

# Regional management in the face of the COVID-19 pandemic: case study in São Paulo

*Gestão regional no enfrentamento à pandemia da Covid-19: estudo de casos em São Paulo*

Ana Lígia Passos Meira<sup>1</sup>, Lídia Pereira da Silva Godoi<sup>1</sup>, Nelson Ibañez<sup>2</sup>, Ana Luiza D'Ávila Viana<sup>3</sup>, Marília Cristina Prado Louvison<sup>1</sup>

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**ABSTRACT** At the end of 2019 the world was surprised by COVID-19, which arrived in Brazil at the beginning of 2020, causing the Unified Health System (SUS) to adopt immediate strategies to meet health needs, as well as putting in check all the obstacles that the health system has been facing in recent years. In the state of São Paulo it was not different from the rest of the country in relation to the confrontation. This study aimed to identify the main strategies adopted in 5 health regions of São Paulo, focusing on regional management, analyzing the processes and practices adopted to face the COVID-19 pandemic. It was a qualitative study, carried out through a multiple case study, with an exploratory approach, based on field research and regional workshops. In this study, the health regions were able to prove the importance of intersectoral actions in the health system. It was noted the great role of municipalities in these actions and their union, strengthening the role of regionalization and expanding the importance of governance in health. In addition, the health regions were strengthened because they exercised their leadership role and organized actions with the municipalities.

**KEYWORDS** Organization and administration. Regionalization. COVID-19. Pandemic. Health regions.

**RESUMO** Ao final do ano de 2019 o mundo foi surpreendido pela Covid-19, que chegou ao Brasil no início de 2020, fazendo com que o Sistema Único de Saúde (SUS) adotasse estratégias imediatas para atender as necessidades de saúde da população, colocando em evidência todos os obstáculos que o sistema de saúde vinha enfrentando nos últimos anos. O estado de São Paulo não foi diferente do restante do País em relação ao enfrentamento. Este estudo objetivou identificar as principais estratégias adotadas em 5 regiões de saúde de São Paulo, com foco na gestão regional, analisando os processos e práticas adotados para o enfrentamento à pandemia da Covid-19. Tratou-se de um estudo qualitativo, realizado através de estudo de casos múltiplos, com abordagem exploratória, a partir de pesquisa de campo e realização de oficinas regionais. As regiões de saúde deste estudo puderam comprovar a importância da intersectorialidade nas ações de saúde como um todo. Notou-se o grande papel dos municípios nestas ações e a união destes, fortalecendo o papel da regionalização e ampliando a importância da governança em saúde. Ademais, as regiões de saúde saíram fortalecidas porque exerceram seu papel de liderança e organizaram ações junto aos municípios.

<sup>1</sup>Universidade de São Paulo (USP), Faculdade de Saúde Pública (FSP) – São Paulo (SP), Brasil.  
analigiaapassos@hotmail.com

<sup>2</sup>Faculdade de Ciências Médicas da Santa Casa de São Paulo (FCMSCSP) – São Paulo (SP), Brasil.

<sup>3</sup>Universidade Federal da Bahia (UFBA) – Salvador (BA), Brasil.

## Introduction

At the end of 2019, the world was surprised by a new virus – Sars-CoV-2 (COVID-19). In a few months, the virus reached all continents, creating important challenges for health systems, due to its rapid transmission and the severity of its symptoms<sup>1</sup>.

Health systems had to reorganize themselves to respond quickly to the population, which is increasingly exposed to the new virus and with the number of hospitalizations and deaths on the rise. The first case of COVID-19 in Brazil took place at the end of February 2020. However, it was only in March, when community transmission began, that measures and actions were taken in the states. Consequently, the Unified Health System (SUS) adopted immediate strategies to meet emerging and growing health needs<sup>2</sup>.

The first measures that were adopted to face the pandemic are listed in Law No. 13.979<sup>3</sup>, enacted in February 2020. The law listed Community Non-Pharmacological Interventions (NPI). Thus, the states started to adopt the measures in the second week of March 2020 and, later, launched their own decrees, often adopting more rigorous measures based on their epidemiological data<sup>4</sup>.

In this context, health states and regions, in their different organizational models, responded relatively quickly and effectively to health needs. States and regions were at risk of running out of available resources, either because of the abrupt increase in demand, or because of the progressive loss of self-sufficiency in supplies and health professionals, or because of conflicts between political and governmental authorities<sup>2</sup>.

Upon reaching Brazil, the COVID-19 pandemic highlighted all the obstacles that the country's health system had been facing in recent years. Challenges caused by political and economic limitations, aggravated by the historical underfunding of the system, in addition to the contingency of public spending through Constitutional Amendment 95 (EC

95) of December 15, 2016<sup>5</sup>. As a consequence, the pandemic highlighted the distancing of the SUS from its commitment to guarantee universal, equal and integral access. The obstacles got worse due to the scenario of barriers in the intergovernmental articulation, lack of definition and overlapping of attributions and functions, as well as the federal disarticulation, which imposed itself as a great challenge<sup>6,7</sup>.

It is also important to highlight that, as a systematic review of the SUS regionalization process points out, the absence of the state level is perceived in the process of resolving complex demands<sup>8</sup> and this was evident throughout the pandemic. The federal sphere proved to be distant from the states and municipalities, with contradictory actions in relation to the confrontation with COVID-19, including: the dissemination of fake news and denialism in relation to the virus<sup>9</sup>. Facts like these, seen before and during the pandemic, made the role of states, health regions and, consequently, municipalities, in facing the pandemic, even more challenging.

The COVID-19 pandemic highlighted important impasses for the Brazilian health system, most of a structural nature, which gained more serious contours in view of the size of the current political and health crisis. In short, COVID-19 has transformed cities and health services, aggravating complex and persistent problems, such as social inequalities<sup>10</sup>. Thus, it is necessary and essential to understand the role of these services, as users cannot do without the guarantee of the right to care and to live.

In São Paulo, a large state with some very different characteristics between the regions, the state government decided to characterize the health regions by color (with five phases: red, orange, yellow, green and blue) according to the severity and number of cases, also considering the hospital occupancy. From this, the guidelines and measures to be adopted in each phase were established, either in the sense of expanding or reducing the non-pharmacological measures foreseen at the time.

In addition, for the evaluation and classification of health regions in the phases described above, the São Paulo Plan established 5 indicators categorized into two axes: Axis 1 – Capacity of the Health System and Axis 2 – Evolution of the Epidemic<sup>11</sup>.

Health regions, experiencing the unforeseen, had to reorganize and adopt emerging health measures, seeking to minimize the cases of COVID-19 in their municipalities, their aggravations, deaths and exposure of the population. In addition, municipalities had to face the consolidation of the federal government's fiscal austerity agenda, proving the resilience of municipalities to the shock of the pandemic in the scenario of cooperative federalism<sup>12,13</sup>.

Faced with the difference between the health regions of the state of São Paulo, which are certainly reflected in the indicators of composition of the installed capacity to face the pandemic and in the provision of services and can impact on different strategies for strengthening the regions and networks, this study aimed at identifying the main strategies adopted in the 5 regions studied, focusing on regional management, analyzing the processes and practices adopted to face the COVID-19 pandemic.

## Material and methods

The present study aimed to identify the main strategies adopted in 5 health regions of São Paulo, namely, the Metropolitan Region of Campinas, Vale do Ribeira, Litoral Norte, Itapeva and Vale do Jurumirim, in view of the then pandemic situation of COVID-19, analyzing the responses implemented as an object of intervention carried out by the São Paulo State Health Department (SES-SP). This initiative was designed and planned to contribute to the improvement of the health conditions of the population, by structuring care according to the model of Regional Health Care Networks (RRAS) and also aiming to expand access to

quality and comprehensiveness of services, from January 2020 to December 2021. The baseline of this study was the material produced and published in the book 'Regional management and networks: strategies for health in São Paulo'<sup>14</sup>.

The present study presents a qualitative approach, for a better understanding of the data, analysis and interpretation of the research hypothesis. The case study method was adopted, as seen in Yin<sup>15</sup>, who states that the case study allows an investigation and understanding of complex organizational, social and political phenomena, preserving the holistic and significant characteristics of the events.

For the development of the study, primary data was collected through workshops held in the five health regions mentioned, with managers and health professionals who were involved in the actions and strategies adopted in this period. In all, 131 people participated in the workshops, including health secretaries, regional and municipal coordinators of health sectors, in addition to primary and hospital care professionals in the regions studied (the details of the participants are presented at the beginning of the Results chapter).

The adopted questionnaire contained four guiding questions: 1. What are the main INTERSECTORIAL INITIATIVES at the state/regional/municipal level in the Pandemic? 2. What are the main SECTOR INITIATIVES at the state/regional/municipal level in the Pandemic? 3. In your opinion, what was the biggest STRUGGLE in the way SUS was organized to face the pandemic? 4. Were there any great lessons (legacy) to be learned in dealing with the Pandemic that could be used to improve the Management of the System's Regionalization? Which?

To cope with this task, three dimensions were defined that could explain, if not the whole, at least part of the process of responding to the pandemic in the regions studied: political, structure and organization. In the political dimension, the political process itself,

the negotiations, processes and decision-making flows. In terms of structure, the availability and sufficiency of physical and financial Human Resources (HR), forms of contracting HR and services. In the organization dimension, identify the criteria for conformation of the regions, planning, management, regulation and access of the population<sup>14,16-18</sup>.

For data analysis, an analytical matrix was constructed (*box 1*) based on the material published by Viana<sup>19</sup>. From the three chosen dimensions, analysis components of the thematic type were added with the objective of identifying cores of meaning for the answers referring to the objective of the study, in addition to the construction of a database collected in a primarily<sup>19</sup>.

Box 1. Descriptions of analysis dimensions

DIMENSIONS	COMPONENTS	DESCRIPTION
POLITICS	Protagonism of the Regions	Relevance of public and private providers of health services, public bodies that organize the health system, participatory councils and the Legislative Power
	Importance of the regional instance	Strategic role of the Commissions in decisions, coordination of health policy at the regional level
	Promoter of regionalization	Relevance, for the region, of Federal and State Government incentives, as well as guidelines and support from MS, CIT, CONASS, CONASEMS, SES, CIB, CIR
STRUCTURE	Participation in the cost sufficiency of Physical Resource	Participation of municipal, state and federal spheres in funding the fight against the COVID-19 pandemic
	Sufficiency of workforce	ICU beds and Personal Protective Equipment (PPE)
	ORGANIZATION Networks	Health professionals directed to face the COVID-19 pandemic
		Condition of access to health services, availability of health services
		Integration with other public policies, trade organizations, justice, among others

Source: Own elaboration, adapted<sup>14</sup>.

The study adopted the ethical measures that involve research with human beings, in accordance with Resolution nº 196/96, having been submitted to the Ethics Committee of the Faculty of Medical Sciences of Santa Casa de São Paulo. CAAE: 56745422.0.0000.5421, opinion No. 5,424,957.

The research field behaved similarly to what this research group did in a previous study, carried out in 2016, based on a project funded to study the facilities and challenges in the process of regionalization and care networks, in these same five health regions of the state of São Paulo<sup>16</sup>.

## Results

The workshops in the five health regions in the state of São Paulo took place between January and May 2022, with the participation of the regional level, represented by the Regional Health Department (DRS), by the municipalities under evaluation in the study and by representatives of hospitals and/or specialized health units. Thus, the municipalities presented in *table 1* were studied, which also describes the characteristics of the key informants participating in the research.

Table 1. Participation in regional workshops, 2022

REGION	NO. OF PARTICIPANTS SES/DRS	NO. OF MUNICIPAL PARTICIPANTS	NO. OF AME/ CONSORTIUM/ HOSPITALS	NO. OF CEALAG PARTICIPANTS	TOTAL
VALE DO JURUMIRIM	2	17	6	5	30
SOROCABA	4	15	3	4	26
TAUBATÉ	6	7	2	7	22
VALE DO RIBEIRA	12	4	7	6	29
RM CAMPINAS	4	8	2	10	24
TOTAL	28	51	20	32	131

Source: Own elaboration.

From box 2, we can identify the main points raised by the interviewees during

the regional workshops in the five health regions.

Box 2. Main findings in the five health regions of SP

INTERSECTORAL ACTIONS	SECTORAL ACTIONS	MAIN OBSTACLES	LESSONS LEARNED
Pacts between health, education, social and justice; with commerce, hotel chain, public safety - Situation room	Reorganization of health structures and beds, flows and services in the RUE	Difficulty in acquiring medication, equipment, PPE and purchases	Improving the use of information and digital technologies; Rescue of epidemiological and health surveillance
Governance spaces and political movements	Joint action with Surveillance; Contingency Plans (regional and municipal)	HR deficit due to illness/leave and death; Labor and physical structures at the operational limit	Intersectoral and net-articulated work
Committees to face the pandemic between sectors	Creation of message groups for conversation and dealings	Difficulty accessing ICU beds or even the lack of them	Evaluation of the permanence of ICU beds; Importance of assistance review
Prosecutor's support in inspection actions, issuing of decrees and health judicialization actions	Diverse training and hiring of new employees (by OS)	Weakness in governance: CIT; articulation of CONASS and CONASEMS; Weakness in relation to financing	Reinforcement of regionalization and decentralization guidelines
Transparency between secretariats	DRS present (except, Vale do Juru-mirim) and partnership between all municipalities - CIR strengthened	Different government plans in decision-making, in addition to divergent policies	Identity as a region

Fonte: elaboração própria.

## Politics

In facing the pandemic, municipalities participated in governance spaces and in the development of political movements to make vaccines available and ensure application, in addition to providing Personal Protective Equipment (PPE). All five health regions interviewed mentioned joint actions between the municipalities in the region and some connection with the Regional Health Department (DRS), except for Vale do Jurumirim (VJ).

The five regions mentioned the formation of a committee to face the pandemic, both for decision-making and for planning actions. The region of Itapeva mentioned that the meetings of the Regional Intermanagers Commission (CIR) were still held during the pandemic and this was important for the DRS to work with the municipalities. The state had a supporting role in providing PPE, supplies and medicines to combat COVID-19. There was an absence in the role of the Ministry of Health (MS) with the municipalities. Vale do Ribeira mentioned that in the space of the CIR, the articulation of physical resources and workforce between the municipalities and the DRS took place. Thus, DRS, municipalities and providers remained in constant dialogue.

Attention is drawn to the action taken by the courts at Itapeva, where tensions with Santa Casa regarding the provision of beds exclusively for patients with COVID-19, led to the judicialization of this institution until, finally, it enforced the delivery of beds for the region.

Litoral Norte (LN) mentioned governance weaknesses, including the Tripartite Intermanagers Commission (CIT), articulation of the National Council of Health Secretaries (CONASS) and the National Council of Municipal Health Secretaries (CONASEMS), in addition to the difficulty of dialogue with federal management. The Metropolitan Region of Campinas (RMC) cited the lack of command on the part of the Union, in addition to mismatched information between spheres of government.

There was also the fragility in relation to financing, a movement of great stress from an individual and institutional point of view. The RMC cited the issue of the Fiscal Responsibility Law and the impact of the health spending cap.

## Structure

The municipalities in the regions studied cited several strategies for coping with the pandemic, from opening new beds and/or reorganizing existing ones, as well as using health units to provide care to COVID-19, agreements and partnerships with institutions, organizations, commerce, justice, hotel chain, among others.

The LN Regional Hospital, built with resources from the Resource-Action Program, was ready at the beginning of the pandemic and its beds were needed for the municipalities studied and the entire DRS XVII region (opening 100 beds, 60 in the ward and 40 in the Intensive Care Unit (ICU)).

Ilhabela transformed a Psychosocial Care Center (CAPS) into a hospital for other illnesses, while the Municipal Hospital was a reference in COVID-19 care, with 22 ward beds and 6 ICU beds. São Sebastião had expansions in its structure: (1) transformation of post-surgical beds into ICU beds; (2) training in partnership with the Humanized Permanent Education Nucleus (NEPH); (3) hiring of professionals. In this municipality, two Emergency Care Units (UPA) and the units with the Family Health Strategy (ESF) cared for patients with coronavirus. A field hospital was set up, but there was no need to use it.

The municipality of Caraguatatuba had a reference UPA for cases of COVID-19 (with 20 ICU beds and 80 infirmary) and an agreement with Santa Casa for other needs. There was also an increase in the work time of surveillance and the municipality received a tomograph.

The LN Region, in the role of the DRS, had great difficulties in obtaining oxygen and had to rely on the assistance of the

municipal secretariats and the Association of Municipalities of Vale do Paraíba (CODIVAP) to meet this need.

In the VJ Region, the municipality of Avaré mentioned that it made many temporary contracts through the Social Organization (OS), to meet the needs of professionals. The other municipalities also mentioned hiring on an emergency basis.

Still in this region, the municipalities also reported that there was financial transfer from the Union and the state to them, as a way of meeting the cost of assistance, including the acquisition, maintenance or use of respirators and oxygen concentrators. The resource for the acquisition of medicines was state and municipal. There was also the creation of new ICU and infirmary beds for COVID-19 and, consequently, the restructuring of medical equipment. A systematization was developed through criteria for transfers to reference services.

The municipalities of the VJ cited difficulties in purchasing inputs, such as: PPE, medicines and consumables. They reported that the price of these inputs was much higher than the common value. In the regulation of beds via Cross (The Central System for the Regulation of the Supply of Health Services), there were insufficient beds. And, finally, they reported barriers in hiring trained professionals to work with COVID-19, in addition to the permanence of these workers. This last factor was also cited by the RMC, added by the ceiling on HR expenses and the alternative of outsourcing this workforce to respond to COVID-19.

In the municipality of Avaré, a specific sector was created to care for suspects and confirmed cases of COVID-19. The other municipalities also mentioned that they managed Basic Health Units (UBS) for the exclusive care of suspected or contaminated patients, as a way of separating them and protecting the non-infected population. Avaré, which is a reference for the surrounding cities, had its greatest difficulties in:

adapting the transfer of patients from the surrounding cities to Avaré and being able to meet all the requested demand. Therefore, the VJ was heavily penalized in the process of applying for a vacancy, a region with few hospital beds. The VJ received patients from the macro-region and penalized residents of the Avaré region.

The Medical Specialties Outpatient Clinic (AME) in Itapeva was transformed into a Field Hospital (HC). With the physical transformation of the unit, 10 ICU beds were also installed. With the increase in the number of beds, there was a need to open a selection process. Currently, the HC was maintained as a Day Hospital, which has been generating more surgeries and, also, the implementation of the tomography service.

The Itapeva region mentioned that the absence, tiredness and exhaustion of professionals led workers and physical structures to work at their operational limits. Professionals were absent due to illness and the UBS did not have sufficient structures to meet the increased demand. Professionals who worked on the front line received financial incentives, in addition to food for extra actions. As a way to expand the service, OSs were hired to meet the demand. The municipality of Itapeva cites this hiring as a facilitator, as it is a faster process in relation to the legislation, avoiding the opening of a selection process and/or competition, being more expensive and time consuming.

Municipalities in the five regions reported abusive values in the bidding processes for purchasing inputs and medicines to fight the pandemic, which was a barrier in purchasing these. Despite the selection processes, there were difficulties in hiring specialized professionals, in addition to the fact that some medical professionals did not want to work on the front line. Due to the urgency of hiring, many frontline health workers were not sufficiently trained to handle the calls.

The UBS built by the IDB Project in the municipality of Barra do Chapéu was transformed into a COVID-19 care unit. The municipality of Itararé set up a sentinel unit for the initial care of COVID-19, with almost 7 thousand people assisted. The municipality of Apiaí created a COVID-19 service center, with physical and telephone assistance.

Cajati, in the Vale do Ribeira Region, does not have hospital units, only Emergency Care. Thus, during the pandemic, it transformed UBSs into a COVID-19 sector with 24-hour service. There, it carried out tests and care for mild cases and, when the patient's condition worsened, they sent him to the reference hospitals in the region, using Cross. The municipality went so far as to buy beds and adapt the Sports Gym for attendance, but this did not need to be used.

The only open-door hospital in the Vale do Ribeira Region was the Regional Hospital of Paríquera-Açú, which was responsible for screening, diagnosing and regulating all cases of COVID-19 in the Region. The cases, after being evaluated, were forwarded to other units via Cross. This was a pact approved by the CIR. In a second moment, the municipalities were able to carry out the tests in the municipality itself, most of the tests being purchased with their own resources.

RMC cited the difficulty with the small physical structure of its health units for separate flows, a previous deficit of ICU beds, aggravated during the pandemic in municipalities with few resources interviewed, especially of high complexity (except for Campinas).

Regarding vaccination, the municipalities reported the delay in the approval of the vaccine by the National Health Surveillance Agency (ANVISA) and the late response of the National Immunization Program (PNI) to start vaccination. At first, the vaccine available was insufficient for priority groups, as the population wanted to be vaccinated. Coverage for the third dose dropped significantly, and achieving coverage for the second dose required a greater effort on the part of the municipalities.

## Organization

The municipalities of the five regions studied cited the creation of COVID-19 Contingency Committees, from which municipal decrees on the restriction and sanction of positive cases that did not comply with the isolation measures came out, and where the discussion of all actions and needs to face the pandemic happened. There was also the creation of the Regional Situation Rooms with the same objective. Through weekly meetings of the Regional COVID-19 Committee, the Sanitary Surveillance provided safety and inspection guidelines. In addition, the municipalities used various coping strategies, such as the creation of a situation room, integration of actions with other municipal departments and also the borrowing of inputs and medicines between municipalities.

In the formation of these committees, decisions were made, which were then informed to the population through the media. Daily bulletins were released on social networks. With the decrease in cases, these newsletters became weekly. Social Assistance helped in the search for the vulnerable population in order to guarantee their rights in relation to obtaining emergency aid and basic needs.

At the beginning, there was a long wait for the results of the COVID-19 tests, a failure in communication between the hospital and basic units, and the overload of emergency services. In all regions, saturation of the support network, incipient urgency and emergency network, exhaustion of health workers and requests for licenses and certificates were cited. In addition to the lack of interest on the part of some public sectors in the face of COVID-19.

The municipalities reported the instability of the information systems, of Vacivida (VacinaJá), e-SUS (Electronic Health Records of the SUS), Sivep-Flu (System for respiratory syndromes), which led to delays in services and actions, in addition to the slowness in disclosing statistical data.

Coping with the pandemic brought greater unity and communication between municipalities, and this continues today. Important lessons reported were related to the role of intersectoriality and the rescue of epidemiological and health surveillance, which were undervalued before, and began to play a leading role, thus strengthening their actions.

It is pertinent to mention the report on the importance of health promotion and prevention actions, the dissemination of scientific information, the humanization, reception and union of professionals.

Among the municipalities, the role of the Public Prosecutor's Office stands out, mainly in relation to the launching of laws and decrees. In addition to this partnership, the Trade Union, Bank Agencies, the Hotel Chain and religious leaders were also important in complying with health measures.

In some municipalities, secretariats of education and social assistance provided their buildings for the collection of exams and vaccination. In the vaccination campaigns, food and sanitary pads were also collected for the vulnerable population.

Epidemiological and Sanitary Surveillance worked during the pandemic, together with the municipalities, both at the hospital level and in support of Primary Health Care (PHC), creating non-pharmacological protocols, technical guidance regarding care, procedures regarding hospital infection and distribution of the remainder of vaccines. In regions, messaging apps have helped a lot as a personal communication tool and also for online meetings. Gained prominence as a facilitator among municipalities the creation of groups in messaging applications for conversations and dealings, as responses were quick.

## Discussion

In the context of the pandemic, health systems, in their different organizational models, responded more or less quickly and effectively to health needs<sup>20,21</sup>.

In the case of emerging countries, the answers are more difficult, both due to the immaturity or limitations of their social protection systems – including health – as well as the weakness of their economies and the immense inequalities in income and living conditions among their inhabitants – which are evidenced in the context of a crisis, both in terms of the provision of services and in terms of the spread of the disease<sup>22</sup>. The Brazilian case is no exception to the general rule, but, unlike most of these countries, it presents a universal model of social protection, established in the Federal Constitution of 1988<sup>23</sup>.

Intersectoriality emerged as one of the points cited by the five regions studied for the relationship between health and other secretariats, such as education, social assistance and culture. In addition to these other secretariats, there was also a relationship with commerce, the hotel chain and the media. This facilitated the construction of Intersectoral Committees, where decisions were taken to face the pandemic, as well as the elaboration of protocols, decrees and social isolation measures. The role of the Military Police (PM) was also mentioned, especially in the work of inspection and guarantee of the decisions that were imposed on civil society and commerce. Similar situations are presented in studies by Conceição<sup>24</sup>, who showed that the involvement of different departments had as main objective the planning and execution of coping actions, considering the complexity of the health, social and economic impact and the diversity of actions/measures to mitigate COVID-19<sup>24</sup>. In addition to the study by Ferreira<sup>25</sup>, which showed the importance of intersectoriality in health surveillance actions in combating the pandemic in the municipality of Sobral (CE)<sup>25</sup>.

When the study raises the political dimension, the regions cite the strangulation of health expenditures, aggravated by its ceiling and the incipient support of the Union with the municipalities, in addition to the fragile governance found among Councils representing the

state and municipal health departments, being them CONASS and CONASEMS. Abrucio<sup>26</sup> in his study showed that the prolonged political crisis prevented the construction of a minimum of convergence to face, among others, the sanitary problems of the Country<sup>26</sup>. Still in this context, Servo<sup>5</sup> showed in his study that even though the country had approved the emergency budget to combat the pandemic, the federal government lacked effectiveness in its execution and allocation, undermining the actions to combat the pandemic in the three spheres of government<sup>5</sup>.

The municipalities cited a strengthening of the regions in relation to DRS, except for the Jurumirim Valley, where they could make decisions together, adopting measures and actions necessary to face the pandemic. Facing the pandemic highlighted the unequal distribution of health services and, for this, it was necessary to build regionalized care networks, in addition to strengthening regional decision-making bodies, such as the CIR, which may become a positive legacy for the SUS<sup>27</sup>.

When it came to structure, some factors were most cited among all the municipalities studied. Difficulty in the immediate supply of hospital beds (especially ICU beds), enabling access to health, in addition to the difficulty in hiring health professionals prepared to face the pandemic. In a study by Vieira and Servo<sup>28</sup>, the authors show that even in states with a greater supply of health services, access to them is unequal and this was one of the crucial factors for the worsening of cases of COVID-19<sup>28</sup>.

All health regions mentioned readjustment of pre-existing health services for exclusive care of COVID-19, in addition to hiring labor through OS. However, they are often insufficient, largely due to their overloads. Even having increased the number of professionals since the implementation of the SUS, their poor distribution in relation to the health regions causes the lack of specialized professionals in several areas of the system<sup>29</sup>. In a study carried out by Seixas et al, which

analyzed the medical circularity in these same five regions of this study, it was observed that the interregional circularity is more intense in the less developed regions, signaling its relationship with situations of lower medical supply, being possible a greater dynamicity of the not exclusive between regions with less development<sup>30</sup>.

In addition, the pandemic revealed a precarious preparation of health professionals to act in health emergencies<sup>31</sup>. Massuda et al.<sup>31</sup> claim that the pandemic has exposed the weaknesses and challenges for the SUS, and this is recognized in an unprecedented way in Brazil, reaffirming that resilient health systems are essential not only for realizing the right to health, but also for maintaining social and economic activities<sup>31</sup>.

In summary, the empirical data portrayed show that, in addition to differences in terms of social vulnerability, the evolution of the COVID-19 pandemic can be determined by a varied set of factors that include, but are not limited to, measures related to the health system, such as expanding the supply of beds, elaboration of health actions and measures. Clearly, there are other context variables that interfere in the process and can lead to different outcomes.

A point that was clear in this study was the rise of participation of states and municipalities in the organization of the health system, showing the importance of tripartite coordination<sup>28</sup>. However, the shortcomings raised so far and the impairment of the effectiveness of health surveillance and health care actions may result from the inter-federal mismatch of these spheres with the federal government, costing a high price to the Brazilian population and which can be, in the extreme, an intangible number of lives lost.

## Final considerations

Coping with the pandemic brought several challenges to health systems, many strategies and actions were developed to control the number of cases and their injuries. The health

regions in this study were able to prove the importance of intersectoriality in health actions as a whole. It was noted the great role of municipalities in these actions and their union, strengthening the role of regionalization and expanding the importance of governance in health. In addition, the gain in regional identity that the fight against the pandemic provided was notorious, since the investment made in these regions in recent years before the pandemic, placed these regions with some advantage in the actions to combat COVID-19, since they were contemplated with the construction of health services (AME, Hospital, UBS), which guaranteed immediate actions. This moment also reinforced the gain in legitimacy of the regional directorates, that is, they were strengthened because they exercised their leadership role and organized actions with the municipalities, exercising the function of de facto regional coordination.

However, one cannot fail to mention that COVID-19 challenged and transformed cities, services and health systems, the latter responsible for saving lives and producing innovations, but which, at the same time, exposed the weaknesses in their organization, particularly in the processes of federative articulation and coordination of the SUS, which should have been able to guarantee an equitable confrontation of a public health emergency such as the one we are experiencing. ■

## Collaborators

Meira ALP (0000-0003-0776-5543)\*, Godoi LPS (0000-0002-0213-1616)\*, Ibañez N (0000-0002-8459-4736)\*, Viana ALD (0000-0003-4498-899X)\* and Louviston MCP (0000-0003-1630-3463)\* contributed equally to the elaboration of the manuscript. ■

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