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EFFECTS OF COVID-19 ON THE EMERGENCY MEDICAL CARE SYSTEM IN BRAZIL

Bruno De Souza Asevedo Lima

Diego Augusto dos Santos

Elizabeth Bitencourt Castro Silva

Julia Carvalho Reis

Breno Marques Barbosa Estrela

Beatriz Araujo Da Silva Santos

Breno Silva Santos

Rafael Ramos De Oliveira Mendonça

Sabrina Lacerda Veloso

João Pedro Santana Tanuri

Kauane de Souza Alves

Maria Eduarda da Silva Monteiro

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Abstract: **INTRODUCTION:** The COVID-19 pandemic has imposed unprecedented challenges on the Brazilian health system, especially on urgent and emergency services, which has compromised their response capacity and the quality of their care. In addition, the pandemic has revealed structural deficiencies in the public health system, already overburdened by endemic and chronic diseases, which has required readjustments in the intensive management of severe COVID-19 cases in care flows, harming patients with other conditions and increasing morbidity and mortality from causes unrelated to the coronavirus. **OBJECTIVE:** To assess the impact of the COVID-19 pandemic on urgent and emergency care services in Brazil, identifying the main challenges and mitigation strategies adopted during critical periods of the pandemic. **METHOD:** The research was based on a literature review and analysis of epidemiological data provided by the Ministry of Health and other official sources such as DATASUS between 2018 and 2022, including scientific articles published in databases such as PubMed. **RESULTS AND DISCUSSION:** The analysis of data from 2018 to 2022 revealed a sharp increase in emergency care during the COVID-19 pandemic. Before the crisis, emergency care accounted for 78% of total hospitalizations in 2018 and 2019, while in 2020 this proportion rose to 84%. The increase in urgent care reflects the prioritization of these emergencies, while elective care has been reduced, as evidenced by the 36% drop in elective admissions from 2019 to 2020. The availability of emergency beds has grown considerably, from 5,235,496 in 2018 to 10,769,983 in 2022, an increase of 105.71%. However, the expansion of beds has not been homogeneous, with regional disparities persisting. The North and Northeast regions faced infrastructure challenges, which hindered equity in access to health services. **CONCLU-**

SION: The COVID-19 pandemic has had a profound and lasting impact on urgent and emergency services in Brazil, highlighting the vulnerability of the public health system to large-scale health crises. The strategies adopted, such as the expansion of beds, were essential to mitigate the immediate effects, but the experience highlighted the need for effective planning and continued investment in infrastructure and the training of professionals to deal with future public health emergencies.

Keywords: Epidemiological Profile, COVID-19, Pandemics, Public Health

INTRODUCTION

The COVID-19 pandemic, caused by the SARS-CoV-2 virus, began in Wuhan, China, and quickly went global, being declared a pandemic by the World Health Organization (WHO) in March 2020. This unprecedented event has brought significant challenges to public health, the economy and social life around the world. SARS-CoV-2 is a betacoronavirus that probably had a zoonotic origin, later adapting for human-to-human transmission. (Yen-Chin Liu et al, 2020) (M. Ciotti et al., 2020)

Transmission occurs mainly through inhalation of respiratory droplets and contact with contaminated surfaces. (Corina Pennanen-Iire et al., 2020) The virus is highly contagious, with a basic reproduction number (R0) of 2 to 2.5, in which each infected person can transmit the virus to 2 to 3 other people. (P. Dashraath et al. 2020) The most common symptoms of COVID are fatigue (37%), dyspnea (21%), olfactory dysfunction (17%), myalgia (12%), cough (11%) and taste dysfunction (10%). (Healey et al., 2022) Pulmonary lesions, venous/arterial thrombosis, cardiac lesions, cerebral/cardiac stroke and neurological lesions are the most frequent late complications of COVID-19. (Seyedalinaghi et al., 2021)

The COVID-19 pandemic has had a devastating impact on global public health, with millions of cases and hundreds of thousands of deaths (M. Ciotti et al.,2020) (K. Clerkin et al.,2020).) The rapid spread of the virus has led to drastic measures, such as lockdowns and border closures, to try to contain the spread. (P. Dashraath et al.,2020) The pandemic has also highlighted disparities in preparedness and response between urban and rural areas, with rural areas facing additional challenges due to limited health infrastructure and lower health literacy (Hari Vishal Lakhani et al.,2020)

To prevent the spread of the virus, various control measures have been implemented, including the use of personal protective equipment (PPE), surveillance and isolation of cases, and increasing individual immunity. (V. Ip et al.,2020)

OBJECTIVES

GENERAL OBJECTIVES

To assess the impact of the COVID-19 pandemic on urgent and emergency services in Brazil, analyzing changes in care flows, the redistribution of resources and the mitigation strategies adopted during the period from 2018 to 2022.

SPECIFIC OBJECTIVES

1. To identify the main changes in the types of care provided in urgent and emergency services during the COVID-19 pandemic, focusing on the prioritization of cases related to SARS-CoV-2 and its impacts on other care.
2. Analyze the epidemiological data related to the availability and occupancy of emergency beds in Brazil between 2018 and 2022, highlighting the structural adaptations made to meet the growing demand.

3. To investigate the challenges faced by health professionals and managers in readjusting care flows during the pandemic, including logistical limitations and service overload.

4. To evaluate the mitigation strategies implemented by the Brazilian public health system to deal with the impacts of the pandemic on urgent and emergency services, seeking to identify lessons learned and opportunities for strengthening the system.

METHOD

This is an ecological study with a descriptive purpose, considering the distribution and temporal trend of care in urgent and emergency services in Brazil between 2018 and 2022. The research was conducted using a methodological approach that combined a literature review and analysis of epidemiological data. The literature review aimed to provide a theoretical basis for the study and was carried out by analyzing scientific articles obtained from renowned databases such as PubMed and other relevant sources. This stage made it possible to identify the current state of knowledge on the subject, existing gaps and the main findings related to the research question.

In addition, epidemiological data from official sources such as the Ministry of Health and DATASUS were analyzed, covering the period from 2018 to 2022. At DATASUS, the research included the extraction and analysis of data on SUS Hospital Morbidity, segmented by place of hospitalization in all regions of Brazil (<http://tabnet.datasus.gov.br/cgi/tabcgi.exe?sih/cnv/niuf.def>), as well as information on beds available in emergencies, focusing on CNES data related to Physical Resources - Emergency - Rest/Observation Beds in Brazil (<<http://tabnet.datasus.gov.br/cgi/tabcgi.exe?cnes/cnv/recurgbr.def>>).

The combination of theoretical evidence and concrete data made it possible to identify patterns, trends and the distribution of diseases and health resources, providing a broad and well-founded view of the subject under investigation. This integrated approach sought to provide relevant information to support the formulation of public policies and decision-making in the field of health.

RESULTS AND DISCUSSION

The analysis of hospitalization data by type of care between 2018 and 2022 reveals a series of changes in the profile of emergency care and the dynamics of the Brazilian health system, especially the impact of the COVID-19 pandemic. The information analyzed shows the transformation in the behavior of care, the variation in bed availability and the challenges in managing the health system, particularly in relation to regional disparities.

DISTRIBUTION AND TEMPORAL TREND OF ATTENDANCES

The distribution of care, especially emergency care, grew sharply between 2019 and 2020, reflecting the increase in hospitalizations related to the pandemic. The proportion of emergency care, which accounted for an average of 78% of total hospitalizations in 2018 and 2019, rose to around 84% in 2020, and remained at high levels in subsequent years (83% in 2021), as shown in table 1. This change reflects the prioritization of urgent care, such as those related to COVID-19, while elective procedures have been postponed. The decline in elective hospitalizations in 2020, which fell from 2,592,470 in 2019 to 1,652,679, corroborates this scenario of reorienting services to attend to emergencies.

EMERGENCY BEDS

The supply of emergency beds has grown considerably, from 5,235,496 beds in 2018 to 10,769,983 in 2022 in Brazil. This increase of approximately 105.71% was driven by the need to expand the health system to deal with the high demand during the peaks of the pandemic. However, the expansion was not homogeneous, and regional disparities were evident, with the Northern region, for example, showing a substantial increase in hospitalizations, but with a lower proportional supply of beds, as seen in table 2. This indicated a limitation in the response capacity of some regions, reflecting a structural challenge that already existed before the pandemic and which worsened with the increase in demand.

ANALYSIS BY GEOGRAPHICAL REGION

The increase in the number of emergency beds in Brazil, as shown in Table 2, was significant between 2018 and 2022, with an overall doubling of emergency beds in the country. However, although this expansion has been significant, the unequal distribution of beds in the various regions has exacerbated disparities in access to health services. The Northern Region, for example, experienced a 109% increase in the number of beds, jumping from 380,720 in 2018 to 795,739 in 2022. This growth was necessary, but insufficient to meet the growing demand, as the region still faced chronic infrastructure challenges and limited resources, which may have generated a considerable overload in emergency services, with an impact on the quality of care.

The Northeast also experienced a significant increase, with 2,938,068 beds in 2022, more than double the 1,383,866 registered in 2018. However, despite this significant growth, regional disparities in terms of health resources remain evident. While the more structured regions, such as the Southeast and the South,

Service character	2018	2019	2020	2021	2022
Elective	2475002	2592470	1652679	1856164	2680088
Urgency	9285627	9501283	8796297	9624677	9596533
Accident at the workplace	15	56	28	41	67
Accident on the way to work	6	9	6	13	23
Other types of traffic accidents	35637	33733	34189	36843	35629
Other types of injuries	61360	57886	48624	48786	49266
Total	11857647	12185437	10531823	11566524	12363806

Table 1. Hospitalizations by Type of Care and Year of Care

Source: Ministry of Health - SUS Hospital Information System (SIH/SUS)

Region	2018	2019	2020	2021	2022
Northern Region	38720	375355	387108	398564	795739
Northeast Region	1383866	1369854	1437742	1468490	2938068
Southeast Region	2147655	2127102	2153474	2173894	4347658
Southern Region	876663	876430	882099	871620	1734876
Central-West Region	446592	447253	456743	472615	953642
Total	5235496	5195994	5317166	5385183	10769983

Table 2. Existing number of emergency beds by Region and Year

Source: Ministry of Health - SUS Hospital Information Systems (SIH/SUS)

have managed to expand their service capacity relatively efficiently, the North, historically deficient in terms of hospital infrastructure, has continued to face difficulties in keeping up with this pace of increase in demand. The Southeast, which already had a more robust infrastructure, doubled its emergency beds, from 2,147,655 in 2018 to 4,347,658 in 2022, which reflects the greater capacity to adapt, but also highlights the inequality in access to emergency care.

These data indicate that, despite the increase in the number of beds, the lack of an equitable and structured approach to the financing and distribution of health resources remains a significant obstacle. The growth in beds has not been proportionally accompanied by an improvement in the quality of care and the expansion of the human and technological resources needed for an efficient health service. Therefore, despite the progress made in terms of the number of beds, the real effectiveness of this expansion depends on a more balanced infrastructure, with a closer look at the most affected regions and those with the greatest needs.

IMPACT ON CAUSES UNRELATED TO COVID-19

Although the pandemic has created a huge burden on health services, the side effects of this crisis have extended to patients with chronic conditions unrelated to COVID-19. The number of elective hospitalizations fell dramatically during the critical period of the pandemic, dropping from 2,592,470 in 2019 to 1,652,679 in 2020, representing a reduction of approximately 36%. This reflects the widespread postponements or cancellations of planned procedures, which resulted in a significant backlog of cases in the following years. In 2022, with the partial recovery of the system, elective hospitalizations began to rise again, surpassing pre-pandemic levels and reaching 2,682,288 hospitalizations. This phenomenon illustrates how the global health crisis has affected both emergency care capacity and the ability to manage long-term conditions, with a significant impact on the health of the population.

MANAGEMENT AND LOGISTICS CHALLENGES

The analysis also highlighted the challenges in the management and logistics of emergency care. The shortage of human and material resources was a major difficulty during the pandemic, especially in health units that were already facing limitations before the crisis. In addition, the lack of ICU beds in some regions contributed to an increase in mortality among critically ill patients, including those with diseases unrelated to COVID-19. Inefficient logistical management has been one of the determining factors for the overload of health facilities, undermining the quality of care and exacerbating regional disparities in access to intensive care.

CONCLUSION

Analysis of data on emergency care in Brazil between 2018 and 2022 shows the devastating impact of the COVID-19 pandemic, with a significant increase in urgent hospitalizations and a drop in elective care, especially in 2020. Although the supply of emergency

beds has increased, regional inequality has remained, with the North and Northeast facing challenges due to limited infrastructure. The lack of resources and the overload of the system have aggravated the situation, resulting in a backlog of patients with chronic diseases, which has damaged the prognosis of many people, especially those who needed ongoing care, but not related to COVID-19.

These results highlight the urgent need for a restructuring of the Brazilian public health system, with an emphasis on improving infrastructure and the equitable distribution of resources, in order to mitigate regional inequalities. The pandemic has exposed the system's weaknesses, mainly affecting the most vulnerable populations and widening disparities in access to medical care. Therefore, in order to ensure sustainability and equity in access to health services, it is imperative to implement policies that ensure the provision of adequate and quality health care in all regions of the country, with the aim of preserving lives and reducing disparities in care.

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