



MEASURES TO ADDRESS THE COVID-19 PANDEMIC AND THEIR EFFECTS ON HIV/ AIDS HEALTH SERVICES IN CAMPOS DOS GOYTACAZES: AN INSTITUTIONALIST PERSPECTIVE

**MEDIDAS DE ENFRENTAMENTO DA PANDEMIA DE COVID-19
E SEUS EFEITOS SOBRE OS SERVIÇOS DE SAÚDE
PARA HIV/AIDS EM CAMPOS DOS GOYTACAZES:
UMA LEITURA INSTITUCIONALISTA**

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ABSTRACT

This article aims to analyze how public health institutions in the municipality of Campos dos Goytacazes and in the Northern Region of Rio de Janeiro State responded to the measures adopted by authorities to contain the impacts of the COVID-19 pandemic between 2020 and 2021, as well as the effects of those measures on the reorganization of the Municipal Center for Infectious and Parasitic Diseases (CDIP, acronym in Portuguese). The research is exploratory in nature and draws on an institutionalist approach, employing the concepts of adaptive efficiency and governance structure, as mediated by the transaction costs concept developed by Douglas North and Oliver Williamson. The method combines documentary research and a case study grounded in interviews with public health agents from the region and the CDIP. The findings indicate considerable activism by the local institutional apparatus across various sectors during the pandemic, as well as a notable capacity for institutional adaptation and the establishment of effective governance to manage the health emergency in the municipality and its surrounding area. Furthermore, it was observed that the decisions imposed by the public health crisis simultaneously entailed the suspension or postponement of elective consultations and outpatient services, as well as restrictions on the distribution of antiretroviral medications, while also prompting the reorganization of institutions through a range of adaptations and ensuring the continued provision of services to patients, albeit in a restricted manner. It is concluded that both the institutional apparatus aimed at addressing the demands of the pandemic and the CDIP responded with adaptive efficiency to the new emergency conditions, thereby safeguarding regional public health policy in the area of HIV/AIDS.

Keywords: Northern Region of Rio de Janeiro State. CDIP. Public health policies.
Governance structure. Adaptive efficiency.

RESUMO

O objetivo deste artigo é analisar como as instituições relacionadas à saúde pública no município de Campos dos Goytacazes e na região Norte Fluminense enfrentaram as medidas adotadas pelas autoridades para a contenção dos danos da pandemia de covid-19, entre 2020 e 2021, e os resultados dessas medidas na reorganização do Centro Municipal de Doenças Infecciosas e Parasitárias (CDIP). A pesquisa é exploratória e utiliza abordagem institucionalista, empregando os conceitos de eficiência adaptativa e de estrutura de governança, mediados pelo conceito de custos de transação desenvolvido por Douglas North e Oliver Williamson. O método combina pesquisa documental e estudo de caso fundamentado em entrevistas com agentes de saúde pública da região e do CDIP. Os achados mostram que houve bastante ativismo do aparato institucional local em diversos setores durante a pandemia e sua capacidade de adaptação institucional e criação de uma governança efetiva para gerenciar a crise sanitária no município e em seu entorno. Ademais, observou-se que as decisões impostas pela emergência de saúde pública, ao mesmo tempo que implicaram a suspensão ou a postergação das consultas eletivas, dos serviços ambulatoriais e as restrições na distribuição de medicamentos antirretrovirais, também provocaram a reorganização das instituições, com várias adaptações e a garantia da manutenção dos serviços aos pacientes, ainda que de forma restrita. Conclui-se que tanto o aparato institucional voltado a atender as demandas da pandemia quanto o CDIP responderam com eficiência adaptativa às novas condições de emergência, de forma a não prejudicar a política pública de saúde regional na área de HIV/Aids.

Palavras-chave: Região Norte Fluminense. CDIP. Política de saúde pública. Estrutura de governança. Eficiência adaptativa.

INTRODUCTION

The COVID-19 pandemic brought numerous changes to Brazilian healthcare services. Beginning in March 2020, the first measures adopted consisted, alongside individual protection protocols, of restricting or even prohibiting travel and reorganizing the entire healthcare system to ensure priority care for patients infected with the coronavirus. All essential healthcare services were affected—including prevention, diagnosis, treatment, palliative care, and rehabilitation, among others—resulting in serious consequences for the most vulnerable patients, such as children, older adults, and individuals with chronic diseases. Elective medical appointments immediately became irregular, and many ongoing treatments were suspended or postponed, as were some surgical procedures (Aquino *et al.*, 2020; Almeida *et al.*, 2020).

In studying the quantitative effects of the pandemic on the suspension of elective medical appointments for people living with the human immunodeficiency virus (PLHIV) receiving treatment within the Brazilian Unified Health System (SUS, acronym in Portuguese) in the municipality of Campos dos Goytacazes, Miranda *et al.* (2024) found that the health indicators analyzed impaired the monitoring and follow-up of PLHIV. This effect was more pronounced in Campos than in the State of Rio de Janeiro (SRJ) and in Brazil.



Likewise, the Municipal Epidemiological Bulletin of Campos dos Goytacazes (BEM, acronym in Portuguese)—published regularly throughout the COVID-19 pandemic—and the review of several local official documents demonstrated the speed of the disruption and the magnitude of the changes during the initial phase of the public health crisis. Only one month elapsed between the confirmation of the municipality's first case of the disease, in March 2020, and the signing of the decree declaring a state of public calamity in April of the same year.

The municipality of Campos dos Goytacazes has a population of 484,000 inhabitants and is home to a dense network of public and private universities, in addition to numerous commercial and healthcare facilities. These characteristics influence the flow of people traveling to and from the surrounding area, which is composed of several small municipalities (Hasenclever; Fauré, 2022). The municipality's population size and the intense movement of people between the municipality and the surrounding region partly justified the measures that were necessary to prevent the spread of the pandemic.

The objective of this article is to analyze how public health-related institutions in the municipality of Campos dos Goytacazes and the Northern Region of Rio de Janeiro State addressed the measures adopted by public authorities to contain the impacts of the pandemic between 2020 and 2021, as well as the outcomes of these actions in the reorganization of the Municipal Center for Infectious and Parasitic Diseases (CDIP, acronym in Portuguese).

The research questions this article seeks to answer is: To what extent were the governance structure and the adaptive capacity of health-related institutions able to respond effectively to the pandemic? To answer this question, the study adopts an institutionalist approach to the study of regional health development, inspired by the work of Douglas North and Oliver E. Williamson and by the concepts these authors developed innovatively in their scholarship, emphasizing the influence of institutions on this development. The contribution of this article is to go beyond a simple empirical description of the measures adopted and the behaviors revealed by the pandemic and, ultimately, to propose an analytical understanding of the situations under study.

The study's connection to the field of regional development can be understood from the fact that its focus is both on a public policy in the field of health and on the Northern Region of Rio

de Janeiro State. In other words, more broadly, the article investigates the relationship between public health and regional development. In addition, the study highlights the institutionalist corpus, which makes it possible to understand the actions, decisions, and changes observed both in the healthcare sector and at the municipal level in relation to a city that plays a fundamental role as a regional hub. It is believed that the actions observed in the regional public policy response to HIV/AIDS during the COVID-19 pandemic may have contributed to regional development by maintaining healthcare services, which are essential to promoting human well-being in the Northern Region of Rio de Janeiro State.

The article is organized into four sections, in addition to this Introduction and the Final Considerations. The first and second sections present, respectively, the theoretical framework and the methodology. The third section presents the research findings in two subsections: a study of the municipal complex comprising the local institutions mobilized to combat COVID-19, their decisions and actions, analyzed through the neo-institutionalist concepts of governance structure and transaction cost reduction; and a study of the reorganization and new operation of the CDIP during and after the pandemic, describing the initiatives undertaken in response to the restrictions on healthcare services faced by patients enrolled in the Municipal STD/AIDS and Viral Hepatitis Program, thereby shedding light on adaptive efficiency. Finally, the fourth section analyzes and discusses the findings.

THEORETICAL FRAMEWORK: REGIONAL DEVELOPMENT AND PUBLIC HEALTH POLICIES

Regional development is understood as a phenomenon that extends beyond the economic dimension. For example, health and the policies designed to promote it are also regarded as relevant dimensions of development, alongside education and environmental issues (Costa; Favareto, 2023). Moreover, it is necessary to consider the importance of institutions in shaping the outcomes of human activities and, in particular, regional development. This relevance has gradually been highlighted by several authors and schools of thought grouped under the umbrella of institutionalism, from the old institutionalism represented by the pioneering studies of Thorstein Veblen to what later became known as new institutionalism (Swedberg, 1990).



By defining institutions as habits of thought shared by social actors, Veblen rejected the rigid assumptions of orthodox economics that institutions are immutable or given *a priori*. According to the author, institutions, as well as mental models and public policies, are certainly products of historical processes, but they are never perfectly aligned with the needs of the present, thereby creating conditions for the emergence of new institutions. Furthermore, this perspective challenges the idea that social interactions can be reduced to market relations, as proposed by orthodox economic theory (Veblen, 1899; Veblen, 1909). Thus, the processes of transformation in regional development are understood based on social interactions in response to changes in the operation of public health policies.

Two significant aspects are emphasized in the recent neo-institutionalist approach, or New Institutional Economics. First, the central problems of any configuration of activities and their organization are regarded as problems of adaptation (Williamson, 1985; Williamson, 1991). Second, the performance of activities, especially, though not exclusively, economic performance, is measured in terms of transaction costs, which, in a broader sense, correspond to the costs of operating production systems or any other configuration of activities (Coase, 1937). In this article, this perspective is employed to understand the operating costs of the healthcare sector devoted to the response to HIV/AIDS in the municipality of Campos dos Goytacazes and the Northern Region of Rio de Janeiro State during the COVID-19 pandemic.

According to North (1991), institutions emerge to reduce uncertainty, since the actors involved in transactions are susceptible to opportunistic behavior. Consequently, a system of safeguards built upon the establishment of contracts becomes necessary, and these contracts, in turn, generate enforcement costs. However, institutions are not immutable and must be sufficiently robust to encourage innovation, investment, and wealth creation while remaining flexible enough to adapt to negative shocks and unforeseen events.

The concept of adaptive efficiency refers to the ability of an individual, an organization, or a system to adjust and evolve in response to changes in its environment. This may include adjustments in behavior, strategies, or processes to better cope with new conditions or challenges (North, 2005). According to North (2005), the principle of adaptive efficiency is a permanent condition in which society continuously modifies existing institutions or creates new ones in response to constantly changing problems. This concept is fundamental to the analysis of some of the findings presented in this study.

Like North, Williamson returns to the idea of adaptive efficiency, a dynamic concept aimed at improving the functioning of any system and reducing transaction costs. In this sense, participants in activities and programs of action seek to implement a transaction governance structure that will help reduce these costs and increase efficiency. Such governance may take different forms, depending, in particular, on the characteristics of the assets involved in the transaction. Its effectiveness is assessed by its ability to minimize the various costs discussed above. Williamson identifies several types of governance structure, including hybrid forms (Williamson, 1985; Williamson, 1991). The concept of this type of structure may help explain some of the institutional transformations and initiatives observed at the CDIP.

In summary, regional development is understood as a multidimensional phenomenon, with emphasis placed on the health dimension and on the role of public policies in promoting higher levels of development, while also recognizing the importance of institutions in these processes of transformation.

METHODOLOGY

This study is applied and exploratory in nature, and its methodological approach combines documentary research and a case study based on interviews with public health officials from the region and healthcare professionals dedicated to the care of people living with HIV/AIDS. The municipality of Campos dos Goytacazes, the Northern Region of Rio de Janeiro State, and the CDIP constitute the institutional and geographical framework of the investigation. These methods were selected because they are consistent with the theoretical framework, which emphasizes the relevance of context and social interactions in understanding the transformation processes experienced.

Documentary research, the method adopted to analyze the municipal healthcare system, was based primarily on the BEM, through which it was possible to identify the rules and regulations established during the pandemic. In addition, unstructured interviews were conducted with two key actors from that period to better understand the pandemic response scenario: one individual responsible for the Coronavirus Control and Response Center, also referred to as the Central COVID-19 Command (CCC), and another responsible for calculating the disease surveillance statistics and publishing the information reported in the BEM.



The case study was the method adopted to understand the operation of the healthcare service provided to PLHIV in the face of the restrictions imposed during and after the pandemic. To this end, qualitative interviews were conducted with nine healthcare professionals from the CDIP, including managers and members of the clinical care team. A semistructured interview guide composed of three sections was used: an overview of the COVID-19 pandemic; the operation of the CDIP during and after the pandemic; and the particularities of COVID-19 in Campos dos Goytacazes.

With regard to the interview sample, it was a convenience sample, and the research participants were not patients but rather CDIP managers. Therefore, submission of the study to the National Research Ethics Council was not required.

The selection of the research participants was carried out as follows: first, consideration was given to staff members who regularly worked at the CDIP. Next, those who were not performing their duties at the CDIP during the pandemic were excluded, either because they themselves, or a close family member, had been affected by COVID-19 or because they had been reassigned from the CDIP to hospitals, laboratories, or other healthcare facilities to reinforce the most urgent needs on the front line of the response to COVID-19. These criteria significantly reduced the number of staff members eligible for interviews. Table 1 describes the positions held by the interview participants and assigns a code to each of them to preserve the anonymity of their responses in the presentation of the findings, in accordance with research ethics standards.

Table 1 | Functions of the Interview Participants and the Codes Assigned to Each of Them

Code	Function
INT1	Infectious disease physician
INT2	Social worker
INT3	Psychologist/psychoanalyst
INT4	Registered nurse
INT5	Administrative/coordinator
INT6	Administrative
INT7	Social worker
INT8	Psychologist
INT9	Social services
INT10	Head of the Central COVID-19 Command
INT11	Official responsible for statistical data in the BEM

Source: Prepared by the authors.



Although reduced in size, the final composition of the interview sample accurately reflects the diversity of activities, professional roles, and hierarchical positions that structure the CDIP. In this sense, the sample is representative of the organization and operation of the CDIP, which constitutes the object of this study.

The interviews were conducted in June 2024 and lasted between one and two hours. They were conducted by two, and occasionally three, members of the research team; audio-recorded, when the participants consented; and subsequently transcribed. The participants' right not to answer a particular interview question or to provide only a partial response was also respected.

RESULTS

THE MUNICIPAL INSTITUTIONAL COMPLEX: FROM DISRUPTION TO ACTION

The intensity of legislative and regulatory production demonstrates the level of activism observed in Campos throughout the COVID-19 pandemic. Between May 25, 2020, and September 30, 2021, the municipality of Campos enacted and published 28 ordinary laws, as well as 188 decrees between March 12, 2020, and March 13, 2023.

Even before the first local case of COVID-19 was diagnosed (March 22, 2020), the Health Surveillance Service recognized, based on information that had begun circulating in December 2019, that it would have to deal with an entirely new and potentially alarming reality. According to INT10, the news disseminated by the media, especially television, did little to clarify the situation and instead generated confusion and even panic among the population. Therefore, the disease was not merely pathological; it also brought a series of uncertainties for both healthcare professionals and the public. The physicians interviewed, particularly INT10, acknowledged that they knew very little about this new disease. It was a global threat that required understanding the disease, identifying its transmission process, adopting preventive measures, and protecting the population.

According to the accounts provided by INT10 and the BEM, on March 13, 2020, the municipality established a crisis management unit: the Coronavirus Control and Response Center, also referred to as CCC. Reflecting the imperative, almost military nature of this institutional innovation, the CCC was established in just one week, including staff training, infrastructure organization, and the



procurement of personal protective equipment (PPE) and medications. It was officially inaugurated on March 30, 2020. The CCC provided support to Campos and to the North and Northern Regions of Rio de Janeiro State. The Strategic Health Surveillance Information Center (CIEVS, acronym in Portuguese), which operates 24 hours a day and monitors diseases such as HIV/AIDS, yellow fever, dengue, chikungunya, among others, naturally became part of this public health command structure.

All these measures and initiatives were coordinated by the Municipal Health Department and were formally issued through administrative ordinances. The principal ordinances followed the recommendations of the World Health Organization (WHO), but the protocols adopted were specific to the municipality, having been developed by the municipal government itself and by medical associations. In other words, according to information provided by INT10, the municipality did not fully adhere to the federal public policy. Regarding medical recommendations, greater adherence was observed to the guidance issued by academic medical societies. Subsequently, however, in the case of COVID-19 vaccines, states and municipalities became dependent on the federal government for their supply.

Within this context of municipality-led initiatives, it is worth noting that, although the SRJ provided information for all regions and municipalities, Campos maintained its own epidemiological bulletin, published regularly to guide public health actions in response to COVID-19, as reported by INT11.

CREATION OF A TASK FORCE AND THE STREAMLINING OF COVID-19 DATA AND INFORMATION

As reported by INT10, the CCC's first strategic initiative was to assemble a multidisciplinary team under the leadership of the CIEVS. In addition to healthcare professionals, the team brought together a wide range of non-medical expertise that proved essential to the response, including specialists in statistics, engineering, administration, and management, as well as personnel from the municipal government and the university.



Also, according to INT10, fake news posed a major obstacle during the early stages of the pandemic, and the solutions proposed to protect the population were often inconsistent. The models and measures advocated by the Ministry of Health (MH), based on those developed by Imperial College London, were slow to arrive, requiring local officials to develop their own initiatives. As a result, the CIEVS became increasingly important, both as a source of information and as a means of reducing the panic experienced by the population.

There were also general guidelines issued by the MH and instructions from the State Health Department that required local interpretation and adaptation. Thus, as previously discussed, several initiatives and regulations were adopted locally to combat COVID-19, with the support of the Municipal Health Department of Campos. More broadly, municipal authorities had to implement certain initiatives independently of the federal government. These measures were subsequently upheld by the Federal Supreme Court (STF, acronym in Portuguese), which, in light of the constitutional responsibilities assigned to the different levels of government in the field of public health, recognized the authority of states and municipalities to adopt measures such as social distancing. This information was provided by INT10.

INT10 also reported that a major challenge was engaging the security forces, which were called upon on several occasions to maintain public order. They played an essential role in implementing sanitary checkpoints to control traffic entering and leaving the municipality, as well as in enforcing the closure of commercial establishments. These measures have triggered public unrest and protests, requiring efforts to calm the population and provide better information.

According to INT10, it also became necessary to centralize, within the CCC, the total number of public and private hospital beds available to meet the demands generated by the pandemic. This measure proved indispensable because hospitals were unable to meet the needs created by the large number of people infected simultaneously, given the insufficient number of public hospital beds estimated by Imperial College. Thus, as reported by INT10, a constant and central concern of the CCC management was monitoring the availability of beds across all public and private healthcare facilities, including hospitals, both general ward beds and intensive care unit beds, for patient admission.

INT10 reported that, as the pandemic spread, an essential measure was the administration of COVID-19 tests to the population, neighborhood by neighborhood, at bus stops and in front of shopping malls. The general policy of encouraging people to remain at home to prevent virus transmission did not always produce favorable outcomes: some individuals who did not seek medical care ultimately died at home. It was also observed that “the process of interrupted mourning was extremely painful [...] and hospitalized patients were not allowed to receive visitors.” [INT10]

The physicians and the municipal administration of Campos had to address a challenge that was less common in other municipalities. Its location opposite the offshore oil fields makes the city a hub for the constant movement of thousands of workers employed on offshore platforms or at port facilities. For many, the city serves only as a transit point, which increased the efforts required to contain COVID-19. Accordingly, INT10 reported that offshore workers had to be monitored because, if infected, they were required to remain in quarantine in hotels, which, in turn, had to adopt specific cleaning protocols.

The data available for monitoring the pandemic were centralized in the CIEVS, which was responsible for reporting all confirmed cases of the disease. Within the Health Surveillance Department, hospitals, and healthcare facilities, notifications were recorded on paper forms that accumulated rapidly, creating confusion and delays in entering information into the disease reporting system. At the beginning of the pandemic, the e-SUS notification system, which later enabled direct electronic reporting, had not yet been implemented. In addition, handling the paper forms generated concern among employees because of fears of contamination, including those responsible for entering the data into the health information system. This information was provided by INT10.

Because of the frequent changes and instability of the information systems, the Information Unit of the Epidemiological Surveillance Department of Campos developed its own database to enable data management and the production of more reliable reports at any given time. Accordingly, the e-SUS/VE system was used to report cases of influenza-like illness (ILI), while the SIVEP-*Gripe* system was used to report hospitalized cases of severe acute respiratory syndrome (SARS-H) involving hospitalized patients. This information was provided by INT10.

MEASURES ADOPTED AND IMPLEMENTED IN THE MUNICIPALITY TO COMBAT COVID-19

In Campos dos Goytacazes, two main phases of the public health response were identified during the pandemic: containment, aimed at preventing transmission, and mitigation, implemented when it was already recognized that preventing all transmission would no longer be possible (BEM no. 2/2020).

According to BEM no. 7/2020, beginning in March 2020, several specific social distancing measures were implemented in Campos. Initially, a partial lockdown was imposed. However, more stringent social distancing measures continued to be necessary to reduce pressure on the healthcare system and the disease transmission rate. Consequently, between May 18 and May 24, the municipality implemented a strict social distancing measure: a full lockdown. Following that week under a full lockdown, public health authorities, based on a risk assessment, maintained a less restrictive social distancing measure, referred to as a partial lockdown, throughout the month of June. In addition, six sanitary checkpoints were established at different locations throughout Campos, as well as at the airport and heliport. This information was obtained from the BEM.

With regard to rapid COVID-19 testing, the authorities in Campos decided to prioritize the availability of testing kits for healthcare professionals and public security personnel working in the municipality, in accordance with the recommendations of the public health authorities.

Finally, it was observed that three main types of public health measures, implemented simultaneously and in a complementary manner, were adopted in the municipality: measures targeting the individual, the environment, and the community (see Table 2).

Table 2 | Main Types of Public Health Measures Adopted in Campos dos Goytacazes

Individual-level public health measures	Hand hygiene; use of respiratory masks by healthcare professionals; social distancing (isolation of confirmed cases; quarantine; voluntary avoidance of places where people gather); use of non-medical face masks by the general population
Environmental-level public health measures	Ventilation and exposure of indoor environments to sunlight; routine cleaning of indoor environments and surfaces
Community-level public health measures	Restrictions on the operation of schools, universities, community facilities, and public transportation; restrictions on the operation of other venues where people gather, such as social and sporting events, theaters, movie theaters, and commercial establishments not classified as providers of essential services

Source: Prepared by the authors based on documents issued by the public health authorities of Campos dos Goytacazes.

In 2021, the public health situation became less critical with the arrival of the COVID-19 vaccine. Public security personnel and physicians were the first groups to be vaccinated. Many people did not understand this prioritization and attempted to bypass the established vaccination order to receive the vaccine (BEM no. 15/2021). After January 17, 2021, COVID-19 vaccination was implemented both in Campos dos Goytacazes and in municipalities throughout the rest of the country. Gradually, through successive phases and in the context of the declining pressure imposed by the COVID-19 pandemic, the municipal government made the COVID-19 vaccine available to the local population.

THE EFFECT OF COVID-19 ON CDIP HEALTHCARE SERVICES: REORGANIZATION, NEW OPERATIONS, AND NEW RELATIONSHIPS

As previously discussed, at the beginning of the coronavirus outbreak, the lack of information, or at least insufficient information, about COVID-19, combined with the controversies surrounding the extent and severity of its effects in the country and the medical responses to the virus, fueled fear and uncertainty among everyone, including healthcare professionals and their teams.

According to the interview participants, the atmosphere experienced by CDIP professionals during the pandemic period, as captured in the interviews, was one of disappointment mixed with criticism. Several participants expressed regret that they had not received any support from the federal government regarding the disease. For many, this was interpreted as an attitude of denial of science. “If it had not been for SUS, we would not have succeeded.” [INT4]

Throughout the country, and Campos was no exception, healthcare professionals became anxious and deeply concerned. Several participants reported fear of becoming infected, distress—INT3 even stated that they became “completely isolated” due to panic—and feelings of insecurity.

Although all participants were clearly affected to some extent on a personal level by the emergence of COVID-19, their feelings of anxiety were not directly reflected in their professional actions. There were several reasons for this. Some participants who were infected with the coronavirus had to be removed from their regular work activities. Others continued to fulfill their duties while their departments or administrative units remained open and operational. Finally, others



were reassigned to work in hospitals on the front line, areas whose activities became essential for collectively addressing the pandemic. As a result, a rotation of duties was organized within the CDIP itself. This information was provided by INT4.

In several situations, the interview participants reported that they had to perform non-routine tasks, while others had to increase their workload. Although the Center's activities had been reduced during the spread of COVID-19, INT5 reported that he ended up participating in mass testing. According to the participant, "it was more from the middle to the end of the pandemic [...]. Then it became more overwhelming. It was not a CDIP action [...] providing services [outside the Center] was something extra." In turn, INT9 stated that, due to his experience with testing, he was asked to coordinate COVID-19 testing, an initiative of the Municipal Health Department.

Professionally, the predominant feeling among the interview participants was a sense of responsibility. In addition, physicians, including specialists such as infectious disease physicians working on the front line, undoubtedly experienced an increased workload. According to INT1, "the critical period for the CDIP was from March/April 2020 until the last quarter of 2020, coinciding with the vaccine, approximately six months of restrictions and limitations on the CDIP's daily work."

Before the emergence of COVID-19, according to the interview participants, the number of patients registered with the CDIP was approximately five thousand, representing all individuals registered since 1996¹. However, in 2020 and 2021, the number of patients linked to the service² was 2,315 and 2,362, respectively, according to the CDIP information system. These patients were those who attended elective medical appointments and collected their medications at the Center as part of a regular disease monitoring and medication dispensing process, particularly antiretroviral drugs (ARVs), as reported by INT5 and INT9. According to INT9,

a person is considered linked because they are actively collecting this medication; in the past, patients with HIV were not reported, only patients with AIDS were reported. [Several of these] patients [...] who had only HIV [...] remained without being reported [INT9].

1 The registration of patients with HIV in the municipality began in 1996, when access to HIV/AIDS medications became widespread in Brazil.

2 The interview participants highlighted the distinction between the technical terms "registered" and "linked" patient: the former refers to anyone who completed registration at the CDIP, whereas the latter refers to patients who are undergoing treatment.

Given the particular characteristics of Campos and the intense flows of people associated with offshore oil activities, it should be noted that workers in transit who received HIV/AIDS medications with medical prescriptions in Campos were not registered in the CDIP records, as reported by INT4.

Starting on April 10, 2021, COVID-19 vaccination was initiated for individuals living with viral hepatitis and HIV who were over 60 years of age. Immunization was carried out at the CDIP. Subsequently, vaccination was expanded to other age groups. On May 7, 2021, the COVID-19 vaccine became available for individuals living with viral hepatitis and HIV over 50 years of age and for people living with HIV, over 18 years of age, who had a CD4 lymphocyte count less than or equal to 350 cells/mm³. Vaccine administration for this group continued to take place at the CDIP. Later, starting on May 21, 2021, vaccination was expanded to people living with HIV over 35 years of age, with the vaccine being exclusively available to patients registered in the program. During the same period, outpatient appointments and rapid testing for HIV, hepatitis B and C, and syphilis were also being conducted by appointment. Finally, in early September 2021, the CDIP resumed its HIV Pre-Exposure Prophylaxis service. This information was obtained from the Campos municipal government website³.

Furthermore, according to INT5, because HIV self-testing kits were not distributed, new HIV patients were diagnosed only when they were hospitalized for COVID-19 or another illness. In these cases, HIV/AIDS tests were performed as part of routine hospital admission procedures. According to INT5,

self-testing, in fact, began to be distributed after the pandemic. The cases that we ended up identifying, which were few, were discovered when individuals were hospitalized for COVID-19 and the diagnosis was made at the hospital, or even when they were hospitalized because of HIV, although we did not observe many hospitalizations due to HIV [INT5].

Initial uncertainties regarding the causes of death were reported in the interviews, as, at the beginning of the pandemic, the symptoms of COVID-19 and HIV—respiratory failure, pneumonia, among others—were confused, even though they are distinct conditions. In this regard, INT5 also stated:

[...] I could not verify statistically whether the number of deaths [among patients with HIV/AIDS] increased during the pandemic period [...]. Since immunity is compromised, I thought it was going to be devastating, [...] I did not notice this devastation among people living with HIV because even this depends on whether the physician records it on the death certificate. If they do not record it [...] because everything became COVID [...]. Thus, it even became difficult for us to determine it [INT5].

3 Official website of the Municipal Government of Campos dos Goytacazes for the years 2019, 2020, and 2021, accessed on May 20, 2024. "HIV" was the descriptor used to search the information database of the Portal. <https://www.campos.rj.gov.br>

Thus, the first phase of the COVID-19 response was marked by uncertainty, which caused confusion regarding the determination of the causes of death among people living with AIDS who received antiviral medication. According to INT10, later on, the practice of nasal swab testing and the use of the Central Laboratory of the Guarus General Hospital (HGG, acronym in Portuguese) made it possible to better clarify the causes of death. In the interview with INT11, it was confirmed that the initial procedure adopted was as follows: people who had COVID-19 were considered COVID-19 deaths; afterward, comorbidities were analyzed to identify the most frequent ones.

According to INT1,

at the beginning, there was this uncertainty, determining [whether] the coronavirus [was] responsible for morbidity and, especially, mortality, or whether it was the underlying disease. This occurred throughout the country, until municipalities and states strengthened their epidemiological investigation sectors and death investigation units, [...] after the investigation, this was corrected [INT1].

INT4 adds:

For example, in terms of hospitalizations and deaths, at the beginning, I think it was a complicating factor to distinguish between COVID-related issues and HIV-related issues. [...] I believe that, while they were hospitalized, yes, they performed the rapid [HIV] test [INT4].

Regarding the differentiated treatment provided to PLHIV whose condition worsened during the pandemic, INT4 reported the following:

When they reported these difficulties related to HIV, we did prioritize their care. And when it was not possible and we noticed [the need], we assessed the situation. During a nursing consultation, if the patient was in critical health condition, we referred them to hospitalization at the hospital itself. There, we have dedicated beds for infectious and parasitic diseases. So, when they are admitted, we even communicate with them, make contact to check whether there is an available bed, and they are already waiting for the arrival of this patient there. So, this happens, including now; it has always happened [INT4].

The main opportunistic diseases associated with the combination of HIV and COVID-19, as expected and observed in Brazil and other countries, were pneumocystosis, tuberculosis, neurotoxoplasmosis, and other comorbidities, such as liver and kidney diseases, as reported by the interview participants.

THE NEW REALITY OF THE CDIP REGARDING ELECTIVE CONSULTATIONS AND ACCESS TO MEDICATIONS

On March 17, 2020, in response to the pandemic containment measures, the cancellation of scheduled appointments at the CDIP was ordered by municipal decree. In addition, the Center remained closed for a few days, including the pharmacy. Following this first radical decision of complete closure, the CDIP began to operate partially. Direct contact with patients was suspended, and, in some cases, communication with them began to take place by telephone. This procedure lasted approximately six to seven months. This information was obtained based on the interviews conducted.

During this period, the distribution of ARVs to patients undergoing treatment began to occur at longer intervals but was not interrupted, reduced, or delayed. During the pandemic, medication dispensing, which had previously been carried out every three months, began to occur every six months. "Patients liked it because it was practical, as they did not have to leave home [every three months]." [INT5] According to the interview participants, after the pandemic, some patients did not appreciate the return to the shorter interval for medication dispensing.

In addition, prescriptions were not required for regular patients; the requirement for prescriptions applied only to non-regular patients. In these cases, according to INT5,

there was a conflict with those patients who did not have a medical prescription and wanted the medication, and then we had to figure out how we were going to dispense it, and there were some disagreements because of that. Now, for those who were regular [patients], it was easier for us to resolve [INT5].

Before the pandemic, the recommendation was to perform routine tests every six months to monitor viral load (VL) and lymphocyte count (CD4). These tests were not performed "because the laboratory also closed; we followed up blindly. [...] because we did not have laboratory tests to look at, to see how things were progressing." [INT5]

In general, few HIV/AIDS detection tests were performed during the pandemic. In any case, these tests are not carried out at the CDIP. Patients receive the medical prescription, and the procedure is requested to be performed at the HGG. "One thing leads to another: the reduction in the frequency of consultations ends up leading to a reduction in the frequency of the tests requested when the consultation takes place." [INT5]



Preventive methods, such as condoms and Pre-Exposure Prophylaxis (PrEP), were not distributed because healthcare professionals believed that isolation would ensure the absence of contact. Regarding Post-Exposure Prophylaxis (PeP), INT4 mentioned the following:

There was demand. So, we always, 100% of the time, provided PeP care, which is post-exposure prophylaxis, so there is a period of up to 72 hours to use the medication, right? So, it is an urgent service. This was a priority in our care here. And PrEP gradually resumed. [INT4]

According to the interview participants, the cancellation of scheduled appointments made contact with patients much more difficult. INT3, responsible for providing assistance to PLHIV, stated that “online work was affected due to the technological limitations of patients and the service itself. The solution was to use WhatsApp.” Meanwhile, medication distribution was maintained, as previously indicated, and the telephone began to be used to answer patients’ questions. In-person contact with patients was only resumed after the pandemic.

Appointments were initially rescheduled based on an open schedule, as professionals who had been reassigned to COVID-19 care or who had been away from work after becoming infected with the virus returned to their duties at the CDIP. At first, no active search for patients was conducted. One interview participant stated that, during this rescheduling process, each patient’s clinical history was considered as a prioritization criterion, for example, when viral load was high. Professionals observed that, as isolation decrees were gradually suspended, appointments were progressively rescheduled by telephone. However, after the pandemic, several users did not return to continue their treatment; therefore, it became necessary to actively search for these patients by telephone or even through home visits. INT5 explained:

After the pandemic ended, we returned to our routine, and we began noticing who had not returned. That was when we started an active search process. Then it became a new routine that we still carry out today. [INT5]

Thus, active patient follow-up was carried out after in-person care at the CDIP had been normalized. According to INT1,

based on what the pharmacy reported about patients who had gone the longest without collecting their antiretroviral medications, but even before this active search, those who initially carried it out were the nurses and social workers [...] patients came to us afterward. Then priority was given to those patients who had not collected their medication or undergone tests. [INT1]

Regarding the previous frequency of ARV distribution—every three months instead of every six months— not all patients were satisfied, as previously mentioned. Patients who lived in rural areas, far from Campos, experienced greater difficulties. According to INT1,

Campos is a very large municipality, with an enormous territorial area, so I believe that this very likely also affected a decrease in adherence [...] it is related to non-medical factors, economic factors, and social factors. [INT1]

According to other interview participants, reduced adherence was a reality. “The pandemic was just another reason to abandon.” [INT5] Treatment adherence was a major concern for the CDIP: “We talk a lot about adherence here.” [INT2] “Certainly, a great deal of treatment abandonment and many patients lost to follow-up were identified here, among those who were linked to the program. The pandemic contributed greatly to increasing abandonment.” [INT4]

However, the return to routine helped increase awareness of the importance of medical appointments and laboratory testing. “This viral load check-up allows us to determine whether patients with HIV were taking their medication or whether their serological status had worsened (the kidneys complaining, the liver complaining, etc.).” [INT5]

When the coronavirus vaccine became available, the CDIP, as previously mentioned, began administering it to patients with HIV who had been previously registered in their medical records. The measure aimed to prevent them from being discriminated against in public places where the vaccine was administered based on age, as reported by INT4.

When appointments were rescheduled, no deterioration in the physical health of patients with HIV/AIDS was observed. This was likely because these patients took greater care of themselves: “patients with HIV seem to have taken better care of themselves.” [INT2] In some cases, tendencies toward anxiety and depression were mentioned due to losses—family members, friends, and others—caused by the pandemic. According to INT3, one point that should be highlighted is:

the demand for psychology services was exacerbated due to the psychological impact of an unknown disease—greater sensitivity and acceptance of psychological treatment, making the demand today much greater than before. [...] the religious factor became less influential after the pandemic—opening the way for psychology/psychoanalysis. [INT3]

CHANGES IN WORK METHODS AND WORKING CONDITIONS

Shortly before the emergence of COVID-19, the CDIP employed approximately 60 workers, with around 15 employees working per day. The management team consisted of five managers. Most of the Center's nursing professionals were assigned to the front line of the pandemic response (testing, assistance, etc.). The staff ended up performing various functions through a type of professional rotation. This information was provided by the interview participants.

The staff members who continued working, despite the cancellation of elective appointments, confirmed that some adaptations were immediately implemented at the beginning of the pandemic to address the difficulties and restrictions imposed by COVID-19, such as the use of masks and lab coats. Additional precautions were also adopted: the use of PPE, proper cleaning procedures, adjustments for patient care, the use of packaged medication, and prescriptions placed in plastic bags by the pharmacy. The main changes in work methods and working conditions were related to the service area: installation of glass barriers, availability of hand sanitizer, and spacing in waiting lines. "A protective barrier was installed where there had not been one before." [INT5] However, regarding masks and other equipment, "actually, these standards had already been recommended; we did not value them as we should have. That is what remained, right? And even today we end up using them." [INT5]

Some improvements were observed in the organization and operation of patient care. However, the positive changes were achieved gradually and remained limited within a reorganization process involving a reduced number of CDIP employees. According to INT3,

COVID drastically changed the way we work; before the pandemic, online care was very rare. We used several alternatives through telephone and WhatsApp; the taboo surrounding online care was overcome. Today, this is part of our routine. [INT3]

Some interview participants noticed other improvements, but one of them believed that, in practice, there was no significant progress, since demand increased during the post-pandemic period. Another interview participant emphasized that "the next pandemic will require another necessary organization." [INT3] However, even the interview participants who were more doubtful about the existence of improvements believe that "the learning experience was enormous," according to one participant who summarized the general feeling. Another participant stated that "today we have a



more developed and more organized perspective.” Among the improvements expected to be long-lasting, the professionals mentioned the use of PPE and hand hygiene in daily service routines, as well as a more careful approach by professionals toward patients, activities that had previously become more relaxed.

After the pandemic, some interview participants considered that the CDIP multidisciplinary team became better prepared to face future pandemics because of the biosafety knowledge acquired. In general, physicians recognize that all healthcare professionals need to be prepared to face fear and not stop providing care, even in the face of COVID-19 and other possible emergencies that may arise.

Among the positive social innovations generated by COVID-19 management, the interviewed professionals highlighted the systematic organization of meetings, often held daily, with all agents and institutions involved in the collective effort against such diseases and pandemics; conversations and exchanges facilitated by the use of the internet; and opportunities for deeper or updated scientific knowledge.

A more fundamental criticism was raised by the interview participants: the measures adopted to combat COVID-19 were very strict, particularly the systematic closure of outpatient departments and the general reduction in healthcare services. In their assessment, these measures greatly hindered patient monitoring and the early identification of coinfections, according to information provided by INT10. The suspension of elective appointments and the relative decline in interest in chronic diseases during the most critical period of the COVID-19 pandemic were not fully supported by physicians. In the future, more flexible measures that are better adapted to the context and to individuals may be the solution. Nevertheless, it can also be understood that, at that time, the priority given to protecting people’s health justified the drastic decisions that were made.

ANALYSIS AND DISCUSSION

In this section, the reported facts will be interpreted in light of the institutionalist literature and the concepts proposed in the theoretical framework, seeking to highlight how the transformations observed in the research contributed to regional development in its health dimension.

The immediate creation of the CCC, initiated by municipal authorities, can be analyzed as a true institutional innovation of an *ex nihilo* governance structure, that is, without precedents, created to address the urgency and the need to combat the emerging pandemic. This governance structure maintained a continuous relationship with the Municipal Health Department, whose jurisdiction covered the municipalities of the North and Northwest Regions of Rio de Janeiro State, and included the CIEVS. The CCC had authority over all organizations mobilized to confront COVID-19: the CDIP, several municipal departments, the group responsible for monitoring pandemic statistics and producing the BEM, public and private healthcare facilities, biology laboratories, the Municipal Institute of Traffic and Transportation (IMTT, acronym in Portuguese), security forces, among others.

With an expanded decision-making capacity, this governance structure ensured the circulation of updated medical information and organized and coordinated the actions of all these organizations. It also monitored the decisions made by the municipal government to restrict or prohibit travel, close stores and services, schools and colleges, cancel sporting and festive events, among others— in short, anything that affected the constitutionally guaranteed freedoms of assembly and movement. Conceived and established hastily and without any guarantee of longevity, this governance structure ceased to exist with the gradual disappearance of the pandemic threat. Its temporary nature did not prevent, and maybe even encouraged, the authority it gained over all administrative and healthcare entities, both public and private, that remained subordinate to it for many months.

Another important aspect of the efficiency of this governance structure is that, although there was a significant risk that each entity involved in the pandemic would continue to operate autonomously, individually, in parallel, isolated, idiosyncratically, and, ultimately, routinely, maintaining relationships only with its own usual reference contacts, its establishment and its centralizing initiatives significantly reduced the number of actions, contacts, and relationships of each entity operating under its authority. Therefore, according to the institutionalist approach, it enabled the reduction of transaction costs



that would otherwise have increased the operational and organizational costs of the participating organizations. Likewise, it undoubtedly reduced the risk of information loss and excessive dispersion of attention and activities.

The speed and firmness of the decisions made and the actions undertaken under the aegis of this governance structure contributed to avoiding successive rounds of negotiation by each entity regarding its organizational and operational methods and personnel management. In a certain way, the governance structure and its corollary in terms of transaction costs reorganized healthcare services, reducing the management burden of the pandemic and the uncertainties that prevailed during its initial phases.

The interpretation of these facts in light of the concept of governance made it possible to demonstrate that the flexibility of the institutions related to the local healthcare complex helped prevent chaos in local and regional public health, reducing transaction costs in the decision-making process, increasing cohesion among the social actors involved, and thus contributing to regional development in its health dimension.

Regarding the interpretation of the interviews with CDIP managers, the concept that can help evaluate the numerous changes reported is adaptive efficiency. The COVID-19 pandemic imposed the need for a series of adaptations in the functioning of the CDIP to provide care to patients. As observed, these adaptations occurred both through the Center's own initiative and through requirements imposed by the MH and the Municipal and State Health Departments. However, the important point is not so much to identify the origin of these adaptations, but rather to observe the CDIP's ability to implement and maintain them after the pandemic. Examples include: the internal and external facilities of the CDIP building, which were reorganized to provide patients with greater protection against the coronavirus—they remained in place even after the final active phases of the pandemic; the establishment of an extended period for medication dispensing; the administration of the COVID-19 vaccine to people living with HIV (PLHIV) at the CDIP itself, ensuring patient confidentiality regarding their condition; psychological care provided by telephone or video, prioritizing patients' mental health during such a complex period and which is now part of routine practice; the learning process involved in working under restrictive conditions due to the reassignment of employees to the COVID-19 front line; among others.

Specifically regarding medical care, the following measures were necessary: the temporary suspension of elective appointments for the follow-up of PLHIV; the acquisition of two brand-new ambulances to support care for coronavirus cases or suspected cases; authorization for the relocation of physicians in order to meet the population's demands when necessary; the implementation of a new bidding process for the purchase of hospital supplies; the creation of a support room within the Epidemiological Surveillance Department to monitor coronavirus cases and possible isolation measures; the assignment of healthcare professionals to provide care for COVID-19 cases; among other decisions.

All these changes, modifications, innovations, and adaptations were not specific to Campos dos Goytacazes; all municipalities in Brazil, under local pressure from the pandemic and prompted by state and federal authorities, were required to adopt reorganization measures to contain the crisis and limit human losses. However, these changes and adaptations were implemented with different degrees of speed, anticipation, and firmness, depending on the location and the awareness of authorities. From this perspective, Campos dos Goytacazes most likely belongs to the category of municipalities and healthcare facilities that adopted policies, developed rapid and firm actions, and implemented appropriate adaptations, even though some of them may be criticized, modified, and improved.

In the institutionalist approach, adaptive dynamics are combined with the notion of efficiency. In other words, the investigations conducted demonstrate that the governance structure created and the adaptations implemented at the CDIP, even within a highly uncertain and restrictive context, could ensure healthcare services during the pandemic. In fact, no significant incident interrupted the course of the actions to combat the pandemic, and the CDIP, responsible for PLHIV care, although constrained by a series of higher-level decisions, was able to reorganize itself and operate for the benefit of the target population in order to maintain public health services without causing harm to regional development in its health dimension.

FINAL CONSIDERATIONS

The research made it possible to observe how public health-related institutions in the municipality of Campos dos Goytacazes and its surrounding area faced the COVID-19 pandemic during the years 2020 and 2021. More than that, it showed how these institutions contributed to combating and containing the damage caused by the pandemic, preventing chaos in public health through the maintenance of healthcare services, even under more precarious conditions. In addition to these results, the institutionalist approach adopted made it possible to understand the rationales and mechanisms through which changes and adaptations were adopted by social actors and professionals, ensuring social cohesion among the different links involved, efficiency in public health services, and the population's well-being.

Furthermore, some points deserve to be revisited because they represent lessons learned from the study. It should be emphasized that the administrative and political unit constituted by the municipality represented, alongside the other entities of the Brazilian State—the state and federal governments—the necessary and useful space for decision-making and the implementation of actions to combat the pandemic. The decision of the STF, recognizing the shared competence of these three levels of government in public health matters and acknowledging the legitimacy and capacity of municipalities to act in this field, undoubtedly facilitated their response in the actions taken against the coronavirus. The results observed in the research demonstrated the effectiveness of this repertoire of actions at the local level. Thanks to the rapid and firm decisions taken since the beginning of the pandemic wave and the rational organization of the response implemented by local authorities, Campos dos Goytacazes can be safely classified as one of the locations that succeeded in containing and subsequently reducing the most severe consequences of the coronavirus.

However, although COVID-19 and the situation of PLHIV, which is at the center of the problem studied, affected one another, the research did not investigate these consequences on patients' health. Future studies could specifically investigate how people living with HIV and, especially, those receiving antiretroviral treatment were affected by this episode.



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