (Santos-Melo et al., 2019). However, despite being a border, the analyzed region follows national disease control conducts that define which food products must be registered, whether this registration has to be made at the Brazilian Health Regulatory Agency (ANVISA), and whether it needs to undergo a series of stages before it can be commercialized (Brasil, 2018).

Based on this scenario—and supported by past experiences—HS in the studied border region works to prevent health problems, according to one of the interviewees.

> With cholera entering the state by the Tabatinga region in 1992, and now more recently with the entry of Haitians, the Health Surveillance Foundation worked on a contingency plan for the issues of the diseases that were being reinserted in Brazil across the border and the problems outside the epidemiological issue of Brazil. (G11)

The municipality has the Tabatinga Border Laboratory (LAFRON), which seeks to diagnose diseases for the entire region. In the studied region, the existence of the LAFRON is necessary for the development of early diagnosis and disease prevention actions by informal cooperative agreements between Brazil, Colombia, and Peru, mainly focused on the exchange of health information, such as the occurrence of cases in one of

the three bordering countries (Santos-Melo et al., 2020).

Therefore, HS is important for maintaining the health of the population living in the border region, since territorial factors are determinant for the adoption of surveillance actions, which should be based on local particularities for the organization of a health system that meets the specificities of this population (Cardoso; Costa; Silva, 2020).

Challenges of health surveillance in an international border region

Currently, State and Municipal Health Departments maintain the PNVS in operation in all regions of Brazil in a planned and hierarchical manner. This policy is based on the technical guidelines of Ordinance GM/MS No. 1,378 of July 9, 2013, which regulates its responsibilities and defines the guidelines for the implementation and financing of its actions (Brasil, 2013).

In international border regions, HS regulations are challenged from the context of border territory (Nascimento; Andrade, 2018). The main challenges in the border region studied focus on the difference between the health systems of the three countries, which directly affects the prevention and control of health problems, according to the following interviewee: "*Regarding malaria, I may have cases imported from the Colombian side where the focus is Brazil, this can happen because the health systems of the two countries do not speak*" (G5).

The health systems of the three tri-border countries (Brazil, Colombia, and Peru) are different. Brazil adopts the SUS as a public policy institutionalized by Law No. 8,080/90, ensuring, to all people, access to health services of the public network (Brasil, 1990). This system is based on the principles of universality, comprehensiveness, and equity to ensure its users universal and humanized care at all levels of health care (Silva; Machado, 2020). In the other two countries, access to health is provided by contributory and subsidized systems (Cárdenas; Pereira; Machado, 2017; Tineo, 2016).

Since 2016, Colombia has been implementing a comprehensive health care model with proposals that involve primary care, focusing on family and community. This model aims to improve the access and quality of health services in the country. Colombia recognizes that its health system should place the individual as a central target, changing the scientific biomedical model of treatment of diseases to comprehensive patient care (Arias-Murcia et al., 2021).

However, according to G1, this determination is not present in all HS services in the studied region, and some problems of inequity of access to health services for the Colombian population are still evident. The interviewee states that, on the Colombian side of the border, the treatment of some diseases is not performed as in Brazil, causing the population to enter the Brazilian border in search of treatment. "*Colombia does not treat their patients who have tuberculosis, Brazil does, here we need supervision, here we need surveillance*" (G1).

Regarding the third unit of this tri-border, Peru has a health system with two sectors that provide health services to the population: public and private. Its government offers the public service in the form of a contributory scheme subsidized by government entities and a direct contributory scheme by employers in a direct and compulsory manner. Health services are provided to the population by a comprehensive health insurance for individuals living in extreme poverty and precarious conditions, with subsidized services (Campos; Kirsten 2021).

According to the interviewees, the Peruvian health system offers few health services to the population living on the island of Santa Rosa de Yavarí, just across the border from Brazil: "*Many diseases are entering Brazil through Peru, because there is no disease control there, there is little surveillance*" (G3).

The idiosyncrasies in the health systems of the three countries result in different approaches to similar health situations. According to the interviewees, health problems on the Peruvian or Colombian side are not always treated with the same criteria as in Brazil. This culminates in an accumulation of HS actions developed on the Brazilian side of the border, but which, for territorial reasons, need to reach the municipalities of neighboring countries. "*Today, if a Colombian or Peruvian patient has an animal exposure situation and comes to the Brazilian service, we are left without action, because the regulations are different here*" (G2).

> we need to discuss, for example, the issue of endemic diseases, because I can't just discuss the Brazilian side, I have to discuss the border, the region, everyone who lives in that region. Therefore, it is necessary to build a protocol that standardizes actions. (G7)

Interviewees state that no foreigner who crosses the border in search of health care is denied care, including those with conditions included in the health programs of the Brazilian federal government, such as tuberculosis and the human immunodeficiency virus (HIV). "*Here we treat everyone who comes to us, regardless of their complaint*" (G5).

However, they also highlight that when treatment is prolonged, the continuity of treatment can be lost. HS on the Brazilian side of the border is unable to search for the foreign patient who has not returned for follow-up, since the patient is outside national territory: "*the organization in relation to rabies vaccination is: what's from there can't be done here and what's from here can't be done there, we have to refer the patient, so that we can guarantee guidance at the source*" (G2).

The complete treatment of infectious diseases is of the utmost importance for disease control, since discontinuing treatment leads to a worsening of existing cases (Basta et al., 2013) and contributes to the spread of preventable cases (Peiter et al., 2013).

In international border regions, this condition can affect HS actions, despite the informal agreements that allow some strategies to be developed jointly. Interviewees understand that these actions are necessary in the municipality, based on the principle that treating certain diseases of border residents, regardless of which side of the border, will bring favorable results, minimizing possible complications for the Brazilian side of the border. "*We do the fumigation on our side and sometimes, if we need to, we lend it to the other side as well, because if we don't, after a little while, the mosquitoes will be back*" (G1). "*When it comes to communicable diseases, it doesn't make sense for me to do my job on one side and not on the other, because the mosquito doesn't recognize the border*" (G9).

These agreements allow local managers to define specific actions to control diseases. However, the legislation does not support these definitions and, thus, the decision on which actions should be shared between the tri-border countries is still based on the ethical and political positioning of local managers (Santos-Melo et al., 2020).

Therefore, the development of public policies that enable the integration of HS in border regions, especially in areas that are more distant from the major centers, such as the region studied, is of paramount importance in minimizing the challenges faced by health managers in these regions.

Final considerations

This study allowed the creation of two categories that support the importance and challenges faced by health managers in a Brazilian municipality on an international border in promoting HS in a region full of peculiarities.

In the border region studied, the intense flow of people, animals, and products are vectors that facilitate the spread of diseases and health problems. The differences between the local health systems aggravate these factors, and only the Brazilian side has a unified and integrated system that promotes

HS actions to protect the residents of that border region.

The challenges faced by local managers in promoting HS in that region go beyond the challenges of other Brazilian territories, as these regions serve as a gateway for migration, not just to that region, but to the rest of Brazil.

Therefore, investing in HS on international borders with neighboring territories is extremely important to promote health and prevent diseases, which can easily enter or leave Brazilian territory due to the intense human mobility in these regions.

In this sense, managers in the studied border region organize integrated actions between the bordering municipalities, especially in order to promote communication in the event of diseases occurring in one of the three municipalities. Actions like this try to strengthen the relationship between the health services of the three countries and set precedents for formal political and health integration agreements.

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