anahp | 20 ANOS

OBSERVATORIO
2021

Annual Publication - Number 13

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Anahp facts and figures

REPRESENTATIVENESS

R$ 38.76 billion
Gross revenue of 118 member hospitals in December 2020

118 Members
in April 2021

21.46% of the total
clinical expense in private healthcare in 2020

27,109 Beds
in December 2020:
10.58% of the total private (for profit and not-for-profit) beds available in Brazil.

7,105 ICU beds
in December 2020

6.81 million
visits to the Emergency Department in 2020

ANAHP HOSPITALS TOTAL **24.38%** OF NATIONAL ACCREDITATIONS AND **81.61%** OF INTERNATIONAL ACCREDITATIONS

2020			
Accreditation	Anahp*	Brazil	% Anahp
ONA III	52	175	29,71%
Qmentum International	40	43	93,02%
JCI	29	39	74,36%
ONA II	15	85	17,65%
ONA I	12	64	18,75%
DIAS/NIAHO	2	5	40,00%
TOTAL	150	411	36,50%
International	71	87	81,61%

*Anahp hospitals may hold more than one accreditation.

ANAHP MEMBERS ARE HIGH COMPLEXITY HOSPITALS:

65.25%
Large size and special organizations
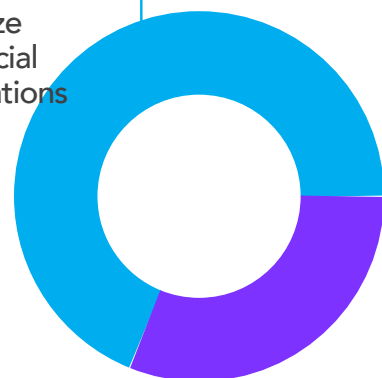
34.75%
Small and medium size organizations

IN 2020 THERE WERE:
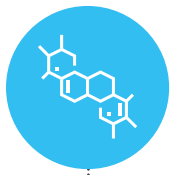
95,741,664
TOTAL TESTS
PERFORMED

1,511,350
HOSPITAL ADMISSIONS
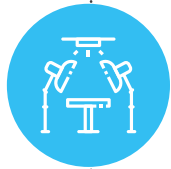
1,617,393
SURGERIES

51.06%
PERFORMED
TRANSPLANTS
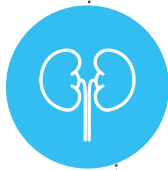
ABOUT **190,000**
JOBS IN MEMBER
HOSPITALS:

14.33% OF TOTAL FORMAL HOSPITAL CARE WORKFORCE

2018	**173,644**
2019	**197,446**
2020	**191,003**

RATE OF GENERAL OPERATIONAL OCCUPANCY (%)
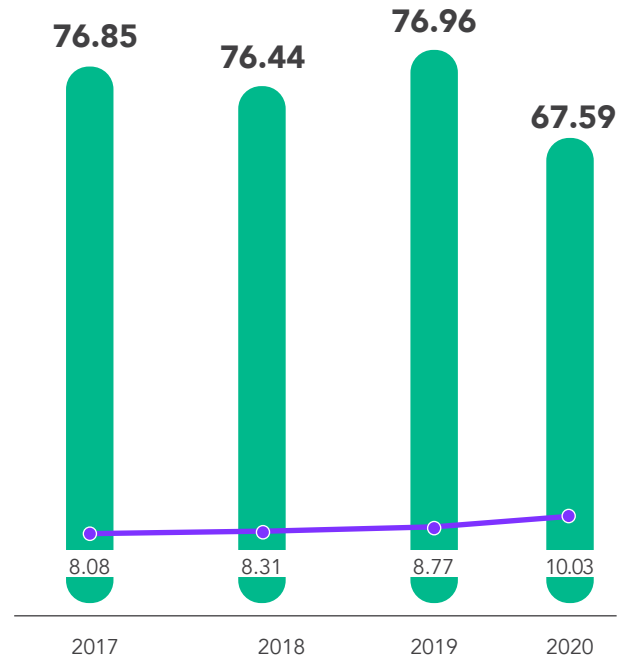
76.85 — 2017
76.44 — 2018
76.96 — 2019
67.59 — 2020

8.08 — 2017
8.31 — 2018
8.77 — 2019
10.03 — 2020

Standard deviation

Source: SINHA/Anahp.

AVERAGE LENGTH OF STAY (DAYS)

4.27 — 2017
4.13 — 2018
4.04 — 2019
4.59 — 2020

1.13 — 2017
1.14 — 2018
1.20 — 2019
1.62 — 2020

Standard deviation

Source: SINHA/Anahp.

COMPLIANCE

92.55%

have a code
of conduct

88.30%

have an ethics and
compliance committee

71.28%

have a compliance
professional or
department/ area

88.30%

know their main critical
ethical and compliance
topics

85.11%

train and report to staff
issues related to ethics and
compliance

85.11%

have a report channel
dedicated to ethical issues

91.49%
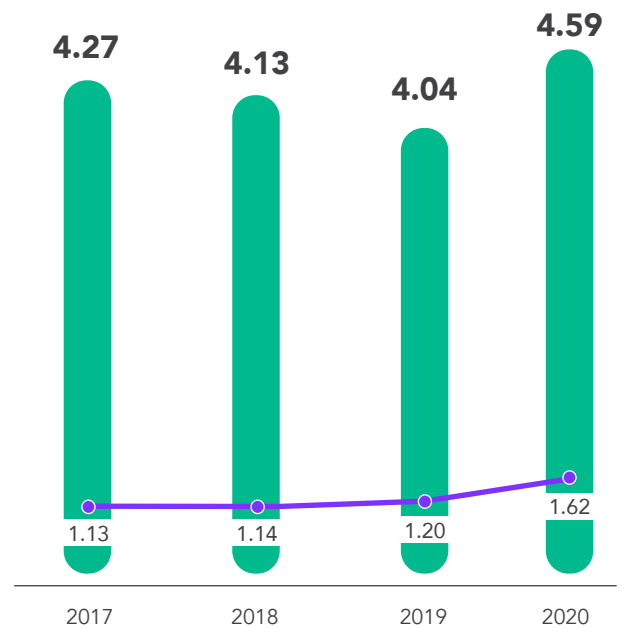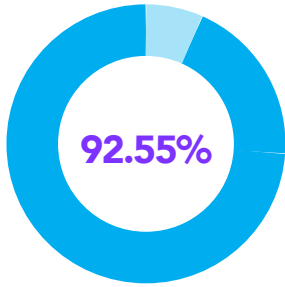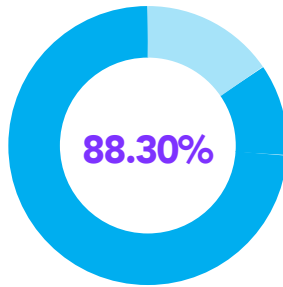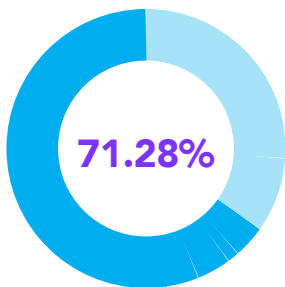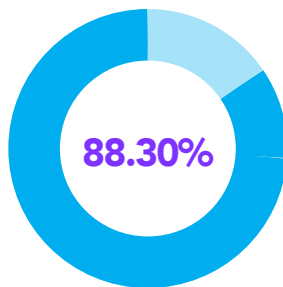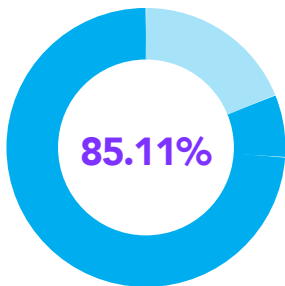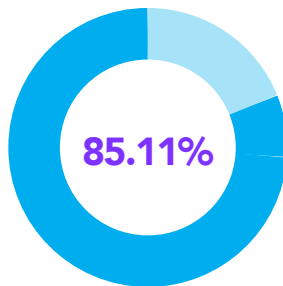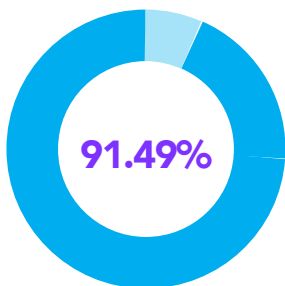
have policies and rules
that include administrative
consequences and/or
disciplinary measures in
case of violation of laws or
rules of conduct

85.11%
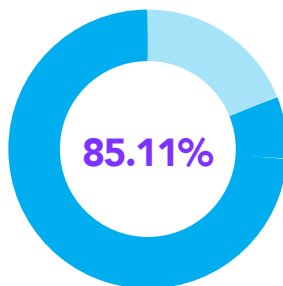
have independent
internal audit
that reviews and
recommends
improvement
actions as internal
controls

Source: SINHA/Anahp.

NET REVENUES AND TOTAL EXPENSES PER HOSPITAL DISCHARGE (R$)

Average Anahp hospitals

Net revenue
by hospital discharge

25,720.18

20,647.51   20,875.22   20,798.67

11,924.21   11,957.64   11,720.20

14,093.74

2017   2018   2019   2020
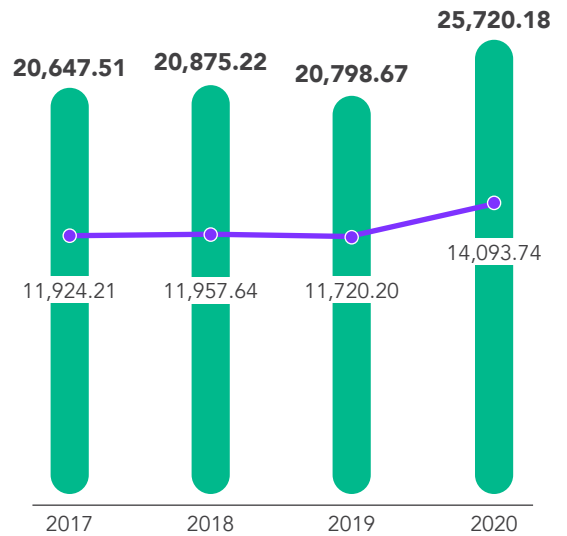
—•— Standard deviation   *Source: SINHA/Anahp.*

Total expense
by hospital discharge

25,041.21

17,789.23   18,136.49   17,959.92

13,519.80

12,904.28

10,921.47

15,224.85

2017   2018   2019   2020
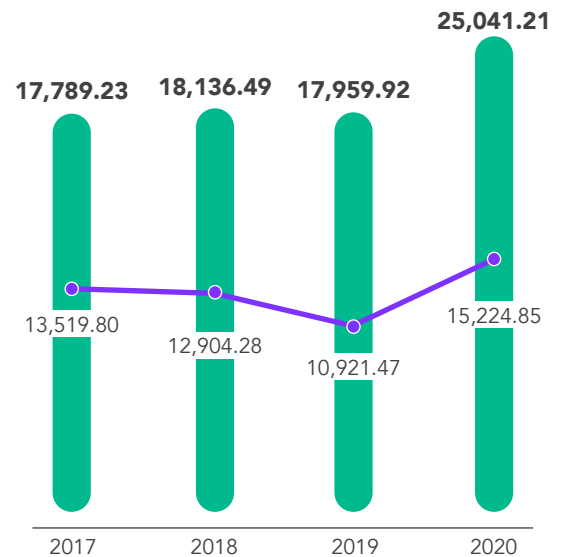
—•— Standard deviation   *Source: SINHA/Anahp.*

Accounts receivable days

Average Anahp hospitals

73.03   **70.15**   **66.95**   **68.72**

39.36   43.96   27.15   27.57

2017   2018   2019   2020
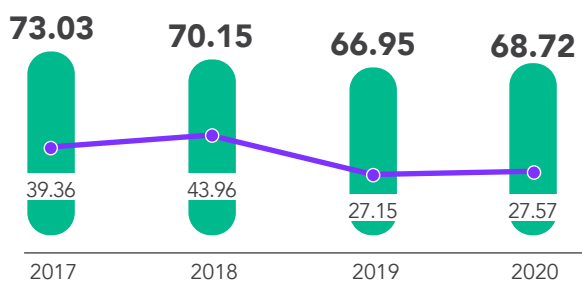
•—•— Standard deviation

Source: SINHA/Anahp.

Denial rate (%Net revenue)

Average Anahp hospitals

3.84   **4.19**   **3.86**   **4.10**

3.10   4.04   3.41   3.79

2017   2018   2019   2020
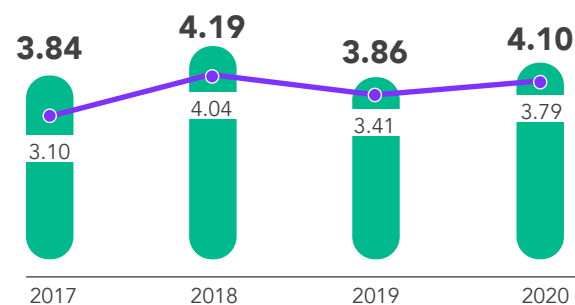
•—•— Standard deviation

Source: SINHA/Anahp.

DISTRIBUTION OF TOTAL EXPENSE ACCORDING TO TYPE (%)

Average Anahp hospitals

Source: SINHA/Anahp.

Type of expenses	2019	2020	Standard deviation 2020
Cost with personnel	37.03	35.33	10.64
Technical and operational contracts	14.33	14.80	8.94
Medication	10.63	11.48	5.22
Other expenses	9.09	9.77	10.56
Ortheses, prostheses and special materials	6.56	5.91	3.75
Materials	5.74	5.80	1.97
Support and logistic contracts	4.03	3.73	3.21
Other supplies	3.13	3.40	1.91
Depreciation	2.82	3.21	1.50
Utilities	2.23	2.16	1.42
Financial expenses	2.15	2.10	2.21
Maintenance and Services	2.02	2.05	1.19
Medical gases	0.23	0.26	0.18

DISTRIBUTION OF GROSS INCOME BY NATURE (%)

Average Anahp hospitals

Source: SINHA/Anahp.

Type of Revenue	2019	2020	Standard deviation 2020
Medication	25.75	25.84	10.68
Daily rates and taxes	22.90	22.90	9.00
Other operating revenues	19.02	20.39	12.89
Materials	18.32	16.37	8.50
Ortheses, prostheses and special materials	8.27	7.07	4.70
Other revenues from services	3.45	5.25	7.42
Medical gases	1.83	1.72	1.07
Donations	0.46	0.46	0.86

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Letter to the reader

This is the second consecutive year of an unheard-of pandemic that has unsettled our country and the world. Since February 2020, when the first Covid-19 infection case was diagnosed in Brazil, health care has learned valuable lessons about resilience, the relevance of qualified professional training, and above all, the value of science for successfully accomplishing our mission.

Differently from last year, when we were just crawling in a world of uncertainties, in 2021 we have started to take the first steps. Thanks to data! We have experienced a great effort for collecting and analyzing information, providing the necessary support to make decisions that bring us closer to satisfactory outcomes. Through this path, we have had the chance to look deeper into our system and reinvent ourselves.

Observatorio Anahp is a publication that celebrates this work, bringing together more than three hundred pages of results from data analyses collectively made last year, which has served as a north star to make us move on with our work and restructure our services to keep on saving lives. Over one year ago, when the coronavirus pandemic hit us, we would not have had a starting point if it were not for Anahp and its members: for over twenty years, we have embraced the joint mission of strengthening the clinical quality and safety agenda, sharing with healthcare industry information and indicators that contribute to best practices.
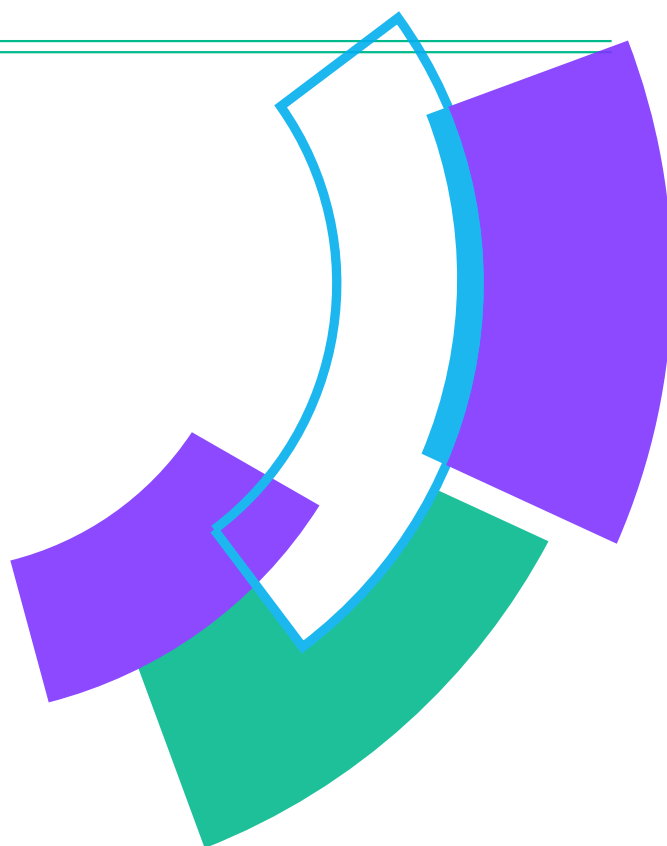
Since March 2020, SINHA - Anahp Hospital Indicator System has included Covid-19 related parameters, leading to analysis of incidence in hospitals, rate of patients with coronavirus infection in the Emergency Department, hospital admission rates and lethality rate. Owing to the severity of the situation, these data were communicated every three months during 2020 through Observatorio technical notes, as a contribution to help analyze the situation and make decisions. This has given rise to a new chapter in this publication, fully dedicated to the pandemic.

As a new feature, we have also added data referring to Anahp non-member hospitals. SINHA opening to the marker for about one year has expanded the representativeness of the platform and starts to give us a chance to deeply and more broadly analyze the industry. We believe that there is just one health industry and any action carried out in partnership with the organizations - public or private - has direct effect on the population's right to access healthcare. The work started with about forty clinical and management indicators from fifteen public and philanthropic hospitals and the expectations is to include many more.

Following its natural trend of bringing input to healthcare discussions, Observatorio Anahp 2021 has also included articles that address topics which have gained more importance in our routine. The next pages will give you a chance to read about changes in flows and protocols, in addition to the industry economic-financial sustainability, which has shown vulnerability due to the exponential increase in demand. This is the topic of the article written by Andre Medici, healthcare economist and co-editor of Observatorio Anahp. We have also addressed the leading topic of the National Private Hospital Congress (Conahp) this year - Health 2030: Challenges and Perspectives, bringing to light the future considering the impacts imposed by the pandemic.

After that, we present the figures that are analyzed and discussed in depth throughout the 2021 edition. It also brings improved data based on market and hospital demands, as the purpose of the association goes: focus on continuous improvement of its initiatives. Even in a difficult year to everyone, SINHA database proved to be consistent - 109 hospitals shared information during the year - and sessions were held to train those who still had not submitted data to the system.

In 2020, concerning the economic scenario, the impact of the pandemic has led to significant worsening in economic activity indicators (GDP dropped 4.06% in the year) and social indexes (increase in income inequalities), elevating further the challenge to be overcome by health industry.

According to the data analysis of Anahp member hospitals, the organizations were negatively impacted by Covid-19 pandemic, reaching low occupancy rates throughout the whole year. As elective procedures and surgeries were postponed, admission profile changed and led to decreased revenue, impacting further EBITDA margins. In a still challenging economic situation, the use of best practices is essential to maintain good clinical outcomes. Some highlighted indicators:

- The occupancy rate went down from 76.96% in 2019 to 67.59% in 2020.
- The average length of stay, in turn, increased from 4.04 days in 2019 to 4.59 days in 2020.
- EBITDA margin went down from 12.40% in 2019 to 8.04% in 2020.
- In 2020, 82.78% of the revenue of Anahp hospitals resulted from resources administered by healthcare operators.
- Labor expense, which include full-time employees and technical service providers, amounted to over 50% of Anahp hospital expense in 2020.
- Absenteeism rate increased from 2.16% in 2019 to 3.56% in 2020.

Having in mind the true objective of contributing with the market and improving the quality of services, we have presented, with no restrictions, the performance of Anahp member hospitals. Observatorio is a tool that reflects the increasing concerns of the Association about key topics in the industry, hoping that stakeholders can together find solutions to provide system sustainability. The initiative adopted by Anahp also emphasizes our commitment with transparency.

We would like to thank the valuable participation of the Editorial Board and our special thanks to the technical team that has worked nonstop for months so that Observatorio could be ready on time to support once again the Brazilian healthcare industry.

Enjoy your reading.

Eduardo Amaro
Chairman of the Board of Directors

Ary Ribeiro
Editor of Observatorio

Note on methodology

To form the data presented by Observatorio Anahp two primary information sources have been used, as described below

1. SINHA – Integrated System of Hospital Indicators
Data inputted monthly

SINHA was created in 2003 to provide periodic and organized information to the member hospitals about financial, operational, human resources and clinical performance data of Anahp member hospitals, supporting managers in strategic planning and decision-making. Eventually, the system has gained more importance in the industry, becoming one of the main market references in hospital indicators after the annual publication of Observatorio Anahp, which started in 2008.

In 2016, SINHA went through an important process of redesigning the indicators, promoted by Anahp Work Groups. The standardization was necessary to monitor the indicators required from our members in the market.

Anahp indicators have standardized technical forms, available for consultation in the system, that are sent to hospital members to guide their data input into the system. Inputted data are validated by technical directors and/or responsible people of each area in the hospitals. In 2020, there were 348 variables and 273 indicators; out of the total, 4 indicators are new and refer to Covid-19.

In December 2020, Anahp had 118 member hospitals. Out of the total, 109 contributed with data to SINHA, that is, 92.37%. Hospitals submit their data voluntarily, resulting in oscillations in number of participating organizations in each indicator. In addition, new members start to gradually submit data to the database.

Each hospital has access to individual reports, which provides them with benchmark opportunities against the group of Anahp hospitals. Data may be submitted by hospital size, state/ region and number of beds, among other categories, which provides a more refined analysis of the hospital industry trends as each indicator can be compared against the average of the group of hospitals with similar characteristics.

Epidemiology profile of the organization, also shared using SINHA platform, provides identification of trends in conditions presented by associated centers, including regional characteristics. In 2020, a total of 69.49% of Anahp hospital members submitted these data, that is, 82 out of 118 member hospitals in December 2020 submitted their epidemiological profile.

Information requested to member hospitals includes hospital discharges and the variables for each hospital encounter:

Number of patient record			
Number of encounter			
Date of birth	**Gender**		
Zip Code	**District**	**City**	**State**
Payer's code			
Treatment site - inpatient unit			
Date of admission	**Hospital discharge date**		
Main diagnosis according to International Code of Diseases (ICD-10) *(only one diagnosis per hospital discharge; use five-character ICD standard)*			
In 2020, the following codes for Covid-19 were included in SINHA platform: U07.1 – Covid-19, virus identified; U07.2 – Covid-19, virus not identified; B34.2 – coronavirus infection, unspecific			
Secondary diagnosis 1 ICD-10 *(only one diagnosis per hospital discharge; use five-character ICD standard)*			
Secondary diagnosis 2 ICD-10 *(only one diagnosis per hospital discharge; use five-character ICD standard)*			
Performed Procedure 1 *(code according to Universal Healthcare System - SUS with Brazilian Medical Association) AMB or Unified SUS Terminology (TUSS)*	**Date of surgical procedure 1** *(if surgical procedure)*		
Performed Procedure 2 *(code according to SUS, AMB or TUSS)*	**Date of surgical procedure 2** *(if applicable)*		
Type of discharge *(discharge home, death or external transfer)*			
Date of first admission into the Intensive Care Unit (ICU) *(if there is ICU stay)*	**Date of the last ICU discharge** *(internal transfer, discharge or death)*	**Number of ICU encounters**	
Use of mechanical ventilation *(yes or no)*	**Days of mechanical ventilation use**		
Newborn weight *(if maternity, in Kg)*			
Description of origin of patient *(Emergency Department, home, medical office, others)*			
Amount billed			

The systematic collection provides a detailed analysis of the production, performance results, and consumption patterns of provided services.

2. Annual Registration of Hospitals

Information concerning structure, production of selected areas, clinical information, characteristics of quality and safety programs in the hospitals, management of clinical staff, teaching and research and philanthropy activities. This survey is made annually with all member hospitals. In 2020, 79.66% of Anahp hospitals submitted this information, that is, 94 out of 118 hospital members in December 2020.
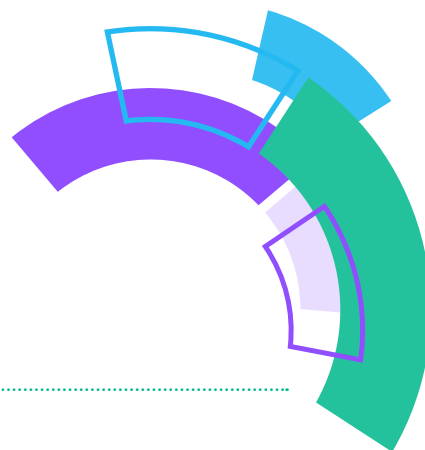
Participating hospitals: relevant modifications in recent years

Since 2016, the information of the 23 hospitals that formed the Control Group is no longer presented. Anahp has had the data of a broad sample of hospitals since 2014 and we want to provide representative and comprehensive information that portrays the reality of all member hospitals. For data validation purposes and consistent analysis, in some situations we use comparisons based on the same hospitals that completed the data in a given period of time.

It is important to bear in mind that the analysis of indicators is made by Nucleo de Estudos e Analises (NEA – Center of Studies and Analyses), maintaining the confidentiality of hospital information. This edition of Observatorio Anahp gathers data from 109 hospitals that have submitted their information through SINHA (clinical, people management, economic-financial and sustainability data), even

though not all of them have necessarily provided information concerning all available variables.

Despite hospitals' variability, it was possible to reach consistency by analyzing the tendency of indicators in the group of members. Data availability has also provided to hospitals more detailed monitoring of the indicators, a process that tends to improve with the use of the new SINHA platform.

In the end of 2019, Anahp provided access to SINHA platform to public and philanthropic organizations to promote exchange of information and disseminate management best practices throughout the healthcare system. Thus, the platform started to receive data from about forty clinical and management indicators from this group of hospitals (about 15 hospitals joined the system in 2020). The results of this initiative start to be showcased by this edition of Observatorio Anahp.

Contributions from the Academia

NEA has built this chapter to present the analysis based on the literature, providing enhanced data for member hospital decision-making process.

Data from SINHA database from January to December 2020 were used.

Correlations of all possible variable pairs were calculated, based on Spearman correlation coefficient, whose method does not depend on assumptions such as normal distribution and data series linearity. Next, we selected the results that referred to the content of the studied papers. Data were analyzed based on scientific and academic references from the literature.

Analyses and indicators are presented as follows:

✓ Clinical and Epidemiological Profile.

✓ Care Delivery Performance:
- Structure and Annual Production
- Operational management
- Non-member hospitals
- Care delivery quality and safety
- Organizational protocols
- Covid-19.

✓ Organizational Performance:
- Economic-financial management
- People management
- Environmental sustainability
- Information technology.

TEMOS APRENDIDO MUITO. EVOLUÍMOS.
E agora, o que virá no pós-pandemia?

O FUTURO DA SAÚDE JÁ COMEÇOU.

E há muito a se construir.
Vamos?

CONAHP
Congresso Nacional
de Hospitais Privados **2021**

Saúde 2030:
Desafios e
Perspectivas

EDIÇÃO 100% DIGITAL

De 18 a 22
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Articles

Analyses of the impacts of the pandemic on hospitals, both from an economic and financial perspective and in relation to the management of protocols and flows adapted to Covid-19, in addition to an exclusive article on the future of the industry, which is the topic of Conahp 2021.

Conahp 2021

Healthcare in 2030:
Challenges and Outlooks
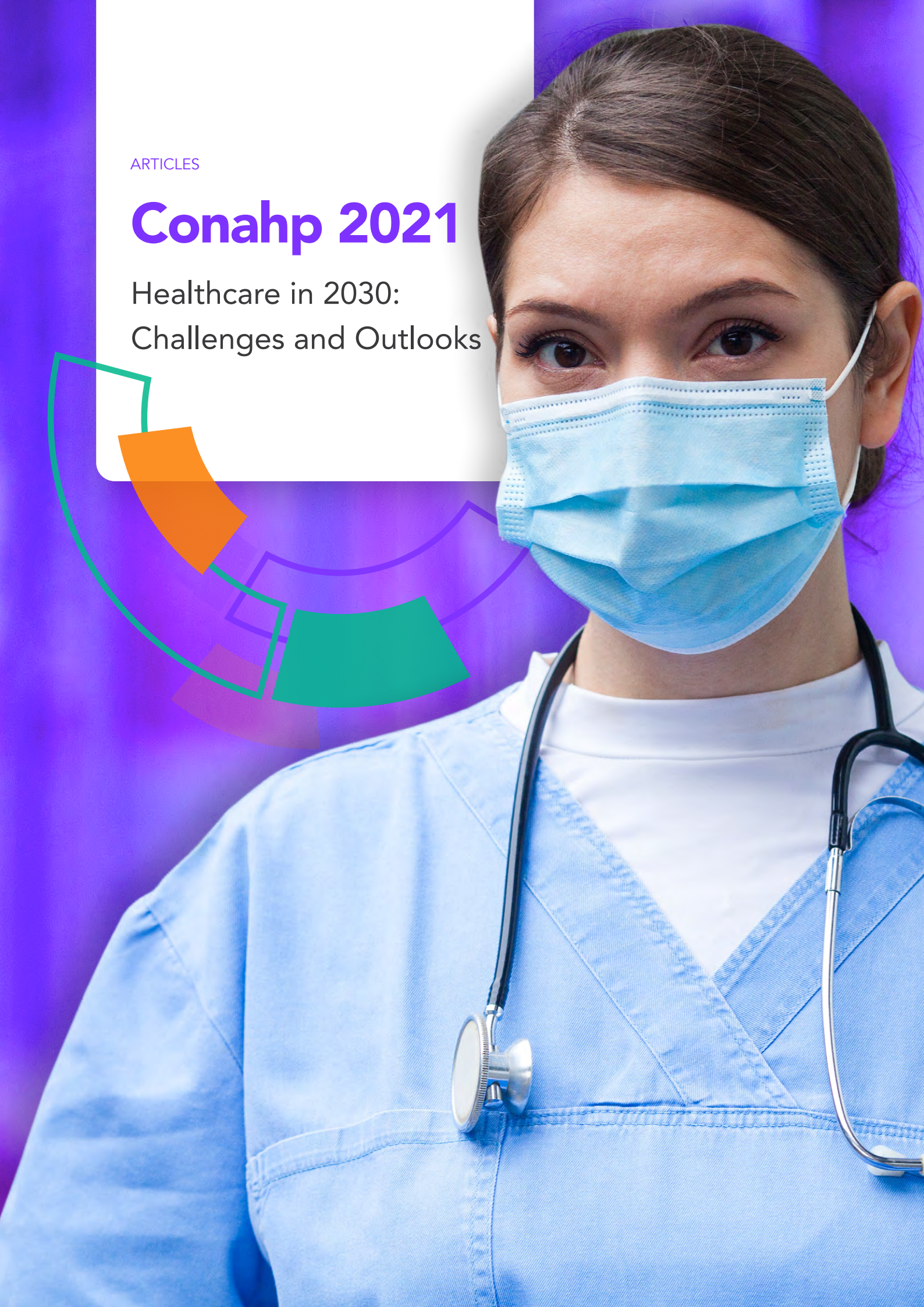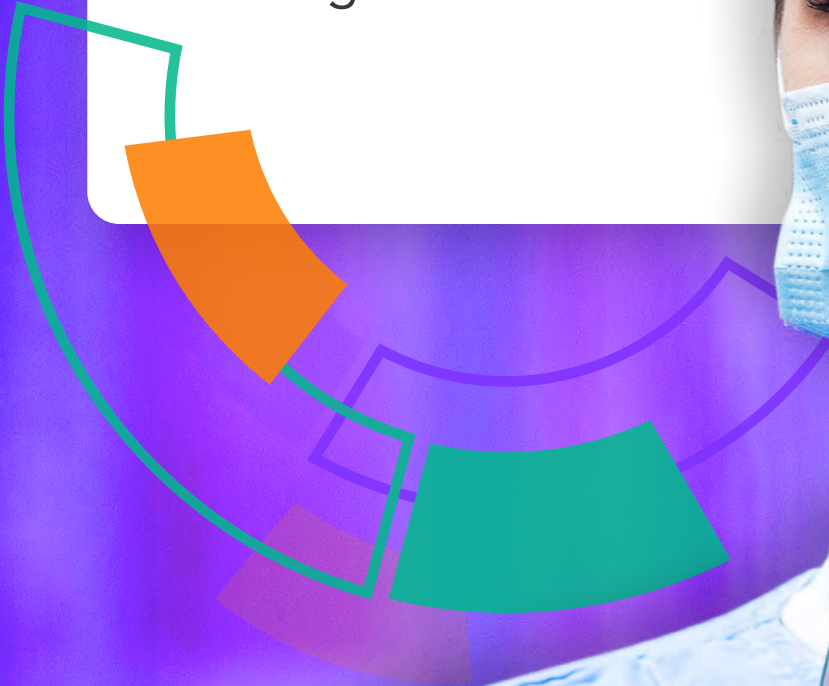
In 2020, the Covid-19 pandemic changed the course of healthcare worldwide. The management models in place proved to be insufficient, professionals were driven to exhaustion, and technology and innovation were key in the responses to this crisis.

The World Health Organization (WHO) had just released a report on the thirteen challenges faced by healthcare worldwide when Covid-19 put the world healthcare systems to the test. Within a very short period, we watched the collapse of healthcare, the global economy, and the mental health of frontline healthcare providers in the fight against the pandemic. In Brazil, this scenario was worsened by the low efficiency of governmental responses, the lack of room for technical decisions based on science, and repeated crises in the management of the pandemic, causing insecurity among the Brazilian population.

In May 2021, almost one and a half year after the first case of Covid-19 was reported in China, more than 160 million people have been infected worldwide, approximately 3.4 million people have died, and around 8.5% of the world population has been vaccinated.

When we compare the world scenario in 2020 and 2021, one of the major changes was the vaccine, which has given a glimmer of hope to the population. However, despite this key ally in the fight against this unprecedented pandemic in recent history, research[1] indicates that most of the adult population of advanced economies will be vaccinated only in mid-2022. In middle-income countries, the vaccination is expected to extend into late 2022, or even early 2023, while the poorest nations in the world may have to wait until 2024 for mass vaccination to occur.

Against this backdrop, rethinking healthcare has never been more urgent. In 2020, the National Conference of Private Hospitals (Conahp) aimed to understand how the world was dealing with the pandemic, discover initiatives that worked, and share these practices with the industry. In turn, in 2021, our challenge is even greater: to find out how we are going to restructure the healthcare systems after the lessons taught by the pandemic; the shortest path to sustainability in the industry; how to establish a care model that meets the needs of populations and delivers better and more accessible healthcare with a focus on communities and their particularities; and how technology and innovation, which have shown to be extremely necessary over the last months, may help strengthen the healthcare system.

In 2021, our proposal is to rethink healthcare over the next decade.

With **Healthcare in 2030: Challenges and Outlooks** as its central topic, the discussions at Conahp 2021 will be based on management perspectives, care models, people, and innovation and technology. From October 18 to 22, we will bring together experts from all over the world, both national and international, to rethink healthcare together.

Below we share some brief considerations on what to expect from each of these discussions at the conference.

Management

This discussion panel will focus on topics related to the need for integration and articulated actions between the public and private sectors; the economic challenges faced by the institutions to remain in the market amidst such an adverse scenario such as the one we are currently facing; the need for a wide range of information to understand a pandemic, how the virus behaves, and how the disease spreads among the population, so that we can make the most assertive decisions in terms of management; and the impact of corporate social responsibility on the community, especially in the post-pandemic world.

"We will bring together specialists from all over the world, both national and international, to rethink healthcare together".

Care models

The high cost of the healthcare industry, one of the worst economic periods in history, the impacts of the pandemic, among so many other negative factors, have forced organizations, particularly hospitals, to rethink their models to ensure their continuity. The aim of this discussion panel is to address the possibility of an organization reinventing itself and to search for successful patient care models that contribute to the sustainability of organizations, exploring a more comprehensive view of what a care models that contribute to the sustainability of organizations, exploring a more comprehensive view of what a care model that adds values both to patients and to the system is like.

The aim of this discussion panel is to address the possibility of an organization reinventing itself during moment of crisis and to search for successful patient

care models that contribute to the sustainability of organizations, exploring a more comprehensive view of what care models that contribute to the sustainability of organizations are. In addition, we will discuss how care models can add value both to patients and to the system and the role of primary care networks, the importance of analysis of population health conditions and chronic diseases, among other topics.

People

In 2030, the world population will require 80 million healthcare professionals, but there will be only 65 million available in the labor market. This estimate, which reinforces the analysis of the global workforce crisis in the healthcare industry, identified by WHO in 2006, resulted from the study "Global Health Workforce Labor Market Projections for 2030." Therefore, the reorganization of the healthcare model may generate productivity gains capable of substantially reducing the projected workforce deficit. The major challenge is channeling investments to increase productivity: in management, training, the use of technologies, the care model, for example. The aim of this discussion panel is to address workforce challenges, to come up with a more adequate integrated model that uses technological resources to its advantage, relying on professionals that are qualified for the changes required.

The exhaustion of the healthcare workforce during the pandemic, the inevitable burnout in this extremely adverse scenario, and the lessons learned cannot be overlooked by this discussion panel at Conahp 2021.

> "The high cost of the healthcare industry, one of the worst economic periods in history, the impacts of the pandemic, among so many other negative factors, have forced organizations to rethink their models to ensure their continuity."

Innovation and technology

The use of predictive analysis capability emerges in scenarios of uncertainty since the expedited pace of response depends on technologies and inputs that enable these predictions.

The difficulty to access reliable and standardized data for proper decision-making in the responses to the pandemic was very clear in Brazil and worldwide. Therefore, the goal of this panel is to broadly discuss the role of innovation and technology, such as artificial intelligence and machine learning, in the generation of data to inform decisions and more adequate management of the healthcare system; to assess the phenomenon of accelerated innovation and technology in healthcare during the pandemic; to evidence the difficulties faced in digital transformation; as well as to seek national and international references on how this transformation may drive the industry.

Digital Conahp

Using technology to our advantage and our commitment to the Brazilian healthcare system

After an in-depth analysis of the developments of the pandemic and the different scenarios projected for the coming months, having people's health as our top priority, Anahp has decided that Conahp will continue to be held virtually.

In 2020, when we first went down this path, we were not sure how the audience would react to the conference. However, the experience was very successful, and we reached 20,000 attendees and managed to maintain the quality and diversity of the event's scientific agenda.

If there is a significant change in the pace of vaccination in Brazil, we will reassess the possibility of holding a hybrid conference, with a much smaller audience than usual and following all the safety protocols established by the health authorities.

Adaptation of patient flows

Challenges imposed by the Covid-19 pandemic
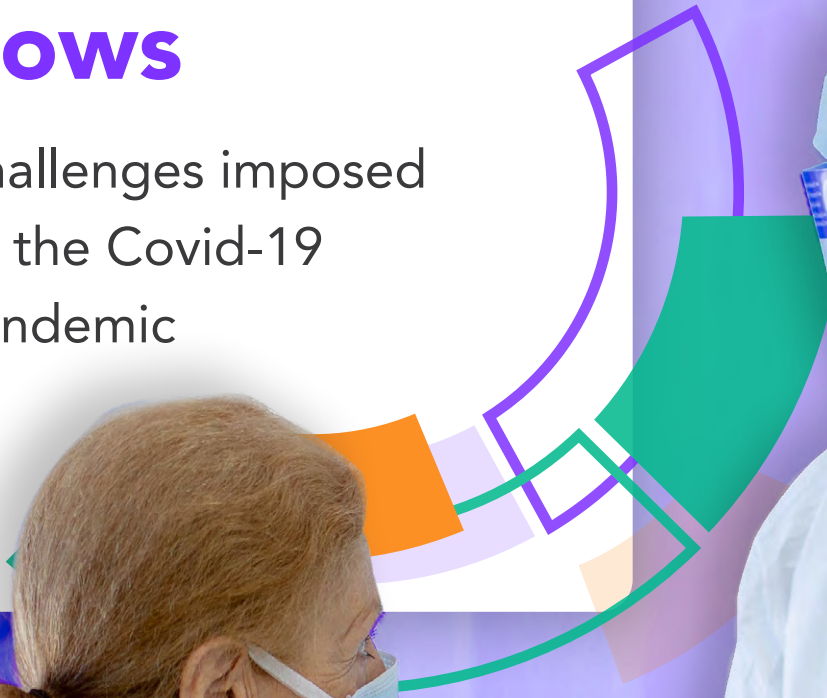
The onset of the Covid-19 pandemic in February 2020 in Brazil had direct impacts on the life of Brazilians, but also on healthcare institutions, as the latter had to adapt in the face of a previously unknown virus. Among the changes required, the creation of special protocols to deliver care and treatment to Covid-19 patients was a necessity shared by all ANAHP hospitals.

To understand the changes that needed to be made to the care flow of these patients, this article will present cases from three ANAHP member hospitals: a general hospital (Hospital Mater Dei – state of Minas Gerais), a children's hospital (Sabara Hospital Infantil – state of Sao Paulo), and a hospital and maternity (Hospital e Maternidade Santa Joana – state of Sao Paulo).

At the onset of the pandemic, Anahp hospitals created special protocols to provide care and treatment to Covid-19 patients.

Hospital Mater Dei (state of Minas Gerais)

Hospital Mater Dei adopted special care protocols during the pandemic, with separate flows for patients with flu symptoms and suspected Covid-19. This made it possible for the hospital to continue to provide other services for the patients – medical appointments, exams, procedures, and elective surgeries - in a safe manner.

The hospital has a broad physical infrastructure that enables the separation of patient flows at the emergency rooms and specialist appointments. Therefore, it was possible to assign exclusive floors to Covid-19 patients, with isolated wings in the adult ICUs, and restricted access to the neonatal and pediatric ICUs. There were exclusive multidisciplinary teams to care for these patients, avoiding potential risks for other professionals and patients. All employees, the nursing staff and the clinical staff were trained to meet the demand, and the proper personal protective equipment (PPE) was provided to ensure their safety while caring for the patients.

The institution posted on its website (www.materdei.com.br) a list of symptoms, segregated by medical specialty, to help patients understand whether they should head to the hospital immediately, thus avoiding complications from waiting too long before seeking for medical care. In addition, informative contents were also published in the form of videos, in which physicians that work for the institution provided guidance on certain situations that require attention, such as symptoms of a heart attack and stroke in adults; fever, respiratory illnesses and other persistent symptoms in children; obstetric and/or gynecological follow-up care; and continuity of oncology treatments. This material was accompanied by guidance on how to provide safe care during the pandemic, highlighting the separation of flows right from initial care.

Sabara Hospital Infantil, state of Sao Paulo

At Sabara Hospital Infantil, adaptations were made gradually, based on the description of the disease and the possibility that it would arrive in Brazil. Initially, in January 2020 an adaptation was made to the triage kiosk, to include the option "Suspected Covid-19", and some specific visual guidance on the top of the screen. Banners were also created to provide information on the signs and symptoms of the disease and the countries at risk. An exclusive triage room was set up to provide immediate care in these cases, and an internal transportation protocol was developed for these patients to be taken to isolation rooms. Throughout this special flow, patients and employees started to wear personal protective equipment.

During February, in addition to the higher incidence of respiratory diseases that occurs on a seasonal basis, there was the spread of the new coronavirus all over the world, and its arrival in Brazil. Thus, the need for physical separation of flows became clear, considering the possibility that children with airway infections could be contaminated by the new virus. Therefore, the coronavirus was treated as a differential diagnosis, together with respiratory syncytial virus and influenza virus, whose incidence presented early increase from January 2020.

In fact, from the beginning of March, physical separation was established in the Emergency Room (ER), with different inflows: the reception desk at the door investigating the reason for going to the ER, the appropriate queue number from the check-in kiosk, and referring of the patient to triage. Right at the entrance to the respiratory ER, two triage rooms were set up, and the check-in of respiratory and non-respiratory patients started to be made at counters located in different areas. From this separation, a space for a doctor's office and medication was set up on the ground floor, where all non-respiratory patient care was provided, except when there was a need for imaging or observation exams, for which an alternative elevator flow was established

Telemedicine played a fundamental role in ensuring the success of care from the first interventions.

that prevented respiratory and non-respiratory patients from crossing each other's paths.

These spaces and flows underwent minor adaptations throughout 2020 to meet the changing profile of patients: in certain periods, for example, there was a predominance of patients who had problems such as minor traumas and urinary tract infections and were not suspected Covid-19 cases. There was also a need to adapt the terminology to segregate patients since Covid-19 can manifest itself by symptoms not related to the respiratory tract, such as fever without signs, diarrhea, and abdominal pain. In 2021, there was a new intervention in the emergency room, and the spaces and flows were divided between the traditional ER (addressing the classic complaints that take children to the ER and for which there is no need for isolation) and targeted ER (aimed at treating suspected Covid-19 cases, with or without respiratory symptoms). A staff member was responsible for this separation right at the hospital entrance, carrying out objective pre-screening and directing the patient, identified with a specific color adhesive bracelet, to one of the two existing flows. Just like the waiting rooms and registration desks on the ground floor, the offices and waiting rooms on the first floor were also separated. Mobile panels were installed to increase or decrease the number of offices and the waiting room area for each of the flows (traditional or directed), as well as

acrylic panels to separate the seats in the in the waiting rooms and in the inhalation rooms. The two triage rooms that used to function as a temporary space were replaced by definitive rooms. The great advantage of this model of modulated spaces and directed flow is that it can be applied to other situations.

It is noteworthy that telemedicine played a fundamental role in ensuring the success of care from the first interventions. The first initiative, which brought the institution closer to telemedicine resources, was the creation of a chatbot to provide guidance, through signs and epidemiological history, checking whether the reported symptoms were compatible with Covid-19. Thus, suspected cases could be scheduled for consultation, without the need to unnecessarily enter the ER.

Subsequently, the tool allowed for in-person post-care contact in the emergency room for stable cases with additional exams: initially, communication was made by standard telephone contact and then by a telemedicine platform. This resource, in addition to being used for post-discharge follow-up from the emergency room and inpatient wards, also started to be offered for first-time emergency care and for outpatient follow-up. In the Covid-19 era, the possibility of using telemedicine has reduced the length of stay of the patient in the ER, as well as the need for face-to-face appointments for reassessment.

Hospital e Maternidade Santa Joana, state of Sao Paulo

During the pandemic, this maternity hospital created a special flow to care for patients with suspected or confirmed Covid-19, thus ensuring the safety of its patients and employees.

At the entrance to the hospital, patients were asked whether they were experiencing possible Covid-19 symptoms, and temperature measurement for both patients and visitors became mandatory, as well as the use of facial mask in all hospital areas.

Patients with possible Covid-19 symptoms were immediately directed to a dedicated triage room and, if the suspicion was confirmed, samples for diagnostic tests were collected in the same area. Therefore, these patients did not circulate around the hospital, and their accompanying person was instructed to register, to segregate this group of patients from other patients.

In case hospitalization was required, the patient with Covid-19 was sent to beds in a ward dedicated exclusively to this disease. During hospitalization, all necessary tests were performed inside the patient's room, avoiding circulation around the maternity ward. Patients with suspected or confirmed Covid-19 who arrived at the institution to give birth were also directed to specific care rooms, and delivery was performed in the operating room with negative pressure.

For elective surgeries, the maternity hospital has designed the mandatory pre-surgical patient testing routine to identify cases of Covid-19 and ensure that all proper precautions were taken. In addition, these patients started to undergo a pre-anesthetic evaluation through telemedicine service. In neonatal care, newborns of mothers who were confirmed cases of Covid-19 and who required intensive care were taken to specific wards.

In addition to measures related to the presence of patients in the hospital, the Santa Joana group identified the effectiveness of using social media as a communication channel to provide guidance on Covid-19 preventive measures for pregnant and postpartum women and, aiming to reduce agglomerations, minimized the flow of visitors to the maternity ward.

In the routine of employees at the maternity hospital, many changes were implemented, both for teams directly involved in the care of infected patients and for other employees:

- Training took place in a realistic simulation center.
- A protocol for the removal of employees with suspected or confirmed Covid-19 was implemented, as well as a follow-up protocol implemented by the corporate health department.
- Visual communication strategies were introduced throughout the maternity hospital, to provide guidance for employees and patients on preventive measures.

One of the actions taken was the use of social media to provide guidance on Covid-19 preventive measures for pregnant and postpartum women.
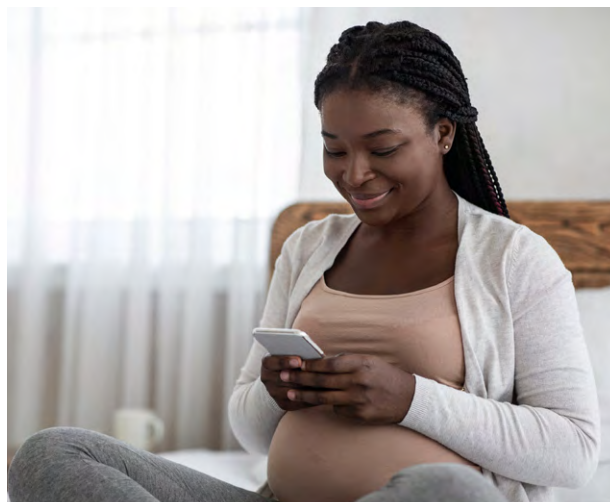
The economic and financial sustainability of hospitals during the pandemic

by André Medici, health economist and co-editor of Observatorio Anahp 2021

The Covid-19 pandemic has substantially and globally affected the financial performance of hospitals due to various types of problems. The main ones are the loss of revenue associated with the cancellation of elective surgeries, the increase in costs related to the safety of patients and healthcare professionals, and the high cost of hospital supplies, materials and medications resulting from their scarcity due to the Covid-19 economic crisis.

Since the beginning of the pandemic, hospitals have been the main backup line of care, but this has made them face historical financial challenges. The main reasons are revenue losses associated with the discontinuity of contracts with clients/institutions, in addition to associated cost increases to prepare outpatient clinics and emergency centers to face the pandemic and the surgical treatment of patients with Covid-19, which involves higher costs and longer periods of hospitalization.

Despite these losses, there has been a huge amount of learning by hospitals in this process, which has improved their responses to financial and operational challenges by cutting costs, whenever possible, to maintain financial solvency. However, they have also invested in new forms of treatment of patients during a situation of pandemic, such as mobile units for testing and treatment, domestic forms of production of personal protective equipment (PPE) for healthcare workers, and even inclusion of the vaccination of their registered patients for Covid-19 immunization.

After the deep crisis of the first wave, this learning has allowed hospitals to reduce the risk of mortality resulting from Covid-19 and in-hospital infection, as well as their financial results to improve, though modestly. It is also worth noting that, in this context, in many countries, hospitals have also received financial support from governments or philanthropy. However, although invaluable, this support has not made it possible to make up for all the losses suffered by the health system.

The aim of this article is to analyze how hospitals, both internationally and in the Brazilian context of ANAHP hospitals, have faced the financial problems brought by the reduction of routine activities and the increase in costs generated by the pandemic. We seek to know which factors led hospitals, in the international context, to a precarious financial situation in 2020, examining some specific themes, such as the cancellation of elective surgeries, the possible effects on their financial results, the increase of costs, and the perspectives for 2021 and upcoming years.

The article also presents an analysis of the specific situation of revenues at ANAHP hospitals, highlighting some of the elements that led them to overcome financial difficulties faced throughout 2020, and discusses perspectives for 2021.

Cancellation of elective surgeries

Hospitals generally offer two types of surgeries as part of their portfolio of health services to society: urgent/emergency and elective. The first ones are not programmed and are related to procedures necessary to save the lives of patients in emergency situations such as accidents, traumas, acute appendicitis, and heart attacks. It can be said that, in low-income regions or countries, where the offer of hospital services is scarce and precarious, most admissions (especially in public hospitals) are usually associated with urgent and emergency surgeries. A second type are the so-called elective surgeries, which are scheduled and agreed on between physicians and patients, but which are not characterized as urgent, although they can be anticipated in many cases and conditions (like those of cancer patients).

According to the Johns Hopkins University School of Medicine manual[1], the fact that a surgery is called elective does not always mean that it is optional but rather that it can be scheduled in advance. It can also be a surgery aimed at improving the patient's quality of life, without being related to a potentially fatal condition although in some cases it is. Examples of elective surgery include wart excision, kidney stone removal, and cosmetic plastic surgery.

Recent studies by the World Health Organization estimate that the number of surgeries performed in the world in 2012 was in the range of 266.2 million to 359.5 million, with growth of 38% since 2004. With a similar growth rate, it is possible to estimate that in 2020 the number of surgeries performed in the world would be in the range of 367.3 to 496.1 million. But it is difficult to know the percentage of elective surgeries and how they have been affected by the Covid-19 pandemic.

The peak of the pandemic, in the first wave of Covid-19, occurred between March and May 2020. During this period, some studies[2] estimated that,

of the 37.6 million elective surgeries scheduled to be performed worldwide in these 3 months (or 12 weeks), about 28 million were canceled due to the pandemic, which resulted in a percentage of elective surgeries of only 25.5% of the volume of scheduled surgeries, as can be seen in **Graph 1**. It is also possible to observe that the rates of surgeries performed varied according to the type of surgery. For example, 3/4 of the elective obstetric surgeries scheduled in the world were performed during this period[3]. In the case of cancer elective surgeries, the percentage was also higher (62.5%). In other types of elective surgeries, however, cancellation rates were very high, and only 18.3% were performed.

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> Some studies estimated that out of 37.3 million elective surgeries scheduled to be performed worldwide between March and May 2020, about 28 million were canceled due to the pandemic.
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[1] Johns Hopkins Medicine, "Types of Surgery". Available at: <https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/types-of-surgery>; accessed on 13/May/2021.
[2] COVIDSurg Collaborative. "Mortality and Pulmonary Complications in Patients Undergoing Surgery with Perioperative SARS-CoV-2 Infection: an International Cohort Study". In: The Lancet, v. 396, n. 10243, p. 27-38, 29 May 2020, rev. 9 June 2020. Available at: <https://doi.org/10.1016/S0140-6736(20)31182-X>; accessed on 13/May/2021.
[3] In the aforementioned study, only cesarean delivery surgeries were included in the total number of obstetric interventions.

GRAPH 1 | Total scheduled and canceled elective surgeries in the world (in 1,000 surgeries) and percentage of surgeries performed by type | Between March and May 2020
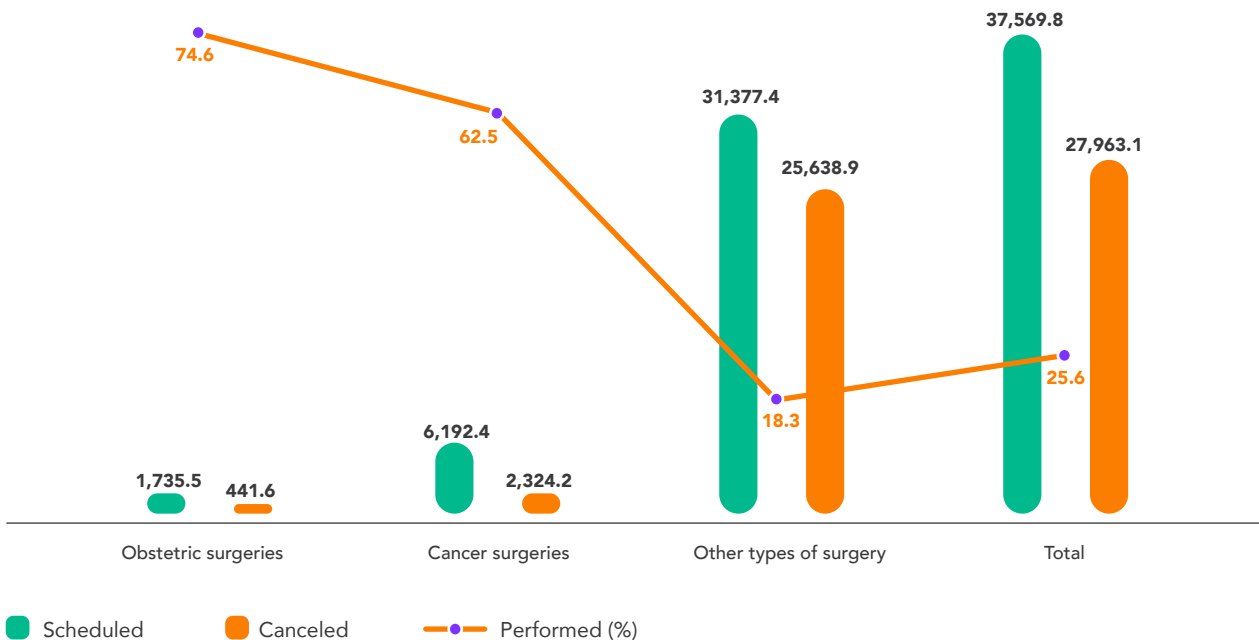
Source: Designed by the author, based on COVIDSurg Collaborative (2020).

Although there is no precise data for each country, some studies show that elective surgeries accounted for about 48% of the revenue of North American hospitals in 2018. International studies indicate that, in normal conditions, an average rate of surgery cancellation should be around 8%[4]. If we applied the percentage of revenue related to elective surgeries (48%) to all hospitals worldwide, the cancellation of 64.5% of elective surgeries worldwide in the months of March to May 2020 would represent an average loss of 27.1% of the estimated total revenue of hospitals worldwide over the period[5].

But the performance of elective surgeries is not uniform, varying according to the degree of development or the income level of each country. It can be said that low-income countries tend to

have higher percentage of urgent and emergency surgeries in relation to the total number of surgeries performed, given that access to health services, at the outpatient and diagnostic level, is more restricted to people who have access to or can pay for the services. This reduces the possibility of scheduling elective surgeries by groups without access due to their income level or social status.

Between March and May 2020, 45%, 54% and 1% of elective surgeries worldwide were performed in high-, middle- and low-income countries, where 16%, 75% and 9% of the world population live, respectively. There is, therefore, a direct relationship between the level of national income and the volume of elective surgeries performed in each country.

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[4] In fact, studies published since 2016 showed results of elective surgery cancellation rates of 4.4% (tertiary hospitals in Lebanon), 4.7% (university hospitals in Finland), 6.0% (general hospitals in Dubai), 8.5% (general hospitals in Norway), and 8.8% (pediatric hospitals in California).
[5] Author's estimate.

Table 1 shows some statistics associated with the performance of elective surgeries in low-, middle- and high-income countries, through information related to scheduled and performed surgeries, rates of scheduled surgeries, and percentage of surgeries performed in relation to scheduled surgeries per 100,000 inhabitants, between March and May 2020.

TABLE 1 | Distribution of scheduled and performed elective surgeries in the world, according to groups of countries by income level | Between March and May 2020

Countries by income level	Population (million)	Number of scheduled surgeries (million)	Number of performed surgeries (million)	Rates of canceled elective surgeries (%)	Programmed surgeries per 100,000 inhabitants	Performed surgeries per 100,000 inhabitants
High income	1,236	17.7	4.8	72.7	1,435	392
Middle income	5,769.2	21.2	5.9	72.0	367	103
Low income	668.4	0.3	0.1	67.7	44	14
TOTAL	**7,673.6**	**39.2**	**10.8**	**72.3**	**511**	**142**

Source: Designed by the author, based on COVIDSurg Collaborative (2020).

It can be seen that the number of scheduled elective surgeries per 100,000 inhabitants in high-income countries was 3.9 times higher than in middle-income countries and 33 times higher than in low-income countries. Despite having higher cancellation rates, high-income countries performed 3.8 times more elective surgeries than middle-income countries and 28 times more elective surgeries than low-income countries. Under these circumstances, during the peak of the first wave of the pandemic, hospitals in high-income countries had an average elective surgery cancellation rate of 72.7%; in medium- income countries (which include Brazil), the average cancellation rate was 72%; in low-income countries, 67.7%. The estimated cancellation of elective surgeries was, therefore, directly proportional to the income level of the countries as higher-income countries are more likely to cancel elective surgeries and therefore lose more revenue throughout this process. But this was also due to the fact that high-income countries collected more epidemiological information, confirming that the risks of infection by Covid-19 negatively affected hospitals during the onset of the first pandemic wave[6].

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[6] A study by CovidSurg Collaborative, published in The Lancet, showed the impact of Covid-19 on patients who tested positive for the virus, in several countries, in a period between seven days before and thirty days after surgical procedures. The results showed that one in four patients infected with the virus before or after surgery died and one in two patients developed severe pulmonary complications, such as pneumonia, acute respiratory distress syndrome or needed unexpected postoperative ventilation. The study covered several types of surgeries, including eyes, abdomen, extremities, chest and heart surgery. It was also found that the type of anesthesia used during surgery – general, regional, sedation and local – did not change the result.

Graph 2 shows the distribution of estimated elective surgical cancellations between March and April 2021 by world region (according to the World Bank classification criteria). It appears that Latin America and the Caribbean ranked third among the world regions that canceled the most the elective surgeries because of Covid-19, with about 1/5 of the worldwide cancellations of elective surgeries between March and May 2021.

Graph 2 also shows the low percentage of surgeries performed in regions such as South Asia (the most populated region in the world) and Sub-Saharan Africa, amounting to only 2% of the world's total canceled surgeries each. Therefore, the greatest worldwide losses in terms of canceled elective surgeries were concentrated in Europe and Central Asia, East Asia and Oceania, Latin America and the Caribbean, and the United States and Canada. About 90% of canceled elective surgeries were in these regions.

GRAPH 2 | Distribution of surgeries canceled due to Covid-19 pandemic by world region | Between March and May 2020
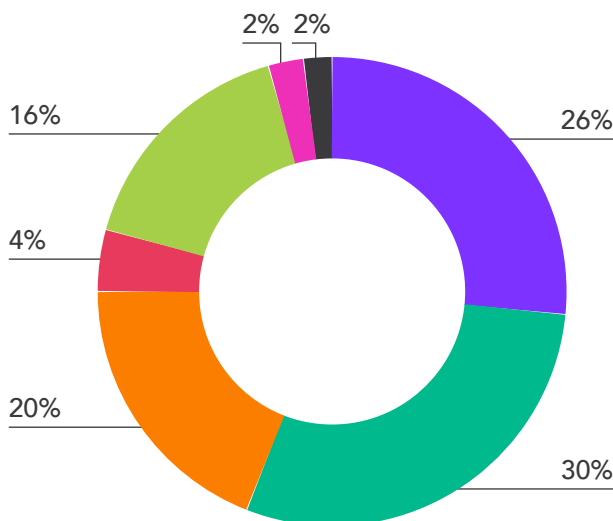
Legend:
- East Asia and Oceania
- Europe and Central Asia
- Latin America and the Caribbean
- Middle East and North Africa
- North America (Canada, USA)
- South Asia
- Sub-Saharan Africa

Source: Designed by the author, based on COVIDSurg Collaborative (2020).

The study estimated that Latin American and Caribbean (LAC) countries canceled around 5.6 million elective surgeries (between 4.5 million and 7.2 million) in the three months of the first pandemic wave. Of these cancellations, it is estimated that 52.8% were in Brazil[7]. However, the available data do not allow us to know the percentage of cancellations estimated in the public and private sectors. Considering Brazil as an example, it can be said that most cancellations must have occurred in public or private hospitals (for profit or philanthropic) financed by the Universal Public Healthcare System (SUS).

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[7] It is estimated, according to data from 2018, that Brazil performed at least 7.1 million surgeries per year, of which 3.6 million through SUS and 3.5 million through the private health system. See CARAMELLI, B. "O que fazer com as cirurgias suspensas por causa da pandemia de Covid-19". In: Veja Saúde, 1st Jul. 2020. Available at: <https://saude.abril.com.br/blog/com-a-palavra/o-que-fazer-com-as-cirurgias-suspensas-por-causa-da-pandemia-de-covid-19/>; accessed on 13/May/2021. It is also estimated that the proportion of elective surgeries in the private health system is equivalent to the standards of high-income countries, while in SUS this number is lower. Based on this, SUS would probably be proportionally providing a greater number of urgent and emergency surgeries and postponing the performance of elective surgeries. The existence of a backlog of 900,000 elective surgeries to be performed in the public system - some having been scheduled for twelve years, is proof of this. If these data are correct, the total number of elective surgeries canceled in Brazil between March and May 2020, according to estimates by the COVIDSurg Collaborative (247,444 elective surgeries per week in the three-month pandemic peak) may be overestimated.

As of March 2020, the Ministry of Health started to guide states to postpone SUS elective surgeries, to save beds and prevent infections from Covid-19. Data from the Ministry of Health estimated that, in the public system alone, during the first four months of the pandemic (between March and June 2020), Brazil had 61.4% drop in the number of elective surgeries, in comparison with the average of the previous five years. This would represent an estimated cancellation of about 995,000 elective surgeries in the period only in the public sector, nationwide.

This recommendation was also reinforced by the Private Healthcare Agency (ANS) and by the National Health Surveillance Agency (Anvisa). With the pandemic, Universal Public Healthcare System beds were close to maximum occupancy in many regions. In the state of Sao Paulo alone, there was a decrease of almost 175,000 (about 59%) elective surgical procedures in SUS between March and June 2020. However, as of July 2020, both SUS and ANS began to advise the public and private hospitals to resume the performance of elective surgeries.

Data from the Ministry of Health estimated that, in the public system alone, during the first four months of the pandemic (between March and June 2020), Brazil had 61.4% drop in the number of elective surgeries, in comparison with the average of the previous five years.

ANAHP hospitals and elective surgeries during the pandemic

Anahp Hospital Indicator System (SINHA) indirectly monitors data on the reduction in volume of surgeries through bed occupancy rates. Although not all occupied beds are associated with surgical interventions, since many treatments involve non-surgical therapies, the occupancy rate of hospital beds in hospitals of excellence is an indicative variable of what happens with elective surgeries.

The intensification of the first pandemic wave in Brazil, which occurred between April and June 2020, had strong impact on bed occupancy rates of Anahp hospitals, compared to data from the same period in 2019, as shown in **Graph 3**.

GRAPH 3 | Occupancy rates for general beds and ICU beds in Anahp hospitals (%) | April 2019 and April 2020
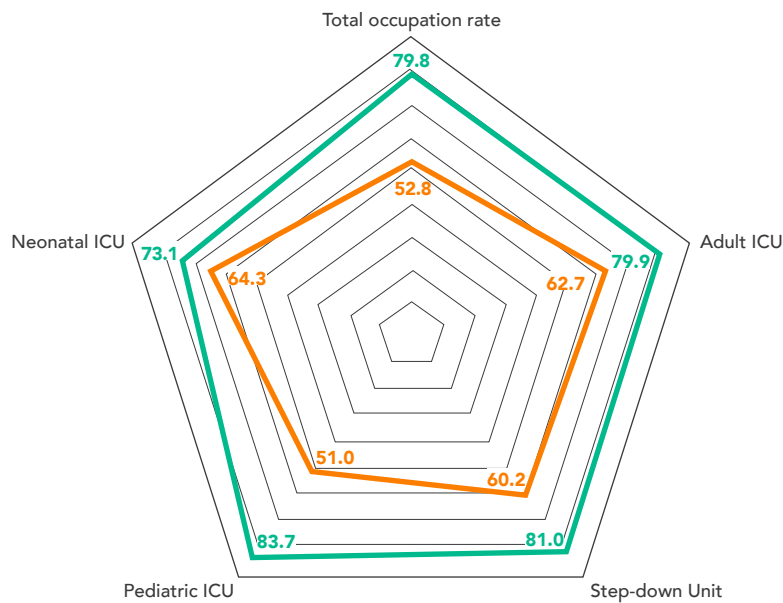
● April 2019   ● April 2020

Source: Designed by the author, based on SINHA/Anahp.

There was reduction in total bed occupancy rates and in the occupancy of step-down beds and ICU beds, including adult, pediatric and neonatal units, demonstrating the impact of the pandemic in reducing the activity of ANAHP hospitals at the peak of the first wave. The sharpest reductions were registered in the occupation of pediatric ICU beds (from 83.7% to 51%) and in the total number of beds (from 79.8% to 52.8%); the smallest ones, in neonatal ICU beds (from 73.1% to 64.3%). The reduction in relation to total bed occupancy rate occurred in all regions of Brazil, as can be seen in **Graph 4**.

GRAPH 4 | Overall bed occupancy rates by region in Anahp hospitals |
Second quarter of 2019 and second quarter of 2020
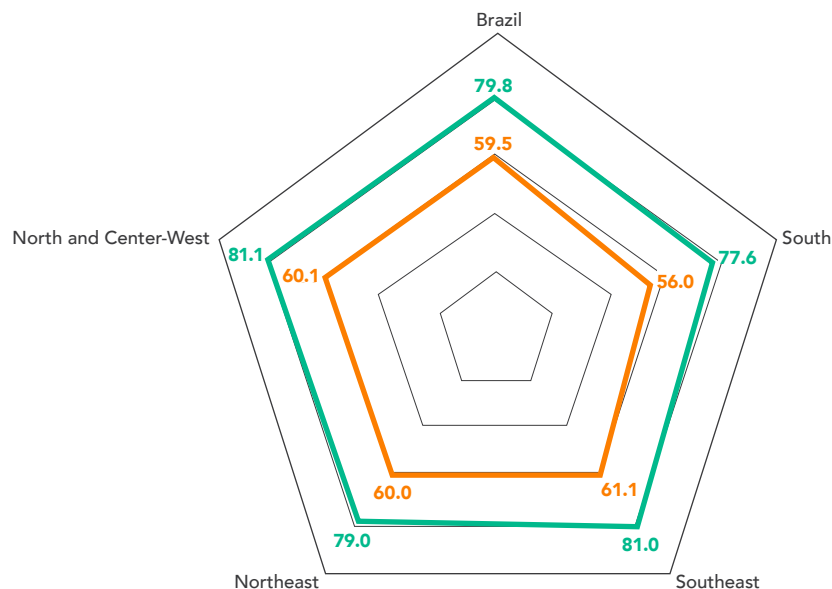
● 2nd quarter 2019   ● 2nd quarter 2020

Source: Designed by the author, based on SINHA/Anahp.

In Brazil, the reduction in bed occupancy rates at ANAHP hospitals, comparing the second quarter of 2019 and the second quarter of 2020 (from 79.8% to 59.5%), indicates a clear reduction in hospital activity, basically induced by the cancellation of elective surgeries, although partially offset by the increase in hospitalizations by Covid-19, which can be classified as urgent and emergency in most cases[8]. At the same time, the regional reductions in bed occupancy rate were relatively homogeneous, with the largest being seen in the South region (from 77.6% to 56%) and the smallest in the Northeast region (from 79% to 60%).

The month of March and the entire second quarter of 2020 were the most critical periods for ANAHP hospitals in 2020, which is reflected in the quarterly bed occupancy rates, as shown in **Graph 5**. In 2019, the highest bed occupancy rates occurred in the second quarter, with a declining performance in the other quarters. In 2020, the first quarter started with an occupancy rate lower than that of 2019 because of the month of March, when various elective surgeries were canceled because of the rise of the pandemic.

[8] Between March and May 2020, the rate of emergency room visits of Anahp hospitals due to Covid-19 that converted into hospitalization increased from 0.5% to 2.8%.

GRAPH 5 | Overall bed occupancy rates in Anahp hospitals (%) |
By quarters: 2019 and 2020

76.2   79.8   77.5   74.3

70.0   71.8

          59.5   69.0

1st quarter   2nd quarter   3rd quarter   4th quarter

● 2019   ● 2020
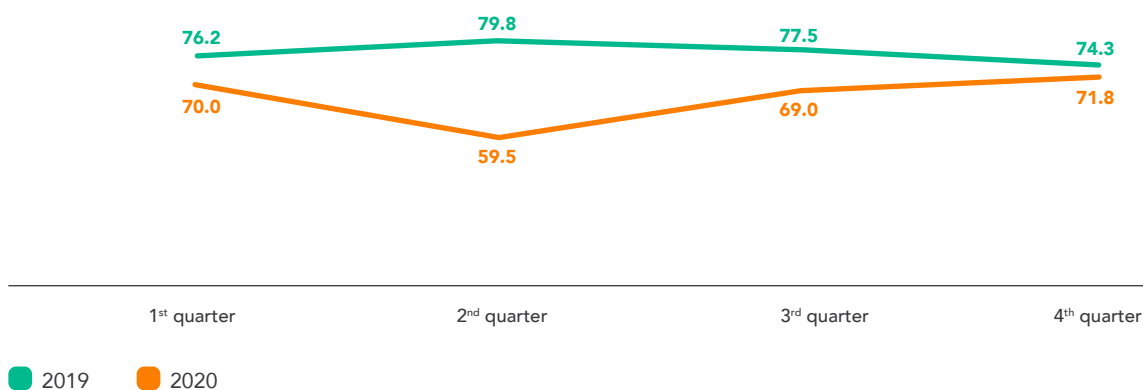
Source: Designed by the author, based on SINHA/Anahp.

However, in the second quarter of 2020, at the time of the peak of the first wave of the pandemic, bed occupancy rates reached the lowest levels of the year (59.5%, compared to 79.8% in the second quarter of 2019). Data from the second and third quarters of 2020 showed improvement, with an upward trend in bed occupancy rates in the last two quarters of the year. It was the opposite of what occurred in 2019, when bed occupancy rates were going down during the same period. Thus, the occupancy rate for the fourth quarter of 2020 was practically the same as the first quarter of the year, demonstrating the recovery and resilience of ANAHP hospitals to meet the needs of elective surgeries and achieve financial rebalancing.

The month of December 2020 and the first quarter of 2021 represented the growth of a second pandemic wave, more intense than the first one and which continues until the present moment, with repercussions in higher number of cases and mortality from Covid-19, reaching the highest levels since the beginning of the pandemic. As a result, there was reduction in the occupancy rates of hospital beds at ANAHP hospitals between November and December 2020, falling from 73.7% to 70%. Data from early 2021 may confirm whether this trend remains or has been reversed from April this year.

In the second wave of the pandemic, world-class hospitals, including ANAHP hospitals, have shown greater experience in dealing with Covid-19. Through learnings in clinical and administrative management they could safely provide care to patients, creating specific wards for infected patients and using more tools such as telemedicine. There was, therefore, a process of resilience of ANAHP hospitals to adapt to the crisis caused by the pandemic, which, in a sense, is also reflected in their financial indicators, as will be seen later.

The position taken by the management of ANAHP hospitals reflects this process. A survey carried out in December 2020 showed that 73% of managers declared that their hospitals were recovering the rates of elective surgeries, even though at levels lower than those recorded before the pandemic. To this end, 85% of hospital managers declared that they had made substantial investments to ensure greater safety for patients and the medical staff, as well as to adjust the hospital's infrastructure and management. About 42% of the managers declared they were fully prepared for a second pandemic wave; 58%, partially prepared; and 53% were relatively optimistic that their hospitals would, in 2021, go through a process of stabilization in hospital demand.

Financial problems of hospitals during the pandemic, lessons learned, and the next steps

The pandemic has generated a worldwide reduction in hospital revenues and increased investment needs, bringing higher care costs and loss of profitability. In many countries, hospitals – not only public, but also private – have had to rely on government support and subsidies to continue operating and playing their essential role during the waves of Covid-19 throughout 2020, extending to the first months of 2021.

For this reason, the pandemic has been a powerful engine of transformation in hospitals. It has accelerated the use of health information technologies in historic proportions, including different aspects, such as providing distance services through telemedicine and integrating large complexes centered on intensive care with outpatient facilities brought closer to the patients. The pandemic has changed the appearance and essence of hospital care, as the stress it brought increased the concern for the well-being of the patients and the quality of the treatment.

The pandemic has also accelerated hospital concentration by consolidating tertiary care (complex hospitalization procedures that require specialized equipment and resources) in large care centers, to recover elective procedures lost during pandemic peaks. Adapting the health infrastructure to better manage the pandemic has required huge investments. Separate entrances and exits are now necessary to separate those who may be infected from those who are not. Safer waiting rooms have been structured so that the patient's waiting time is minimized through the scheduling and performance of strictly timed consultations and procedures. As a result, hospitals, emptied of regular patients in the first pandemic wave, are receiving them again to resume their normal treatment schedules, even with the continuation of the pandemic.

In smaller hospitals, beds for complex procedures have been closed so that the space could be dedicated exclusively to treating patients with Covid-19, with temporary ICUs being set up in architecturally flexible spaces, with installation of portable ventilators and filtering devices.

Managing this division of tasks and these processes of transformation and reallocation of medical work has required new investments and increased costs, which have begun to consume a large part of the already meager revenue stream of hospitals. With higher fixed costs per patient, a wide range of smaller services have become too expensive to be performed on the premises of reference hospitals. The incorporation of surgical and technological advances, as well as the use of reimbursement formulas associated with outcomes, have progressively transformed these institutions into places where many solutions can be found.

Less complex services are no longer provided by these hospitals, where the imperative of productivity is now imposed, and they have migrated to clinics close to the communities, with cheaper hospital infrastructure, which now take care of the convalescence of patients who have already undergone interventions in hospitals of excellence, providing less complex outpatient services.

Transformations such as these had already started in the last decade but have increased during the pandemic as they allow hospitals to be better prepared for possible new pandemic waves while safely offering their routine activities to patients with complex problems who require detailed consultations, specialized exams, and elective surgeries.

We can take the case of the United States as an example. The country's hospitals have been at the forefront since the beginning of the pandemic, facing historic financial challenges due to revenue losses associated with elective surgeries, exams, and other routine activities, in addition to increased costs related to pandemic preparedness and treatment of patients with Covid-19[9].

Although consolidated information on the 2020 balance sheets is not available, the American Hospital Association (AHA) has estimated that the financial loss of the hospital sector was US$323 billion and that almost half of North American hospitals achieved operational losses at the end of last year. Despite the introduction of various vaccines for Covid-19 and a growing number of Americans already vaccinated (123 million fully vaccinated as of May 16, 2021[10]), the pandemic continues to wreak havoc, and it is projected that by 2021 hospitals' financial losses will continue, but at lower levels, estimated between US$53 billion and US$122 billion[11].

The context of the pandemic has changed the appearance and essence of hospital care as the stress it brings increases the concern for the pursuit of well-being of patients and for the quality of treatment

[9] Throughout 2020, the United States accumulated nearly 30 million infections. More than 1.5 million people were hospitalized, and around 530,000 died because of Covid-19, which generated a 15% increase in the national mortality rate and made 2020 the deadliest year in the country's recent history. If it hadn't been for the resilience of the US hospital system, this reality could have been much worse.

[10] US Coronavirus Vaccine Tracker. Available at: <https://usafacts.org/visualizations/covid-vaccine-tracker-states/>; accessed on 17/May/2021.

[11] AHA. "Hospitals Face Continued Financial Challenges One Year into the COVID-19 Pandemic", March 2021. Available at: <https://www.aha.org/fact-sheets/2021-03-16-hospitals-face-continued-financial-challenges-one-year-covid-19-pandemic>; accessed on 13/May/2021.

Data from the AHA show that, as of March 2021, US hospitals had an average of 72,000 admissions per week related to Covid-19, with a weekly average of approximately 39,000 inpatients receiving care because of the pandemic, of whom an average of 10,000 were hospitalized in ICUs[12]. As a result, hospital ICU bed occupancy rates remained in the range of 67%, and in states such as Texas, Delaware and Alabama, as well as the District of Columbia, they reached more than 80% in the first quarter of the year. While there is some optimism about the rapid vaccination process successfully conducted during the first hundred days of the Joe Biden administration, there is always the risk that new coronavirus variants and the relaxation of social distancing policies may result in new contamination, with occupancy rates of Covid-19-associated beds remaining high.

Although recovered from the historical setbacks of the first pandemic wave, hospital revenues in the United States were once again negatively affected by the advent of the second wave. Operating margins (EBITDA[13]) decreased by almost 27% between December 2020 and January 2021, when they were 46% lower than those recorded in January 2020 - hospital gross revenue fell 4.8% in relation to January 2019, and revenues from outpatient care decreased by 10.4%, respectively. The reduction in revenues of North American hospitals was also accompanied by an increase in hospital costs, which in January 2021 were 4.5% higher than in January 2020. In 2020, hospital expenses increased by 25.4% compared to 2019. The lack of healthcare professionals (mainly doctors and nurses) to provide care related to Covid-19 in the acute phases made hospitals dependent on personnel recruitment companies, which led to a 30% increase in personnel expenses compared to 2019. Expenditure on personal protective equipment (PPE) and pandemic drugs increased by 36% in the first few months of the year, and all of this seems to lead to a still challenging financial environment for US hospitals in 2021.

> " Although hospital revenues in the United States recovered from the historical setbacks of the first pandemic wave, they were once again negatively affected by the onset of the second wave.

To face the financial problems arising from the hospital crisis, on March 27, 2020, the Congress enacted the Coronavirus Aid, Relief, and Economic Security Act, known as the CARES Act, which made US$ 2.2 trillion in financial aid available to face the pandemic crisis. Of these resources, around US$130 billion were dedicated to funding hospitals, including the purchase of medication and medical equipment.

Additionally, approximately US$145 billion will be available over the next five years (2020--2025), to strengthen initiatives by hospitals and health systems in telemedicine, informatics, artificial intelligence, use of analytics tools, and information technologies. But given the losses of $323 billion in the hospital sector alone, as estimated by the AHA, these resources were clearly insufficient to offset the crisis in 2020.

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[12] The AHA indicators show that, although bed occupancy rates remain relatively low, the length of stay due to the high percentage of Covid-19 remains high - 12.6% higher in January 2021 than in January 2020.
[13] EBITDA - earnings before interest, taxes, depreciation and amortization.

Analyses carried out in various parts of the world show that, even though hospitals in the most developed countries were surprised by the economic crisis of the coronavirus, rapid learning was made, as can be summarized in the following processes and results:

(i) Increased responsiveness by minimizing bureaucratic procedures for hiring professionals, purchasing materials, and making management decisions.

(ii) Greater autonomy and decentralization in the clinical management processes, increasing trust and organizational flexibility among healthcare professionals.

(iii) Leadership in clinical management and collaborative intelligence, allowing organizational barriers to be overcome and emergency hospital services (such as field hospitals) were implemented in sports centers or hotels, with professionals from hospitals, social health and primary care centers.

(iv) Emergency response, engagement and alignment of priorities of healthcare.

professionals, with the implementation of twelve-hour shifts, suspension of leaves and holidays, recruitment of recently retired or newly graduated professionals and final-year students of medical schools.

(v) Actions in primary health care (PHC) to prevent unnecessary hospitalizations, allowing patients to stay at home (the elderly without family stayed in nursing homes) to avoid the collapse of hospitals. Testing systems were used by PHC to identify and isolate Covid-19 cases in hotels or areas adapted for this population.

(vi) Coordinated and efficient action of multidisciplinary teams in hospitals, from the emergency room to inpatient and intensive care centers.

(vii) Rapid implementation of telemedicine and telework to cover a variety of areas, from the classification of demand to the home follow-up of patients at risk, complications from Covid-19 or other pathologies, who could not be referred to the hospital.

Even though hospitals in the most developed countries were surprised by the economic crisis from coronavirus, analyses carried out in several parts of the world indicate lessons were quickly learned.

However, some deficiencies and inefficiencies still need to be addressed so that hospitals can increase their capacity to respond to future pandemics. The following can be highlighted:

(i) Poor management of inputs, purchases of PPE, materials, diagnostic tests, and medications, which became (and continue to be) bottlenecks and make it difficult to increase the hospital's response capacity.

(ii) Need for service reorganization processes to increase the hospitals' interface with primary care, intermediate care, and long-term care providers, such as nursing homes, which did not have sufficient government support during the pandemic.

(iii) Need for greater integration and increased public-private partnerships, aiming to increase the efficiency in the use of all resources and the coordination of response capacity. That can be done by adopting patient-centered care and eliminating activities with low added value or that are not essential at all stages of the clinical and administrative management process.

How Anahp hospitals faced the challenge of sustainability during the pandemic

By affecting the behavior of the production of services at ANAHP hospitals, with reduction in occupancy rates and increase in operating costs, the pandemic had negative effects on the financial performance of the associated hospitals – which can be seen with more details in the chapter "Economic-financial management" of this edition of Observatorio Anahp.

However, it is worth analyzing further the effects of the pandemic on the financial performance of these hospitals, as well as the way in which they were able to overcome financial problems and ensure sustainability over time. A first issue to mention refers to EBITDA margins, which indicate the profitability of hospitals throughout the year. **Graph 6** shows the evolution of EBITDA margins at ANAHP hospitals between the quarters of 2019 and 2020.

GRAPH 6 | Evolution of profitability margins (EBITDA) of Anahp hospitals (%) | Between 2019 and 2020, by quarters
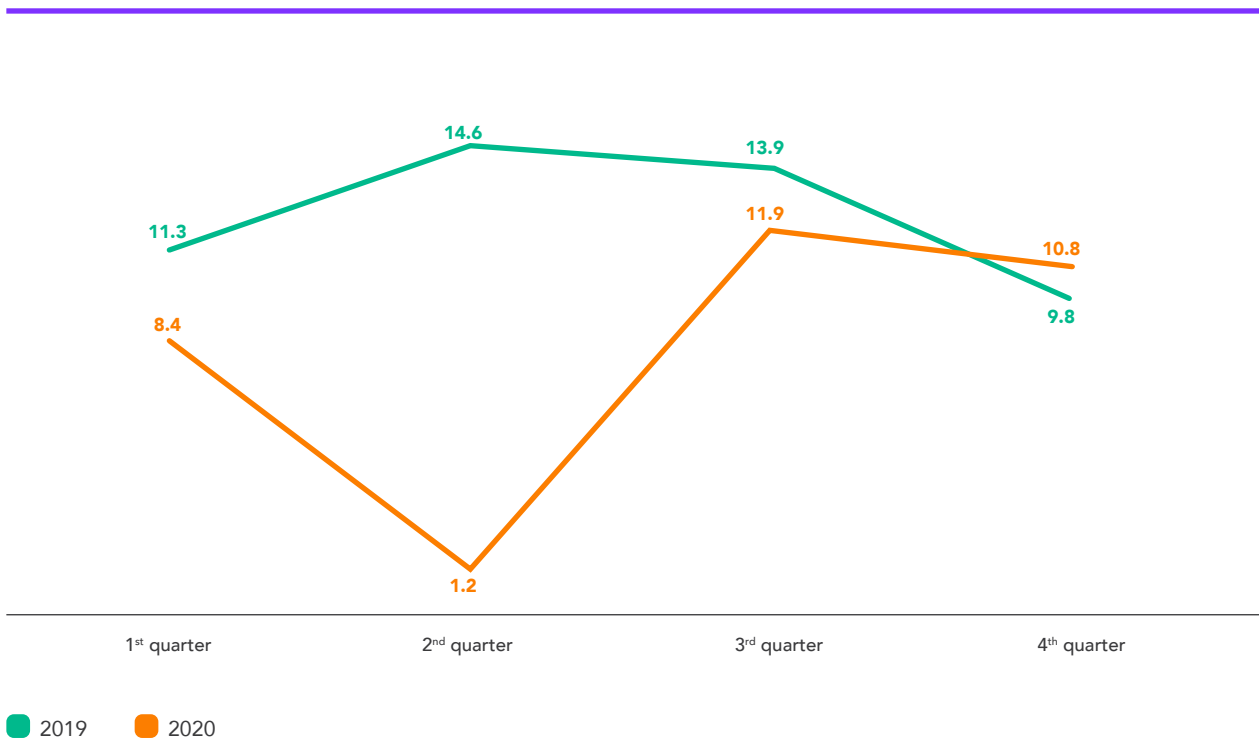
Source: Designed by the author, based on SINHA/Anahp.

There was an abrupt drop in EBITDA margins from the first to the second quarter of 2020. When comparing the data for the first quarter of 2020 (8.4%) with that of 2019 (11.3%), we can see a reduction in profitability caused by the pandemic in March 2020.

But the crisis, as it deepened, was reflected in the sharp drop in EBITDA margins in the 2nd quarter of 2020 (1.2%) compared to the same period in 2019 (14.6%). The month of April 2020 was the worst of the entire series, recording a negative EBITDA margin of 5.3%.

However, in the following quarters, the EBITDA margin recovered. In the third quarter of 2020, it increased to 11.9% (compared to 13.9% in 2019) and in the fourth quarter it reached 10.8%, surpassing the margin recorded in the same period in 2019 (9.8%).

This process did not prevent the EBITDA margin in 2020 from being lower than that in 2019 (8.1% and 12.4%, respectively), but it did highlight the profitability recovery capacity of ANAHP hospitals throughout a difficult year, thereby demonstrating the resilience, adaptation and flexibility of these institutions to achieve their sustainability.

The commitment to sustainability led ANAHP hospitals, throughout the crisis, to tighten up the processing of its collection of payment, aiming at reducing the time to receive invoice payments, which had been increasing and reached 72 days in the last quarter of 2019. In 2020, these times were reduced, reaching 65 days in the last quarter of 2020, as shown in **Graph 7**.

Considering that, in 2020, around 83% of the gross revenues of ANAHP hospitals came from healthcare plans, particularly the medical cooperatives, self-management plans and health insurance, it was up to hospital managers to intensify their efforts to receive their debts from health plan providers more quickly, thus streamlining the efficiency of the system.

GRAPH 7 | Average time to receive payment of invoices in Anahp hospitals (in days) | 2019-2020

Quarter	Value
1st quarter 2019	64.1
2nd quarter 2019	62.5
3rd quarter 2019	68.8
4th quarter 2019	72.4
1st quarter 2020	74.7
2nd quarter 2020	71.8
3rd quarter 2020	63.6
4th quarter 2020	65.0
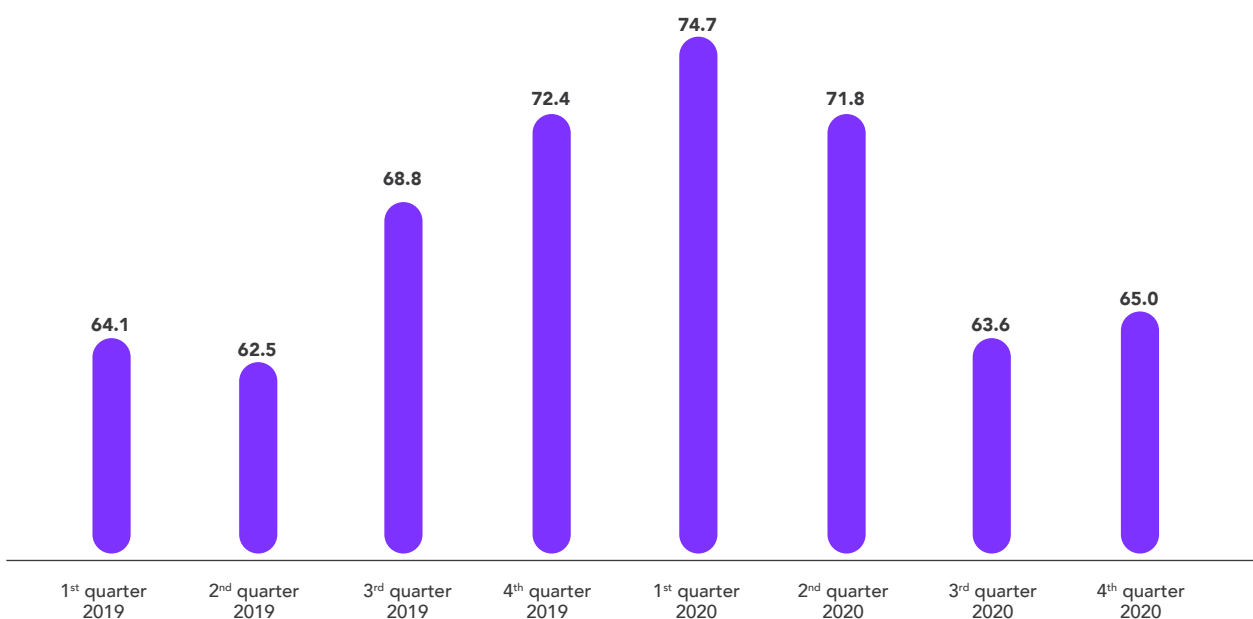
Source: Designed by the author, based on SINHA/Anahp.

It should also be noted that ANAHP hospitals, from the second half of 2020, began to improve the administration of their procedures, reducing the incidence of denials in performed procedures and reaching the lowest percentage of the two-year series in the 4th quarter of 2020, as seen in **Graph 8**.

Even if the indicators of collection and denials can still be streamlined, overall performance improvement was reached in the year of the pandemic

GRAPH 8 | Denial index as a percentage of net income of Anahp hospitals | From the 1st quarter of 2019 to the 4th quarter of 2020

1st quarter 2019	2nd quarter 2019	3rd quarter 2019	4th quarter 2019	1st quarter 2020	2nd quarter 2020	3rd quarter 2020	4th quarter 2020
3.7	4.0	3.8	3.9	4.5	4.8	3.7	3.4
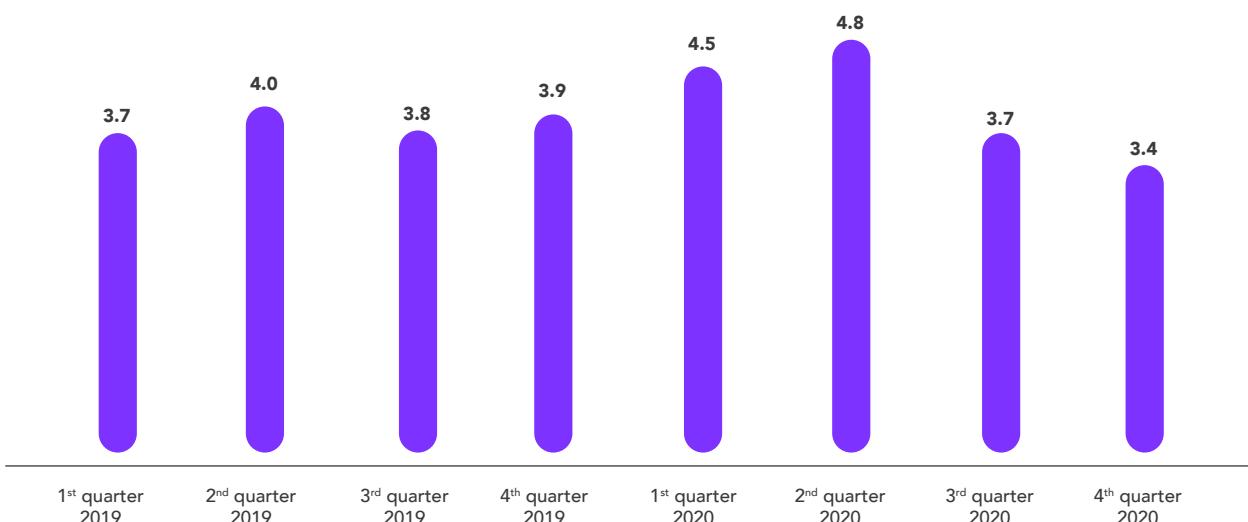
Source: Designed by the author, based on SINHA/Anahp.

Therefore, although payment and denial indicators can still be streamlined, it is undeniable that there was performance improvement in the year of the pandemic. This improvement in performance shows that ANAHP hospitals knew how to take measures to increase the efficiency of their administrative processes, learning lessons in adverse moments that can be shared. It is up to Anahp to systematize these experiences so that other hospitals can learn from such processes and keep applying these lessons in practice to continue improving their performance in the future. The systematic use of information technologies in the collection processes and compliance with the requirements of paying agencies can help to further improve the financial management of hospitals of excellence.

Another way to measure the impact of the pandemic in Anahp hospitals is by comparing the net revenue per patient-day and the total expense per patient-day, as can be seen in **Graph 9** (from 2017 to 2020).

GRAPH 9 | Net revenue and total expense per patient-day at Anahp hospitals (BRL 2020) | 2017-2020

	2017	2018	2019	2020
Net revenue per patient-day	5,551	5,633	5,812	5,411
Total expense per patient-day	4,642	4,837	5,079	4,943
Margin of net revenue in relation to total expense per patient (%)	20	16	14	9

● Net revenue per patient-day
● Total expense per patient-day
Margin of net revenue in relation to total expense per patient (%)
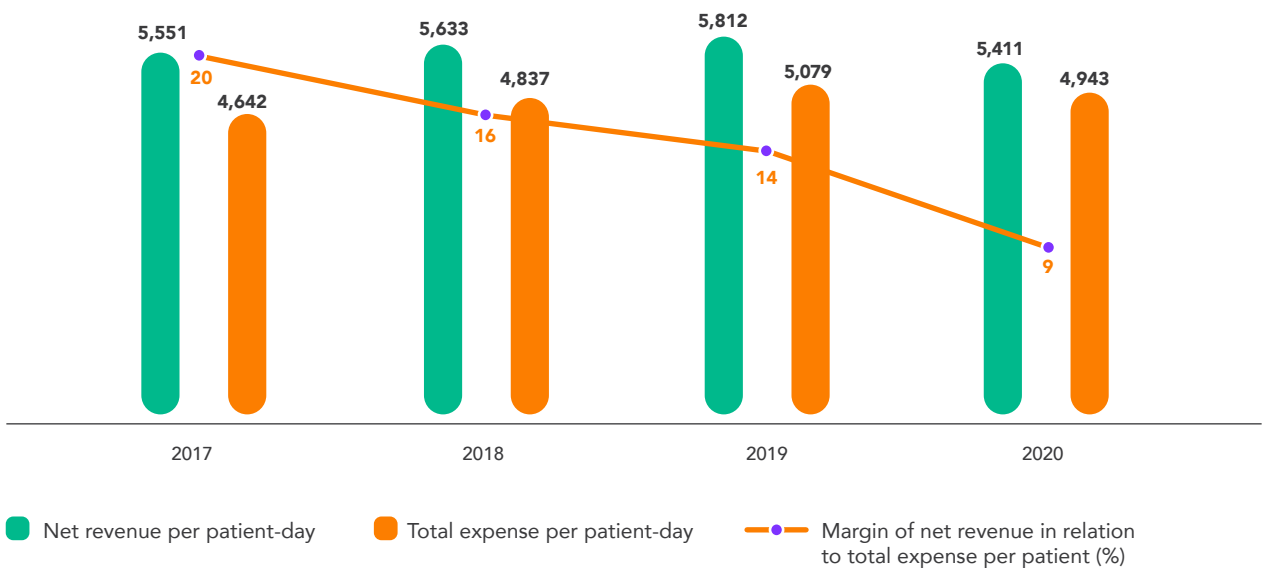
Source: Designed by the author, based on SINHA/Anahp. Anahp. Constant data and prices from 2020.

Between 2017 and 2019, both net revenue and total expense per patient per day in ANAHP hospitals experienced slight increases. Net revenue per patient-day increased from R$5,551 to R$5,812, which represented annual growth of 1.6% (in real terms). During the same period, the total expense per patient-day increased from R$ 4,642 to R$ 5,079, indicating an average annual growth of 3.1%. Thus, there was greater growth in net expense than in net revenue in the pre-pandemic period, indicating a trend towards reduced margins or the compression of surpluses (profit squeeze)[14]. In fact, the margin of net revenue in relation to total expense per patient-day fell in the period from 20% to 14%.

With the 2020 crisis, both indicators – net revenue and total expense per patient per day – fell 6.9% and 2.7%, respectively. But the drop in net revenues was greater than the drop in total expenses, causing, as shown in Graph 9, the margin to have plummeted from 14% to 9%, the lowest since 2017. This fact may prevent ANAHP hospitals from carrying out the investments they will need to comply with the new attributions of safety, management and the use of information technology in the post-pandemic period.

It should also be mentioned that, differently from the US, with the CARES Act, in Brazil public resources are rarely channeled to investments in private hospitals. Given that the Universal Public Healthcare System (SUS) presents relative operational inefficiency and waste it lacks essential investments to cover the population that cannot afford private healthcare plans, thus absorbing any additional surplus of resources for this area.

Despite the reduction in financial surpluses, reflected both in the EBITDA margin and in the ratio between net revenue and total expense per patient-day, it is noteworthy that ANAHP hospitals have managed to control the cost pressures arising from the pandemic, even having to bear significant expenses for PPE, medication, and equipment purchase, in many cases with higher prices due to shortages during the pandemic. The real reduction in total expense per patient-day of 2.7% in 2020 indicates a well-managed cost rationalization process, showing once again that ANAHP hospitals have sought efficiency and sustainability, even under adverse conditions such as those experienced during the pandemic.

[14] Although almost all Anahp hospitals are non-for-profit, hospitals are committed to making investments so they can stay up to date and deliver better quality services to their patient community.

Final words

To understand the financial perspectives of ANAHP hospitals in 2021, it is necessary to understand the origin of their revenues. Their main source of funding comes from private health market providers, as can be seen in **Graph 10**.

GRAPH 10 | Distribution of funding sources that finance Anahp hospitals (%) | 2017-2020

Legend:
● Healthcare plans (providers)   ● SUS   ● Out-of-pocket   ● Others

2017:
- 0.7
- 3.7
- 5.3
- 90.3
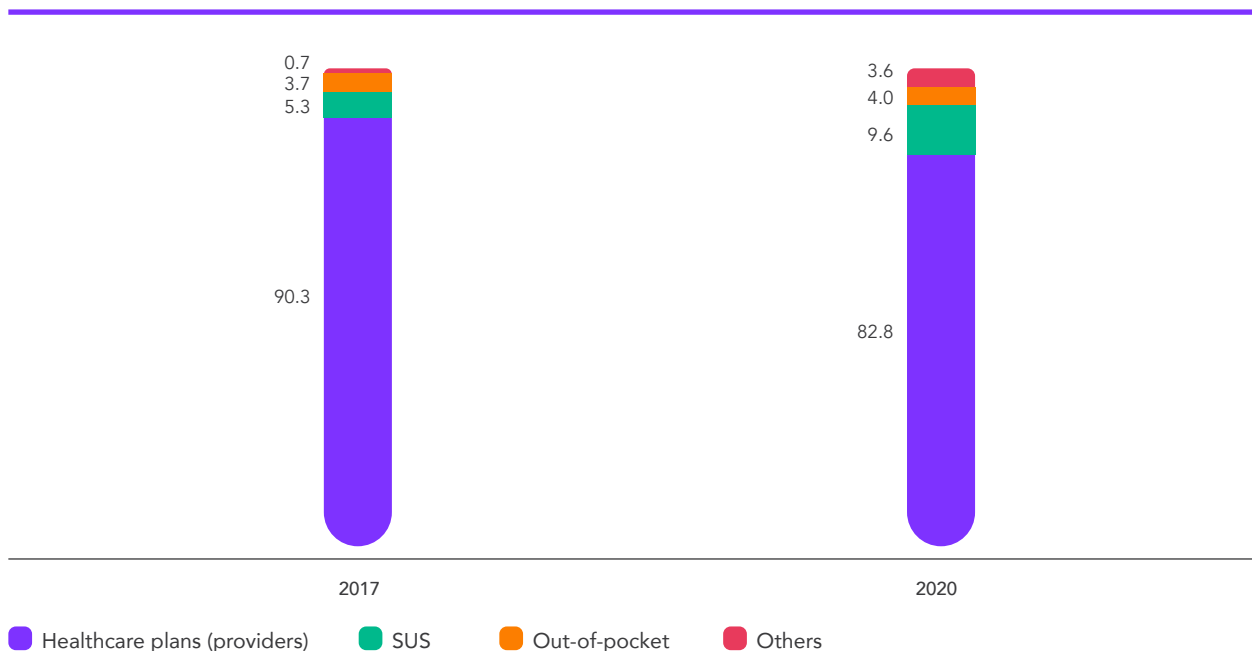
2020:
- 3.6
- 4.0
- 9.6
- 82.8

Source: Designed by the author, based on SINHA/Anahp. Anahp. Data and prices from 2020.

In 2017, around 90% of financing for ANAHP hospitals came from agreements with private health system providers, such as medical cooperatives, corporate self-management plans and insurance companies. However, this dependence has been reduced, albeit very slowly. In 2020, it dropped to 83% and, in this process, it doubled the share of Universal Public Healthcare System (SUS) resources (from 5% to 10%) and increased that of out-of-pocket sources and other payers.

Although there is a slight diversification of funding sources for ANAHP hospitals, there is still a large financial dependence on healthcare plans, particularly in the private health sector. This dependence means that ANAHP hospitals, in their funding matrix, have some similarity with North American hospitals, which are highly funded by public or private health insurance.

The sustainability of ANAHP hospitals, despite their success in management processes, strongly depends on the performance of the private health sector, more specifically on the expansion or contraction of its beneficiary portfolio and how it is reflected in hospital demand, as well as the negotiation of contractual forms and compensation for services paid by healthcare plans.

In the United States, the price of health consumer goods (medicines, equipment and other medical materials) has fluctuated around the variations of the North American consumer price index (CPI), but since 2017 it has tended to decrease, with negative variations in 2020, due to the pandemic[15]. On the other hand, price variations for medical and hospital services have been historically higher than those of CPI, with a tendency to decrease over the last few years.

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[15] MEDICI, A. C. "A variação dos custos da saúde nos Estados Unidos - Lições da Pandemia".
Available at: <https://www.researchgate.net/publication/350055001_A_variacao_dos_custos_da_saude_nos_Estados_Unidos_-_Licoes_da_Pandemia>; accessed on 13/05/2021.
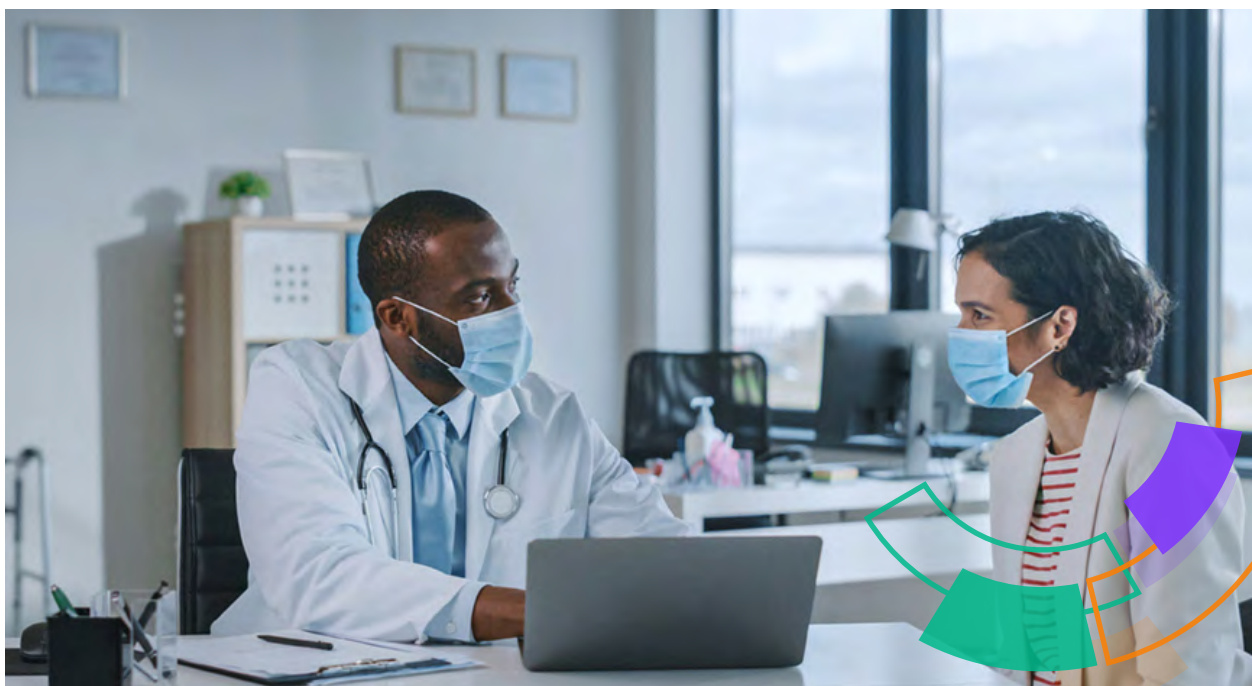
In 2020, the pandemic generated reduction in healthcare insurance coverage of the US working age population (from 19 to 64 years old) of around 2.8%, largely induced by the increase in unemployment, the fall in income of workers, and by the 5.7% increase in the average value of premiums. Thus, with narrower assurance base, there was a reduction in the use of hospital services and an increase in their costs, as already mentioned.

The US hospitals' EBITDA margins were largely reduced due to the reduction in private insurance and the reduction in the amounts paid in hospital contracts for public and private insurance. In the case of public insurance, hospitals in 2020 earned between 87% and 90% of what they spent on Medicare and Medicaid[16] beneficiaries, respectively. As for the private plans, the reduction in demand led half of the hospitals to operate in the red.

As a reaction to all these gloomy prospects, a reduction in the value of health insurance premiums in 2021 is expected (already consolidated in the first quarter). It may increase coverage seasonally and witness the resumption of the use of the hospitals by policyholders, with the return of elective procedures in a context where the massive vaccination in the first quarter of 2021 will reversed the low levels of service use. But the emergency oracles say that recovery from hospital losses will not take place this year.

Returning to Brazil and ANAHP hospitals, it should be mentioned that the variation in the consumption of medical and hospital services index (VCMH) in 2020, according to calculations by the Health Architects[17], will be at negative levels, which could favor a reduction in premiums. In addition, in an environment of economic recovery, from the second half of the year onwards, it may increase the number of insured members of healthcare plans – a process that began in 2020, after a long fall in beneficiaries between 2014 and the first half of last year. But the consumption of hospital services will depend on two conditions: (a) healthcare plan beneficiaries feeling safe again to use hospitals in the case of routine procedures and elective surgeries; (b) the stimulus that providers, induced by ANS, will give so that this return may take place.

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[16] Medicare is the federally organized public health plan for all Americans aged 65 and older. Medicaid is the public health plan for people below the poverty line, organized by the states. For a detailed view of the US healthcare system, see MEDICI, A. C. "O desafio da cobertura universal de saúde nos Estados Unidos: de Barack Obama a Joe Biden". Universal Health Monitor, Jan 2021, Available at: <https://www.researchgate.net/ publication/348606634_O_Desafio_da_Cobertura_Universal_de_Saude_nos_Estados_Unidos_De_Barack_Obama_a_Joe_Biden>; accessed on 17/May/2021.
[17] FEITOZA, L. "A variação dos custos médico-hospitalares antes e durante a pandemia: uma análise do VCMH da 'Arquitetos da Saúde'". In. Monitor de Saúde, ano 15, n. 116, 8 mar. 2021. Available at: <https://monitordesaude.blogspot.com/2021/03/os-custos-medicos-hospitalares-e-seus.html>; accessed on 13/May/2021.

> "It is still unknown what effects the intensity of the second wave of the pandemic between January and March 2021 may have had on hospital visits and recovery from elective procedures."

To minimize the effects of reduced use of health services and other difficulties caused by the pandemic, ANS decided in August 2020 to suspend the annual price adjustments and to change the age range of healthcare plans for 120 days, thus seeking to provide financial relief to the consumer, without destabilizing established rules and contracts. According to ANS, "the suspended payments – which will be billed in the upcoming 12 months in 2021 – included a total of 20.2 million beneficiaries who had annual price adjustments and 5.3 million beneficiaries who had price adjustments due to change in age range"[18]. This fact may have a positive effect by increasing the number of health plan policyholders between 2020 and 2021 and induce policyholders to return to using the services.

However, it is unknown what effects the intensity of the second wave of the pandemic between January and March 2021 will have on hospital visits and recovery from elective procedures. It is known

that, in these circumstances, everything will depend on a combination that reflects not only the financial possibilities for policyholders to use the services when they need to but also the confidence in the safety processes in the pandemic.

In the long term, in the post-pandemic context, the sustainability of ANAHP hospitals may be associated with the progressive reduction of dependence on health plan providers, expanding the trend towards diversification of funding sources through new models of public-private partnerships. It may encompass not only those started with successful programs, such as the Support Program for Institutional Development of the Unified Health System (Proadi-SUS) but also others that reflect less ideological polarization and greater maturity in institutional relations between the private sector and the Universal Public Healthcare System (SUS), in a context of universal access to quality healthcare for Brazilian citizens.

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[18] ANS. "Retrospectiva 2020 na saúde suplementar", 2020.
Available at: <http://www.ans.gov.br/aans/noticias-ans/sobre-a-ans/6133-retrospectiva-2020-na-saude-suplementar>; accessed on 13/05/2021.

References

AHA. "Hospitals Face Continued Financial Challenges One Year into the COVID-19 Pandemic", mar. 2021. Disponível em: <https://www.aha.org/fact-sheets/2021-03-16-hospitals-face-continued-financial-challenges-one-year-covid-19-pandemic>; acesso em 13/05/2021.

ANAHP. Nota Técnica Observatório Anahp, 2. ed., ago. 2020. Disponível em: <https://conteudo.anahp.com.br/nt-observatorio-anahp-2a-edicao>; acesso em 13/05/2021.

ANAHP. Nota Técnica Observatório Anahp, 3. ed., out. 2020. Disponível em: <https://www.anahp.com.br/pdf/nt-observatorio-3a-edicao-outubro.pdf>; acesso em 13/05/2021.

ANAHP. Nota Técnica Observatório Anahp, 4. ed., dez. 2020. Disponível em: <https://www.anahp.com.br/pdf/nt-observatorio-4a-edicao-dezembro.pdf>; acesso em 13/05/2021.

ANAHP. Nota Técnica Observatório Anahp, 5. ed., fev. 2021. Disponível em: <https://www.anahp.com.br/pdf/nt-observatorio-5a-edicao-fevereiro2021.pdf>; acesso em 13/05/2021.

ANS. "Retrospectiva 2020 na saúde suplementar", 2020. Disponível em: <http://www.ans.gov.br/aans/noticias-ans/sobre-a-ans/6133-retrospectiva-2020-na-saude-suplementar>; acesso em 13/05/2021.

CARAMELLI, B. "O que fazer com as cirurgias suspensas por causa da pandemia de Covid-19". In: Veja Saúde, 1º jul. 2020. Disponível em: <https://saude.abril.com.br/blog/com-a-palavra/o-que-fazer-com-as-cirurgias-suspensas-por-causa-da-pandemia-de-covid-19/>; acesso em 13/05/2021.

COVIDSURG COLLABORATIVE. "Mortality and Pulmonary Complications in Patients Undergoing Surgery with Perioperative SARS-CoV-2 Infection: an International Cohort Study". In: The Lancet, v. 396, n. 10243, p. 27-38, 29 maio 2020, rev. 9 jun. 2020. Disponível em: <https://doi.org/10.1016/S0140-6736(20)31182-X>; acesso em 13/05/2021.

COVIDSURG COLLABORATIVE. "Elective Surgery Cancellations due to the COVID-19 Pandemic: Global Predictive Modelling to Inform Surgical Recovery Plans". In: British Journal of Surgery, v. 107, n. 11, p. 1440-1449, out. 2020. Disponível em: <https://doi.org/10.1002/bjs.11746>; acesso em 13/05/2021.

EHRENFELD, J. M.; DEXTER, F.; ROTHMAN, B. S.; JOHNSON, A. M.; EPSTEIN, R. H. "Case Cancellation Rates Measured by Surgical Service Differ whether Based on the Number of Cases or the Number of Minutes Cancelled". In: Anesthesia & Analgesia, v. 117, n. 3, p. 711-716, set. 2013. Disponível em: <http://dx.doi.org/10.1213/ANE.0b013e31829cc77a>; acesso em 13/05/2021.

FEITOZA, L. "A variação dos custos médico-hospitalares antes e durante a pandemia: uma análise do VCMH da 'Arquitetos da Saúde'". In. Monitor de Saúde, ano 15, n. 116, 8 mar. 2021. Disponível em: <https://monitordesaude.blogspot.com/2021/03/os-custos-medicos-hospitalares-e-seus.html>; acesso em 13/05/2021.

HOVLID, E.; BUKVE, O.; HAUG, K.; ASLAKSEN, A. B.; PLESSEN, C. von. "A New Pathway for Elective Surgery to Reduce Cancellation Rates". In: BMC Health Services Research, v. 12, n. 154, 2012. Disponível em: <https://doi.org/10.1186/1472-6963-12-154>; acesso em 13/05/2021.

MEDICI, A. C. "O desafio da cobertura universal de saúde nos Estados Unidos: de Barack Obama a Joe Biden". Ed. Universal Health Monitor, jan. 2021, Disponível em: <https://www.researchgate.net/publication/348606634_O_Desafio_da_Cobertura_Universal_de_Saude_nos_Estados_Unidos_De_Barack_Obama_a_Joe_Biden>; acesso em 17/05/2021.

MEDICI, A. C. "A variação dos custos da saúde nos Estados Unidos - Lições da Pandemia", mar. 2021. Disponível em: <https://www.researchgate.net/publication/350055001_A_variacao_dos_custos_da_saude_nos_Estados_Unidos_-_Licoes_da_Pandemia>; acesso em 13/05/2021.

NAZAR, N. N. "Causes and Rate of Cancellation of Elective Surgeries- A Cross-Sectional Study". In: Texila International Journal of Nursing, v. 5, n. 1, fev. 2019. Disponível em: <https://www.texilajournal.com/nursing/article/1185-causes-and-rate>; acesso em 13/05/2021.

SOCIETAT CATALANA DE GESTIÓ SANITÀRIA. "Impact of the Covid-19 Pandemic on Health Organizations: 25 Proposals from What we Have Learned", maio 2020.

TURUNEN, E.; MIETTINEN, M.; SETÄLÄ, L.; VEHVILÄINEN-JULKUNEN, K. "Financial Cost of Elective Day of Surgery Cancellations". Journal of Hospital Administration, v. 7, n. 6, 2018. Disponível em: <https://doi.org/10.5430/jha.v7n6p30>; acesso em 13/05/2021.

WEISER, T. G.; HAYNES, A. B.; MOLINA, G.; LIPSITZ, S. R.; ESQUIVEL, M. M.; URIBE-LEITZ, T.; FU, R.; AZAD, T.; CHAO, E. T.; BERRY, W. R.; GAWANDE, A. A. "Size and Distribution of the Global Volume of Surgery in 2012". In: Bulletin of the World Health Organization, v. 94, p. 201-209F, 2016. Disponível em: <http://dx.doi.org/10.2471/BLT.15.159293>; acesso em 13/05/2021.

PARA CONTINUAR LEVANDO AOS PROFISSIONAIS DE SAÚDE CONTEÚDO DE QUALIDADE, DURANTE A PANDEMIA, A ASSOCIAÇÃO CRIOU A WEBSÉRIE:

anahp ▶
AO VIVO

OS EPISÓDIOS ABORDAM DIVERSOS TEMAS E ÁREAS QUE FORAM, DE ALGUMA FORMA, IMPACTADOS PELA COVID-19, COMO:

- A IMPORTÂNCIA DA UTILIZAÇÃO DE DADOS;
- LIÇÕES DA PANDEMIA: A TELEMEDICINA VEIO PARA FICAR?
- *COMPLIANCE* E TRANSPARÊNCIA EM TEMPOS DE PANDEMIA;

- INOVAÇÃO NO SETOR DA SAÚDE;
- OS DESAFIOS CONTEMPORÂNEOS DA COMUNICAÇÃO;
- RETOMADA DE PROCEDIMENTOS HOSPITALARES;

ASSISTA AOS DEBATES COMPLETOS NO CANAL DA ANAHP NO YOUTUBE

WWW.YOUTUBE.COM/ANAHPBRASIL

Market and clinical profile

Analyses of the private healthcare market and the clinical and epidemiological profile of Anahp member hospitals

2

Executive Summary:

ECONOMIC SCENARIO AND THE HEALTHCARE MARKET

CHALLENGES OF THE NEW CORONAVIRUS PANDEMIC

In 2020, the pandemic has resulted in significant worsening of economic activity (GDP decreased by 4.06% in the year) and social indexes (increase in income inequalities)

GENERATION OF FORMAL JOBS BETWEEN 2019 AND 2020 – GROUPS CNAE 2.0 (IBGE)

Human health has taken the **third position** among the main job creators:

1st Administrative and complementary services
138,407

2nd Civil construction
112,174

3rd Human health and social services
110,799

4th Transformation industries
90,013
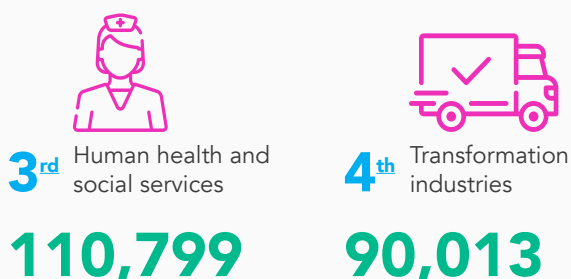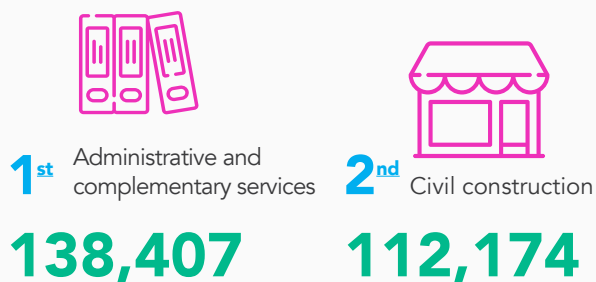
Source: Novo Caged | Ministry of Labor.

INCREASE IN NUMBER OF BENEFICIARIES OF HEALTHCARE PLANS

2017	**47.10** million
2018	**47.10** million
2019	**47.03** million
2020	**47.62** million
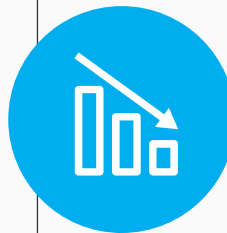
NEGATIVE ECONOMY RESULTS IN 2020

EXPECTATIONS OF ECONOMIC GROWTH RETURN
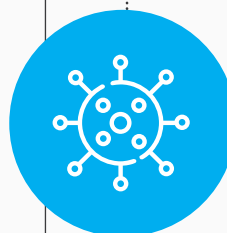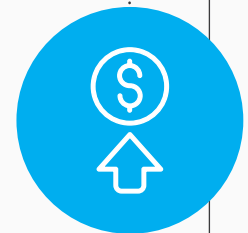
UNCERTAINTIES RELATED TO THE INCREASE IN COVID-19 TRANSMISSION AND SLOW IMMUNIZATION PACE

CLINICAL AND EPIDEMIOLOGICAL PROFILE

Defining the characteristics of the patient population
is essential to improve hospital care

There were
1,511,350
hospital admissions in 2020

HOSPITAL DISCHARGES BY AGE RANGE (%) – 2019 AND 2020

Age Range	2019	2020
0 to 14	15.10	12.06
15 to 29	13.69	13.04
30 to 44	24.25	26.94
45 to 59	16.48	18.50
60 to 74	15.91	17.29
Older than 75	11.63	12.17
Ignored	2.96	0.00

● 2019   ● 2020   *Source: SINHA/Anahp.*

AVERAGE LENGTH OF STAY BY AGE RANGE (DAYS) | 2019 AND 2020

Age Range	2019	2020
0 to 14	3.90	4.84
15 to 29	2.54	2.90
30 to 44	2.57	2.79
45 to 59	3.22	4.10
60 to 74	4.53	5.96
Older than 75	14.43	19.32
Ignored	2.39	0.00

● 2019   ● 2020   *Source: SINHA/Anahp.*
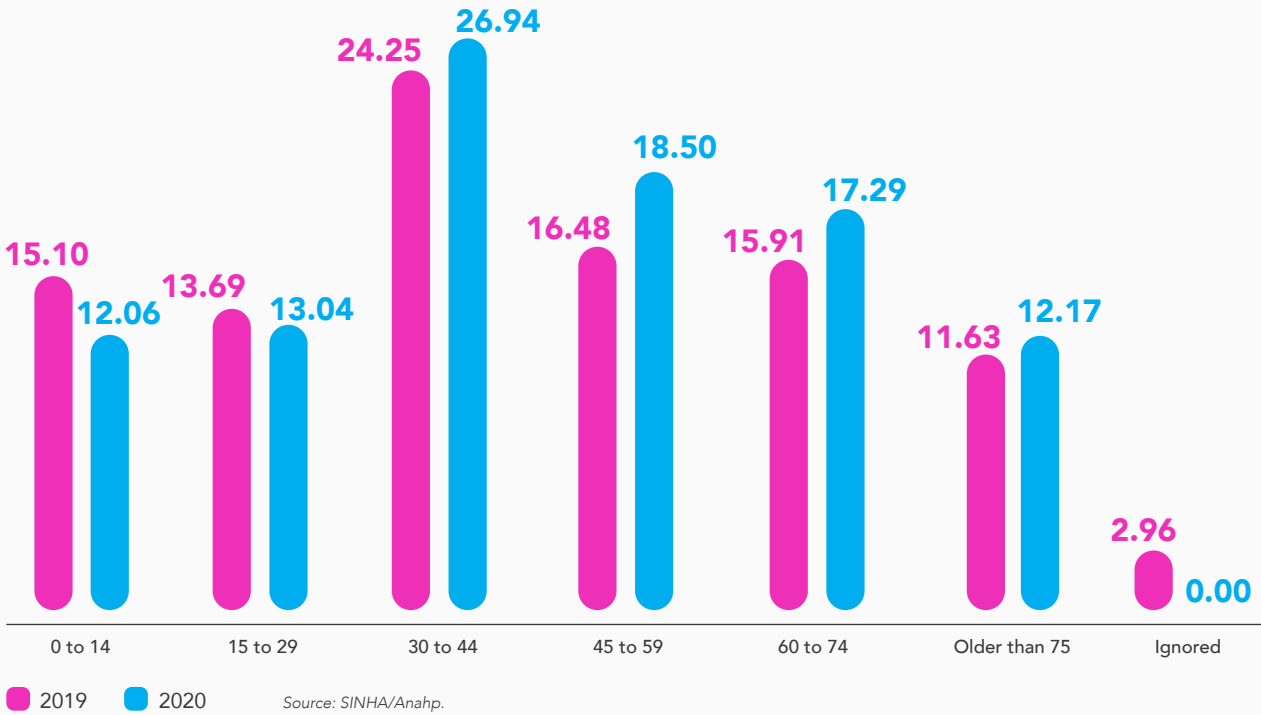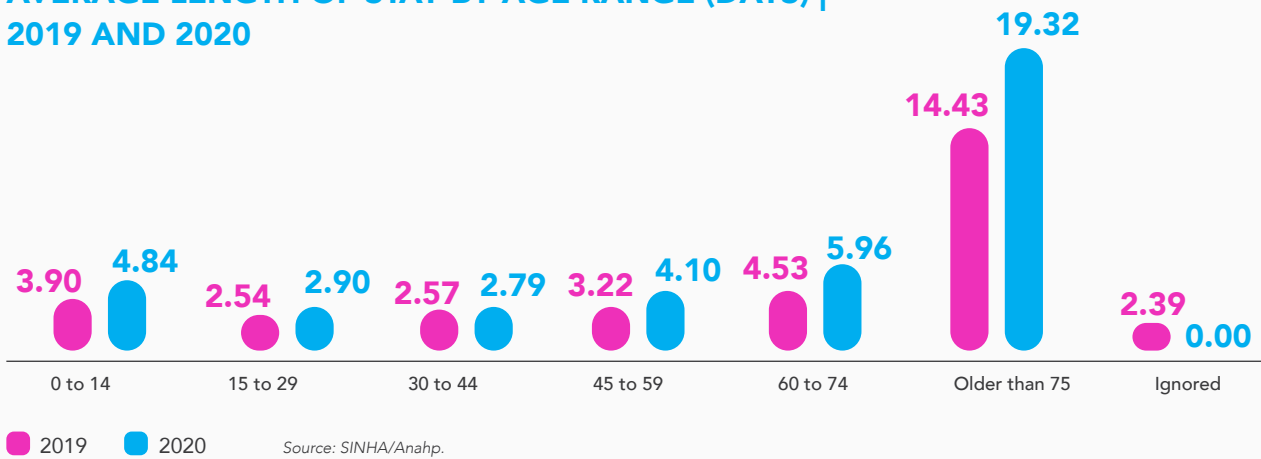
TENDENCY OF CHANGE OF CLINICAL PROFILE

Annual distribution
of hospital discharges
by main diagnosis grouped
by ICD10 chapter

ICD Chapter	2019	2020
Neoplasm	7.07	9.48
Genitourinary	9.88	9.46
Pregnancy	7.13	8.40
Digestive tract	9.31	8.37
Circulatory system	8.50	7.65
Respiratory system	10.45	6.32

Source: SINHA/Anahp.

Economic scenario and the healthcare market

Scenario of crisis persists in view of uncertainties about the control of the pandemic

Healthcare system increases the number of new hires
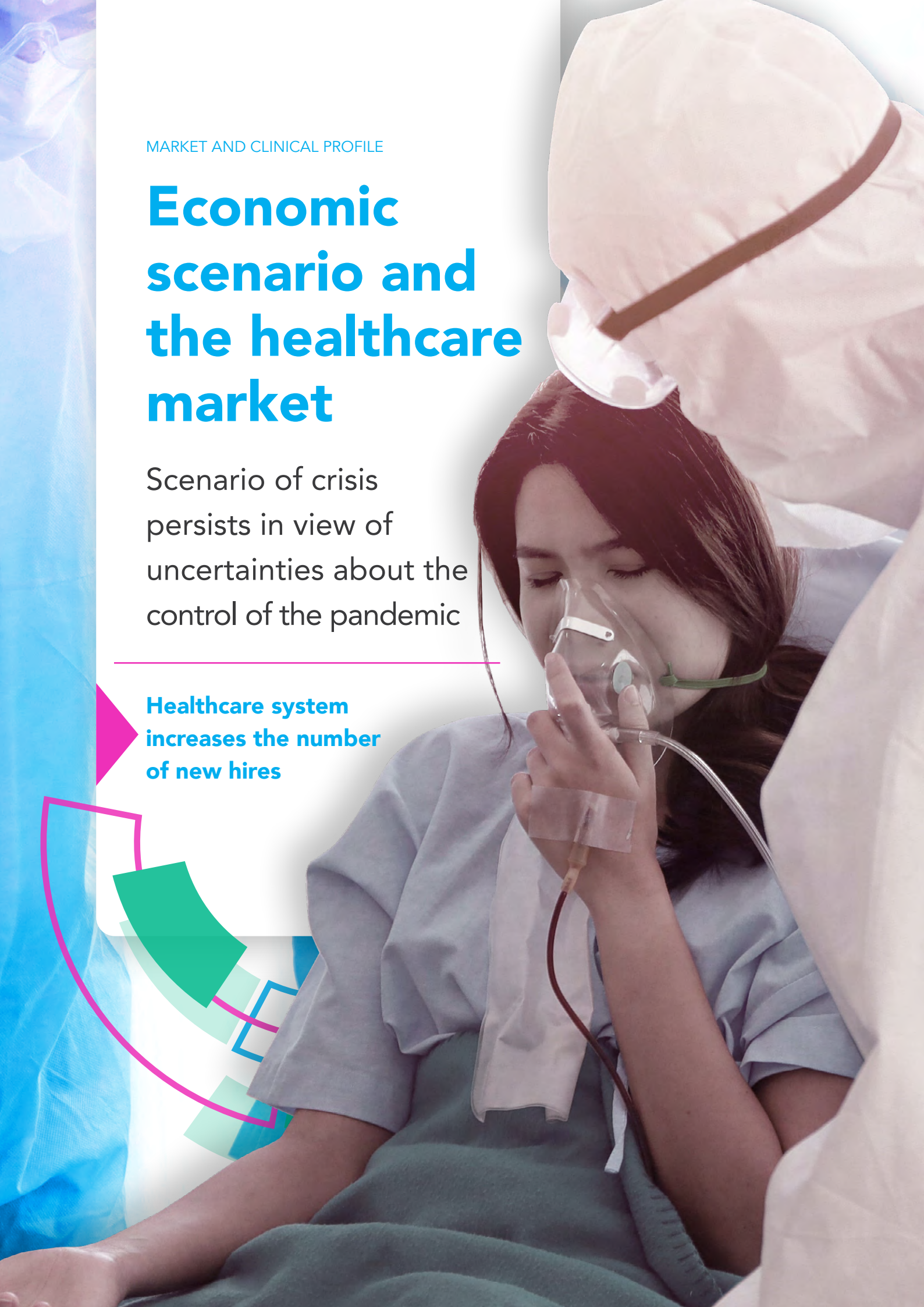
Economic situation

The indicators of the economic activity showed negative results in 2020 but expecting to have economic growth picking up again as of 2021. Despite these expectations, the quarter data showed decrease in economic activity in the fourth quarter of 2020. Moreover, the beginning of 2021 still brings uncertainties, especially due to the increase of Covid-19 transmission, the new virus variants, which are more transmissible, and slow immunization efforts. According to data from the National Quarter Accounts System (SCNT - *Sistema de Contas Nacionais Trimestrais*), by IBGE - Brazilian Institute of Geography and Statistics, in 2020 GDP experienced decrease of 4.06% compared to 2019 **(Graph 1)**. The result represented the sharpest decrease observed in Brazilian GDP in the past twenty years, higher than during the economic crisis of 2015-2016.

The beginning of 2021 still presents uncertainties related to increased transmission of Covid-19 and slow immunization

GRAPH 1 | Annual variation of GDP (%) | 2000-2023[1]
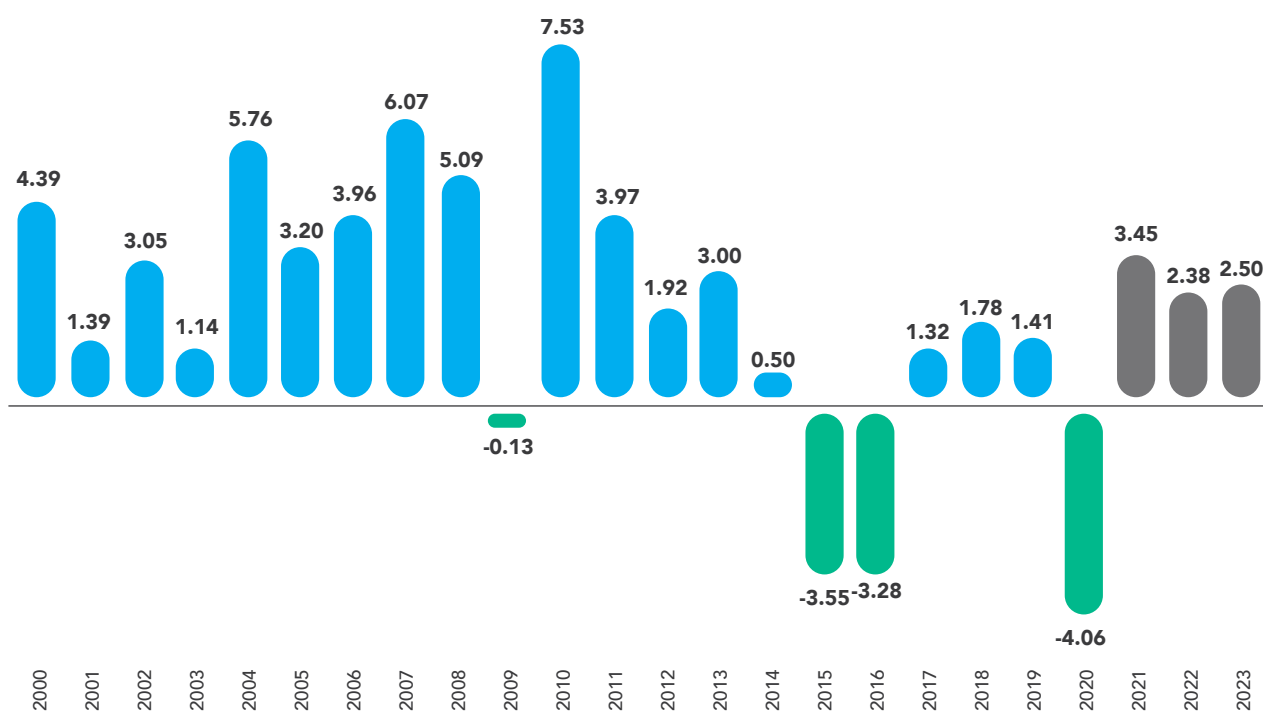
Source: SCNT – IBGE (accessed on 20/Mar/2021) and Focus – Bacen (accessed on 14/May/2021).

Despite the negative situation in 2020, market expectations by Bacen for 2021 estimate growth of 3.45% of GDP[2], maintaining the same pace in 2022 and 2023, including growth of 2.38% and 2.50%, respectively **(Graph 1)**. However, GDP expected growth for the year does not offset the losses from 2020 (-4.06%).

[1] Information referring to years 2021, 2022 and 2023 are obtained based on estimates of Report Mercado Focus (14/May/2021) by Bacen.
[2] Information referring to years 2021, 2022 and 2023 are obtained based on estimates of Report Mercado Focus (14/May/2021) by Bacen.

The estimates of the International Monetary Fund (IMF)[3] showed that the estimated drop of Brazilian GDP (-4.06%) in 2020 was sharper than that for emerging and developing countries (-2.20%), which include Brazil and countries such as China, Russia, Mexico, South Africa, among others **(Graph 2)**. It was also higher than the retraction in the world economy (-3.27%) and close to the retraction of developed countries (-4.71%).

For 2021 and 2022, IMF projections present expectations of growth for the global economy. In 2021, average growth of 6.03% is expected for the world economy, increasing even more in emerging and developing countries (6.67%). Brazilian growth expectations are below the levels of these groups, both for 2021 (3.65%) and 2022 (2.56%) **(Graph 2)**.

GRAPH 2 | GDP growth rate compared to previous year (%)
Brazil and group of countries | 2020-2022
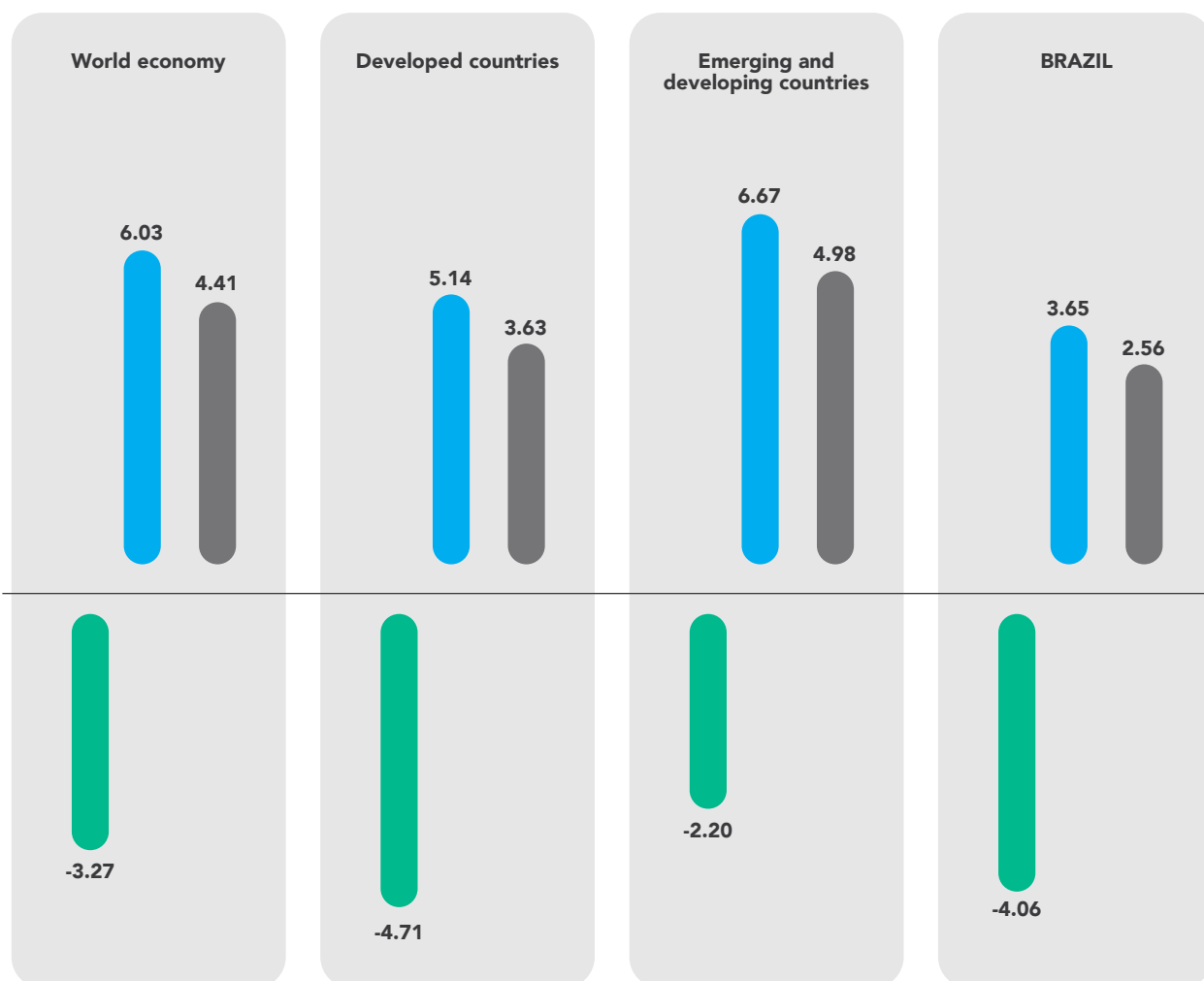
Source: World Economic Outlook (updated in 2021) and IMF (accessed on 16/Apr/2021).

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[3] International Monetary Fund (IMF). World Economic Outlook, updated in April/ 2021.
Available at: <https://www.imf.org/en/Publications/WEO/weo-database/2020/October>; accessed on April 16, 2021.

Considering the variation of components of GDP aggregated demand[4] in 2020 compared to the numbers from 2019 **(Graph 3)** they all presented negative variation, with the greatest impact on imports (-9.95%). Consumption levels of families presented the second highest drop (-5.45%), followed by governmental consumption (-4.68%), exports (-1.76%) and, finally, fixed capital gross accumulation (-0.78%).

GRAPH 3 | Variation of demand components over the previous year (%) | 2020

-0.78

-1.76

-5.45

-4.68

-9.95

🔵 Family consumption   🟢 Governmental consumption   🟣 Fixed capital gross accumulation   🟢 Exports   🔴 Imports
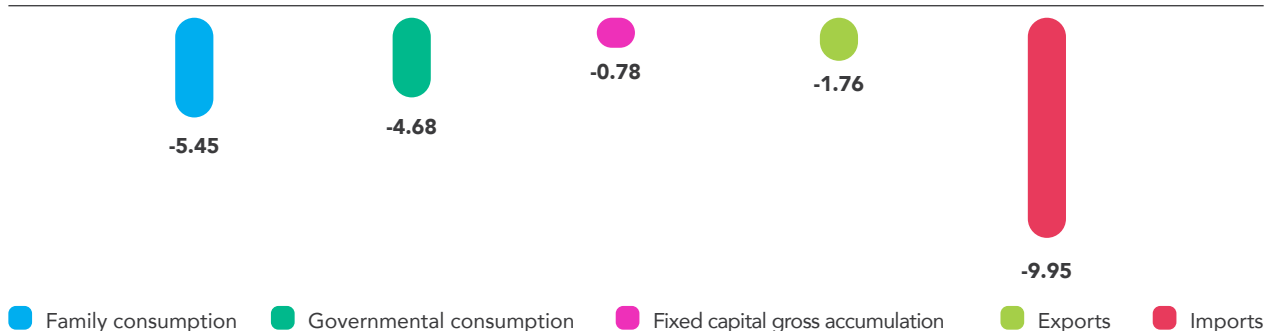
Source: SCNT – IBGE (accessed on 16/Apr/21).

The same behavior was observed in the GDP from the industrial sector and services, which have also presented negative variation compared to the performance in 2019. The greatest negative impact was observed for services (-4.46%) **(Table 1)**, and categories of administration, defense, health and public education and social pension (-4.68%) performed below the average of the sector, whereas category financial activity obtained 3.99% increase. Agribusiness was the only industry which grew (1.96%) compared to the performance of 2019.

TABLE 1 | Variation of GDP by sector (%) | Year-to-date rate (compared to the same period the previous year) | 2020

AGRIBUSINESS	**Total**	**1.96**
INDUSTRY	Extractive industries	1.31
	Power and gas, water, sewage, waste management	-0.37
	Transformation industry	-4.27
	Civil construction	-7.02
	Total	**-3.48**
SERVICES	Financial activities, insurance and related services	3.99
	Real estate activities	2.52
	Information and Communication	-0.21
	Retail	-3.06
	Administration, defense, health and public education and social security	-4.68
	Transportation, storage and mail services	-9.24
	Other service activities	-12.08
	Total	**-4.46**

Source: SCNT – IBGE (accessed on 16/Apr/21).

[4] From a demand's perspective, GDP is the sum of family consumption, governmental consumption, private investments (gross fixed capital accumulation) and net exports (import over export balance).

IPCA - National Consumer Price Index - the official inflation indicator in the country - reached 4.52% increase in 2020 **(Graph 4)**. The result was 0.52% above the key target for 2020, but still within the upper limit (5.50%). According to the estimates of Brazilian Central Bank (Bacen)[5], in 2021 IPCA is expected to increase by 5.15%, with gradual decrease in 2022 and 2023, reaching about 3.64% and 3.25%, respectively.

GRAPH 4 | Annual variation of IPCA (%) | 2000-2023

General IPCA — Goal — Upper Limit — Lower Limit
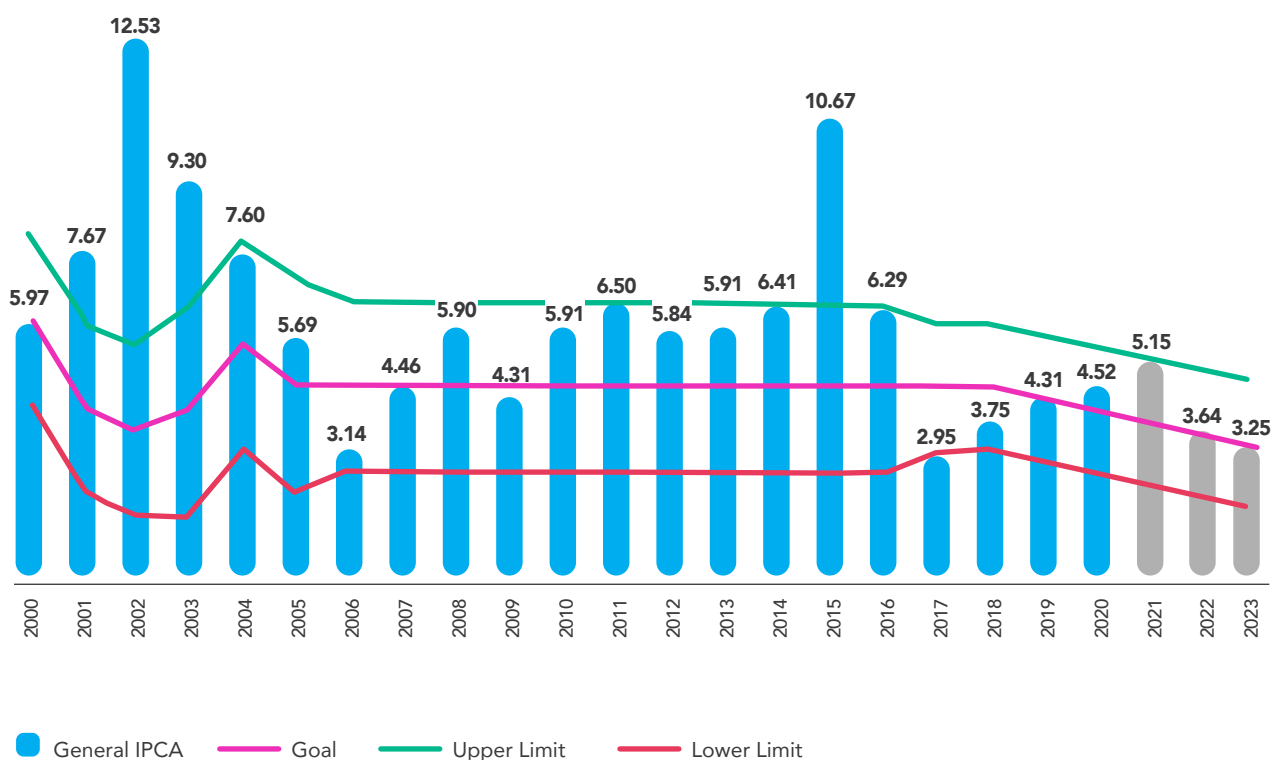
Source: SCNT – IBGE (accessed on 9/Mar/2021) and Focus – Bacen (accessed on 14/May/2021).

In view of the economic crisis, there was reduction of the basic interest rate (Selic) going from 4.50% in the end of 2019 to 2% in the end of 2020 **(Graph 5)**. The effort to reduce the interest rate started right in the first month of 2020, and the Monetary Policy Committee (Copom) defined the interest rate at 4.25%. As of August, Selic maintained its current level of 2% until the end of the year. According to market expectations of the Brazilian Central Bank[6], Selic should increase to 5.50% at the end of 2021 and then to 6.25% and 6.50% in 2022 and 2023, respectively.

[5] Information referring to years 2021, 2022 and 2023 are obtained based on estimates of Report Mercado Focus (14/May/2021) by Bacen.
[6] Information referring to years 2021, 2022 and 2023 are obtained based on estimates of Report Mercado Focus (14/May/2021) by Bacen.

GRAPH 5 | Interest rate[7] – Selic Goal (% per year) I 2000-2023
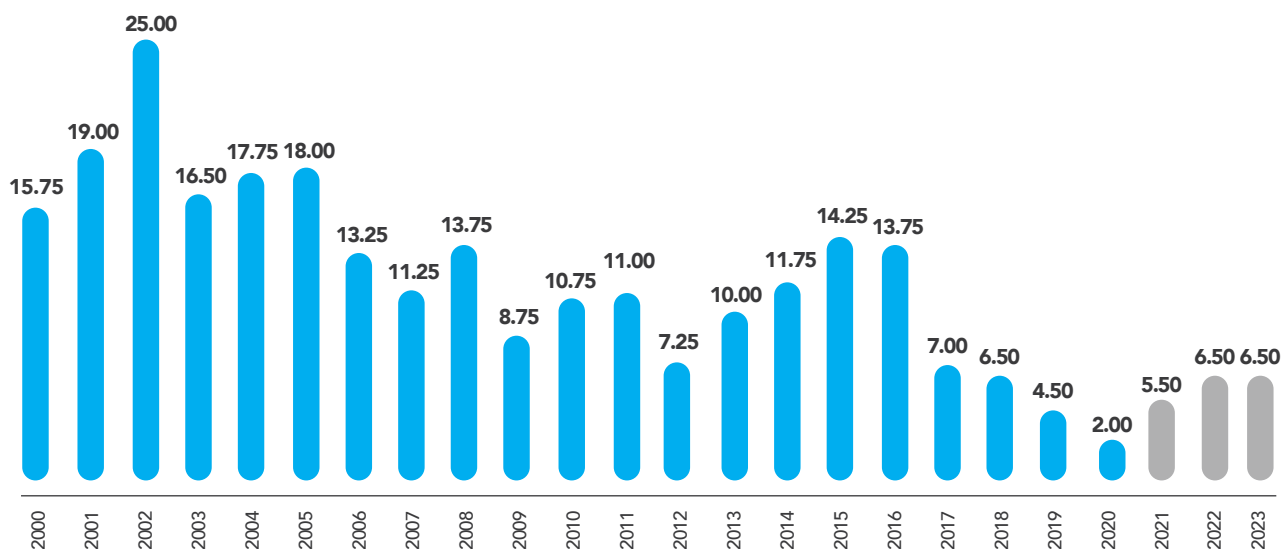
Source: Bacen (accessed on 29/Mar/2021) and Focus – Bacen (accessed on 14/May/2021).

In 2020, according to National Survey of Home Samples (PNAD - *Pesquisa Nacional de Amostra de Domicilios*), by IBGE, the unemployment rate interrupted its gradual annual decrease[8] **(Graph 6)**, which had been observed for the past 3 years. The result of unemployment rate[9] (13.50%) in 2020 also represents the highest level since the beginning of the historical series, in 2012.

GRAPH 6 | Annual average of quarterly unemployment rate (%) - 2012-2020
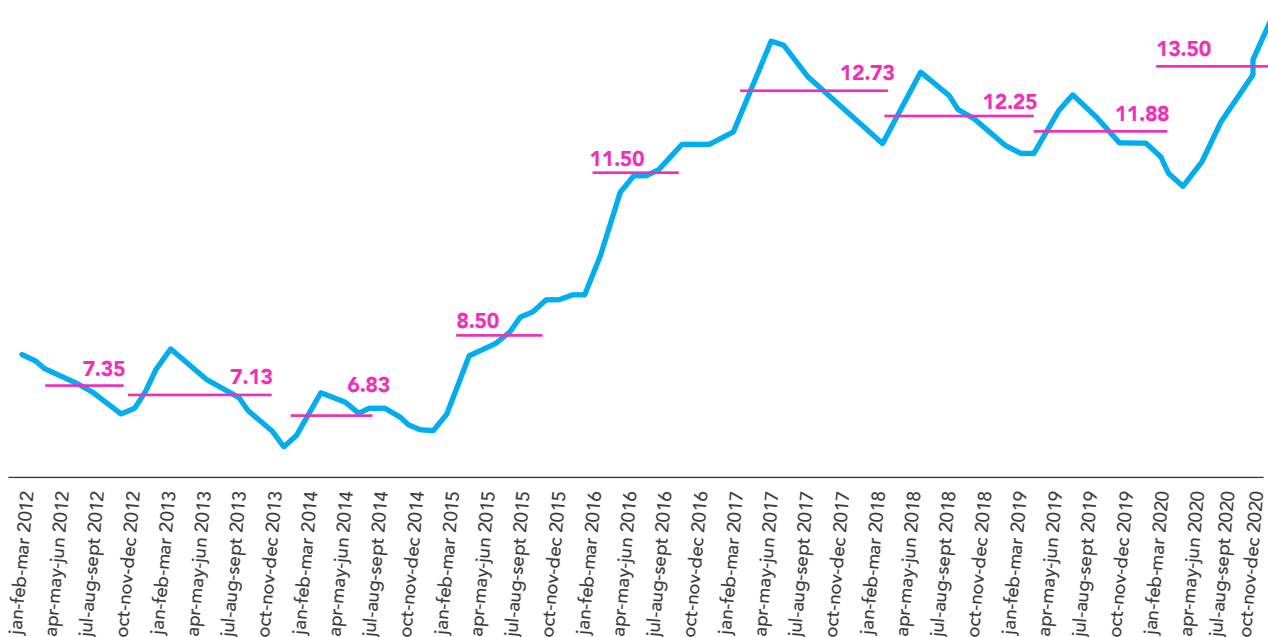
Source: Continuous PNAD - IBGE (accessed on 20/Mar/2021).

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[7] 2020 interest rate defined in the last meeting of the year by Copom.
[8] Annual average calculated based on the alternate quarters published by Continuous PNAD - IBGE.
[9] Continuous PNAD consider unemployment rate in formal and informal job market.

Data from Employed and Unemployed General Registration (Caged and Novo Caged)[10], by Ministry of Labor, have also showed positive balance **(Graph 7)**, including over 142,000 new job positions in 2020, considering the adjusted series that incorporates information reported outside the deadline. Even though it does not represent the worst performance since 2012, the balance between hiring and firing in 2020 has shown the interruption of the increasing trend observed in 2018 and 2019.

GRAPH 7 | Balance between formal job firing and hiring (in thousands) 2012-2020

2012	2013	2014	2015	2016	2017	2018	2019	2020
1,372.59	1,138.56	420.69	-1,534.99	-1,326.56	-11.96	546.45	644.08	142.69
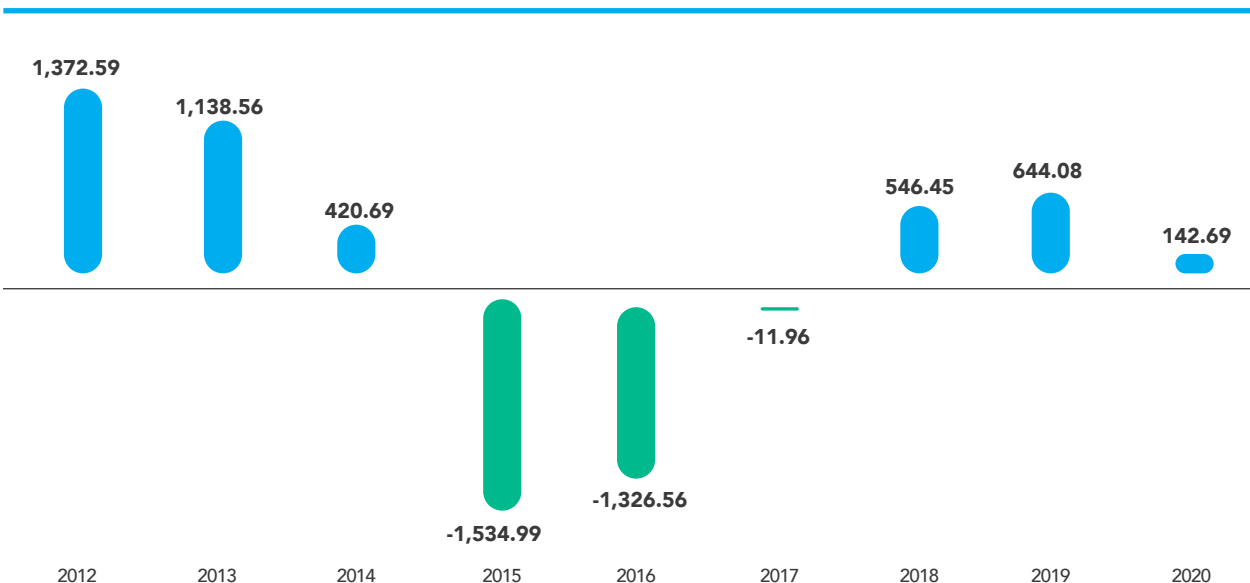
Source: Caged and Novo Caged – Ministry of Labor (accessed on 20/Mar/2021).

[10] Both consider hiring and firing in formal job market. Caged presents information up to 2019; as of 2020, information is provided by Novo Caged.

Public debt is a concerning indicator for the Brazilian economy. Results for the public sector net debt in 2020 showed increase of 9.59 p.p. when comparing January and December **(Graph 8)**. Brazilian Central Bank[11] estimates that this result may reach 63.75% of GDP in 2021, showing increasing trend for 2022 (66%) and 2023 (69%).

GRAPH 8 | Public sector net debt (GDP %) 2020

jan/20	feb/20	mar/20	apr/20	may/20	jun/20	jul/20	aug/20	sept/20	oct/20	nov/20	dec/20
53.11	52.56	50.73	51.80	54.08	56.74	58.82	59.43	60.16	60.05	61.58	62.70
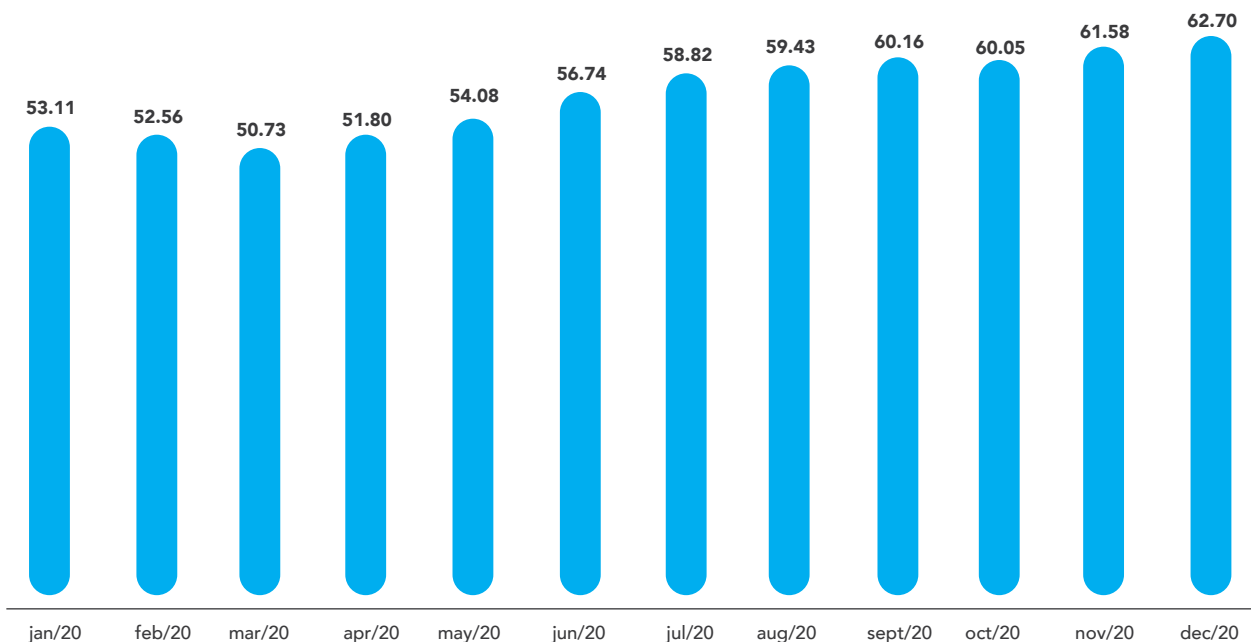
Source: Bacen (accessed on 18/Apr/2021).

Covid-19 pandemic has negatively impacted the Brazilian and global economy. The need to adopt new political actions to fight the disease transmission impacted the economic activity, going from restrictions of access imposed in the beginning of the year, intended to reduce circulation of people, to financial aid provided to low-income families and to companies (emergency loans) as a strategy to support the reduction of income resulting from loss of jobs and lower gains. The increase in immunization rates may also cause an impact on economy expectations. However, in the beginning of 2021, Brazil still faced challenges in vaccination and had to resort to drastic social distancing measures to avoid overcrowding the healthcare system with severe cases.

[11] Information referring to years 2021, 2022 and 2023 are obtained based on estimates of Report Mercado Focus (14/May/2021) by Bacen.

Health sector

Estimates compiled by Anahp based on data from OECD (Organization for Economic Cooperation and Development), National Brazilian Treasury, and Private Healthcare Agency (ANS) indicate that the expense with health have mobilized 9.30% of Brazilian GDP in 2020, that is, R$692.88 billion (in current values). Out of the total, R$304.41 billion were public resources (43.93% of the total) and R$388.47 billion were private resources (56.07% out of the total) **(Graph 9)**.

GRAPH 9 | Health expense in Brazil (R$ 692.88 billion - 9.30% GDP) | 2020

OUT-OF-POCKET *EXPENSE*
24.75%
R$ 171.50 billion

PRIVATE EXPENSE
56.07%
R$ 388.47 billion

PRIVATE HEALTH
31.31%
R$ 216.97 billion

FEDERAL GOVERNMENT
18.85%
R$ 130.62 billion

STATE GOVERNMENT
14.46%
R$ 100.16 billion

CITY GOVERNMENT
10.63%
R$ 73.63 billion

PUBLIC EXPENSE
43.93%
R$ 304.41 billion
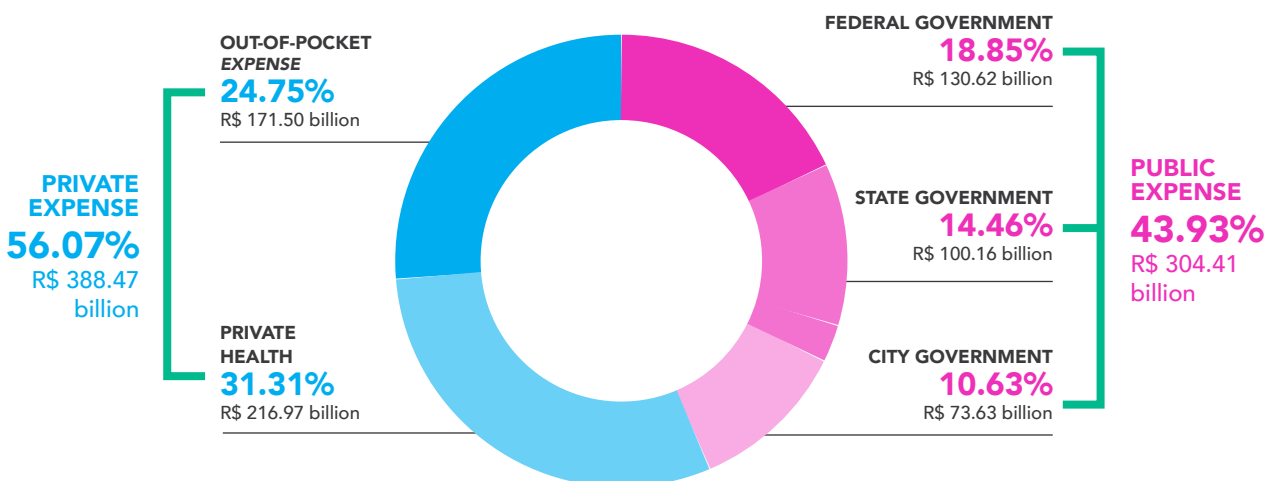
Source: Anahp estimate based on data from OECD, STN and ANS (accessed on 20/Mar/2021), updated by IPCA for 2020.

In the public sector in 2020 the estimated amount spent by the federal government was R$130.62 billion, state governments spent R$100.16 billion and municipal governments spent R$73.63 billion. In the private sector, it is estimated that R$216.97 billion had been spent by families and companies to pay for medical-hospital coverage in 2020 (private health care) and out-of-pocket expense amounted to R$171.50 billion **(Graph 9)**.

The increase in health expense is also influenced by the population aging process. According to IBGE population forecast, over 8% of the Brazilian population is formed by elderly people, over the age of 65, and will remain so for some years. In 2020, this age range amounted to 10.13% of the population, and forecasts estimate a share of 13.44% in 2030, 17.58% in 2040 and 26.77% in 2060 **(Graph 10)**.

Health expense represented 9.30% of GDP in 2020

GRAPH 10 │ People over 65 years in Brazil (% of population) 2010-2060
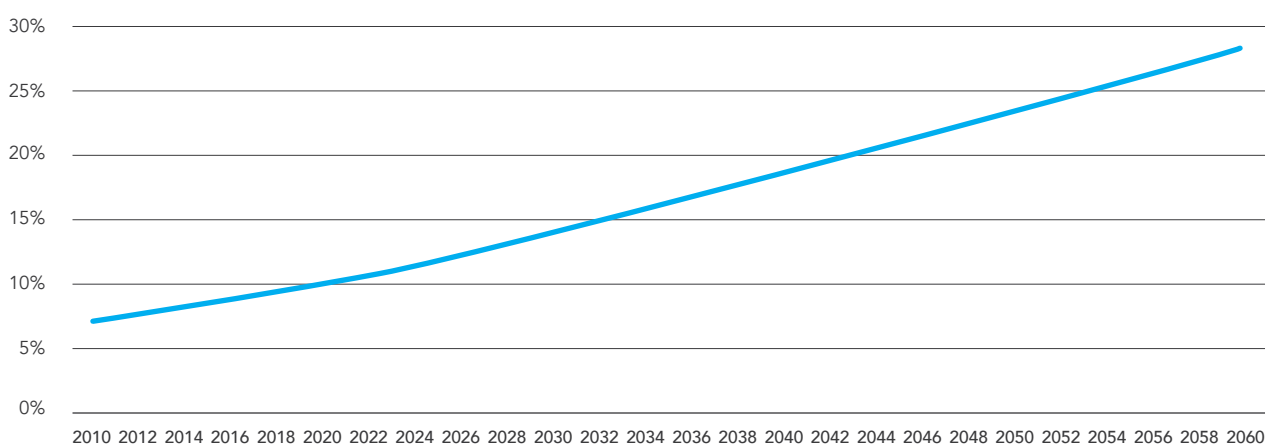
Source: IBGE (accessed on 7/Apr/21).

Moreover, Covid-19 pandemic has brought new pressure on the Brazilian healthcare system, requiring higher expenditures related to admissions, medication and investments in the development of vaccines, plus the postponement of elective procedures, visits and tests of chronic patients, which will be resumed in 2021.

In 2020, the number of confirmed cases of Covid-19 reached almost 7.68 million people and the number of deaths reached about 195,000 people **(Table 2)**. The months with the highest incidence of new cases in the year were July (16.42%) and August (16.23%). June and July had the highest number of deaths, exceeding 30,000 people. After the decrease in cases observed in September and October, in December the number of new cases and deaths started to increase again in Brazil.

TABLE 2 │ Number of Covid-19 new cases and deaths in Brazil | 2020

MONTH	New cases	% in relation to total new cases	New deaths	% over the total new deaths
February	2	0.00%	-	-
March	5,715	0.07%	201	0.10%
April	81,470	1.06%	5,805	2.98%
May	427,662	5.57%	23,308	11.96%
June	887,192	11.56%	30,280	15.53%
July	1,260,444	16.42%	32,881	16.87%
August	1,245,787	16.23%	28,906	14.83%
September	902,663	11.76%	22,571	11.58%
October	724,670	9.44%	15,932	8.17%
November	800,273	10.43%	13,236	6.79%
December	1,340,095	17.46%	21,829	11.20%
Total	7,675,973		194,949	

Source: Our World in Data (accessed on 27/Mar/2021).

Comparing to other countries, Brazil ranked 3rd in number of new cases of Covid-19 **(Graph 11)** in 2020, which amounts to about 9.28% of the total new cases in the world.

GRAPH 11 | Ranking of countries above 1,000,000 new cases | 2020

Country	New cases
United States	20,098,799
India	10,266,674
Brazil	7,675,973
Russia	3,127,347
France	2,677,666
United Kingdom	2,496,235
Italy	2,107,166
Spain	1,928,265
Germany	1,760,520
Colombia	1,642,775
Argentina	1,625,514
Mexico	1,426,094
Turkey	1,385,427
Poland	1,294,878
Iran	1,225,142
Ukraine	1,086,997
South Africa	1,057,161
Peru	1,015,137
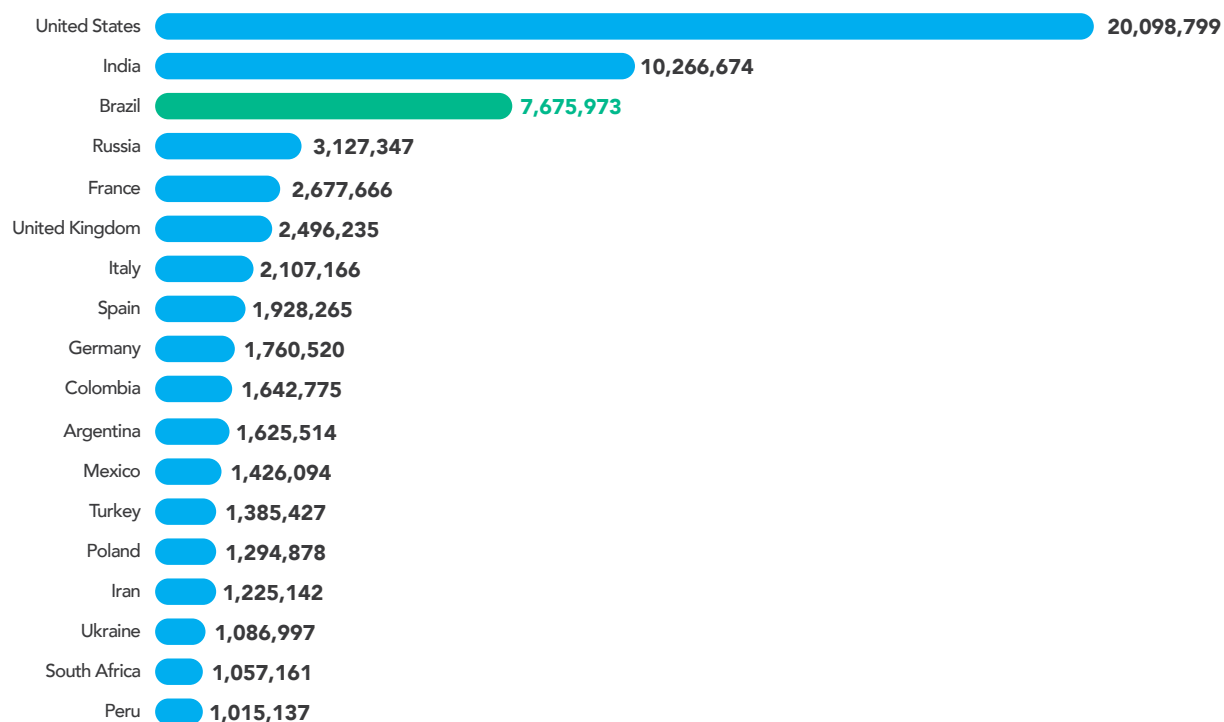
Fonte: Our World in Data (consulta em 27/03/2021).

In 2020, Brazil accounted for 9.28% of all new cases of Covid-19 registered in all countries

As to number of deaths, Brazil ranked second **(Graph 12)**, representing 10.68% of deaths occurring in all countries. The United States took first position in both ranks, reaching 20 million new cases and over 351,000 deaths.

GRAPH 12 | Ranking of countries above 20,000 new deaths | 2020

Country	Deaths
United States	351,866
Brazil	194,949
India	148,738
Mexico	125,807
Italy	74,159
United Kingdom	73,622
France	64,759
Russia	56,271
Iran	55,223
Spain	50,837
Argentina	43,245
Colombia	43,213
Peru	37,680
Germany	33,791
Poland	28,554
South Africa	28,469
Indonesia	22,138
Turkey	20,881
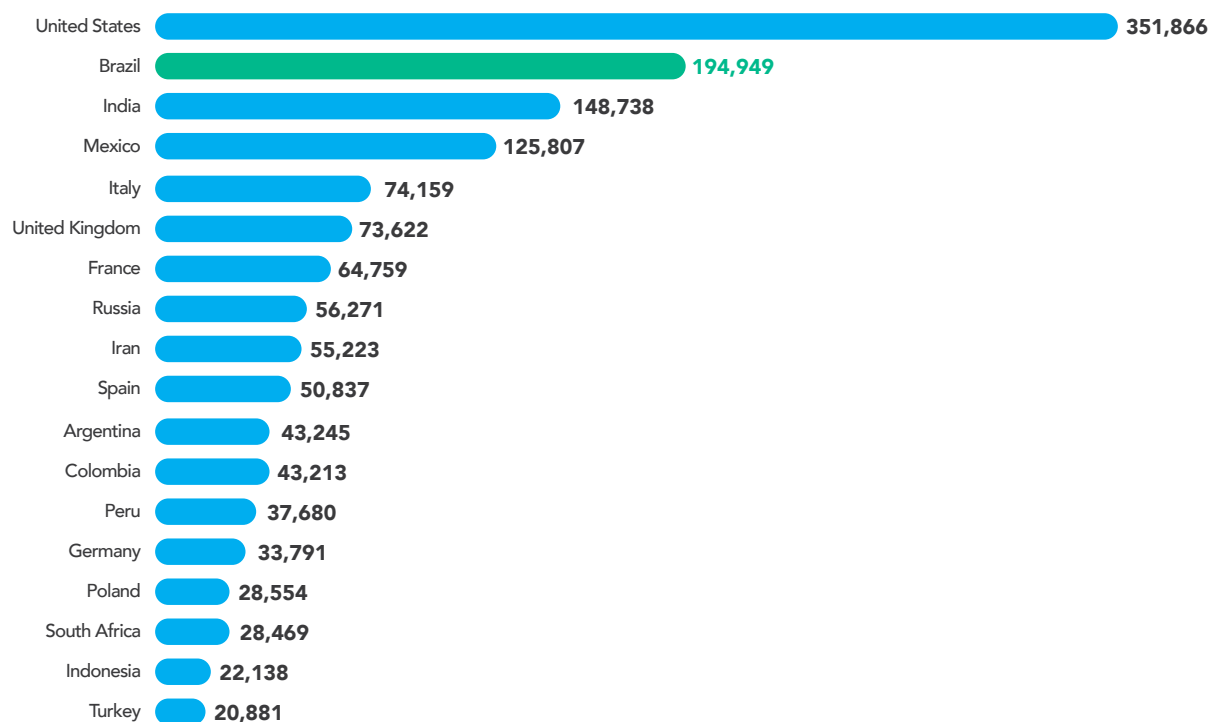
Source: Our World in Data (accessed on 27/Mar/2021).

Considering the total number of cases and deaths caused by Covid-19, since the beginning of the pandemic in 2020 until the current moment (11/May/2021), the United States, India and Brazil have maintained the world leadership. The United States counts over 33 million cases, followed by India with over 23 million cases, and Brazil, in third, accounting for over 15 million total cases. Concerning the total number of deaths, the United States leads the ranking with over 596,000 deaths, followed by Brazil, which has had 425,000 deaths and India, in third, accounting for over 254,000 deaths **(Table 3)**.

TABLE 3 | Country ranking concerning total number of Covid-19 cases and deaths up to 11/May/2021

Countries	Total cases	Countries	Total deaths
United States	33,550,115	United States	596,946
India	23,340,426	Brazil	425,711
Brazil	15,285,048	India	254,225
France	5,800,170	Mexico	219,089
Turkey	5,059,433	United Kingdom	127,629
Russia	4,896,842	Italy	123,282
United Kingdom	4,439,691	Russia	113,976
Italy	4,123,226	France	106,935
Spain	3,586,333	Germany	85,757
Germany	3,544,315	Spain	79,100
Argentina	3,191,097	Colombia	78,771
Colombia	3,031,726	Iran	75,568
Poland	2,838,084	Poland	70,336
Iran	2,691,352	Argentina	68,311
World	160,325,869	World	3,330,919

Source: Worldometer (accessed on 12/May/2021).

Concerning the inflation in the sector, among IPCA groups, price levels for healthcare and personal care reached year-to-date increase of 1.50% **(Graph 13)** and ranks among the group with the smaller variation in prices, below the general index observed for 2020 (4.52%).

GRAPH 13 | IPCA year-to-date variation (%) Groups 2020
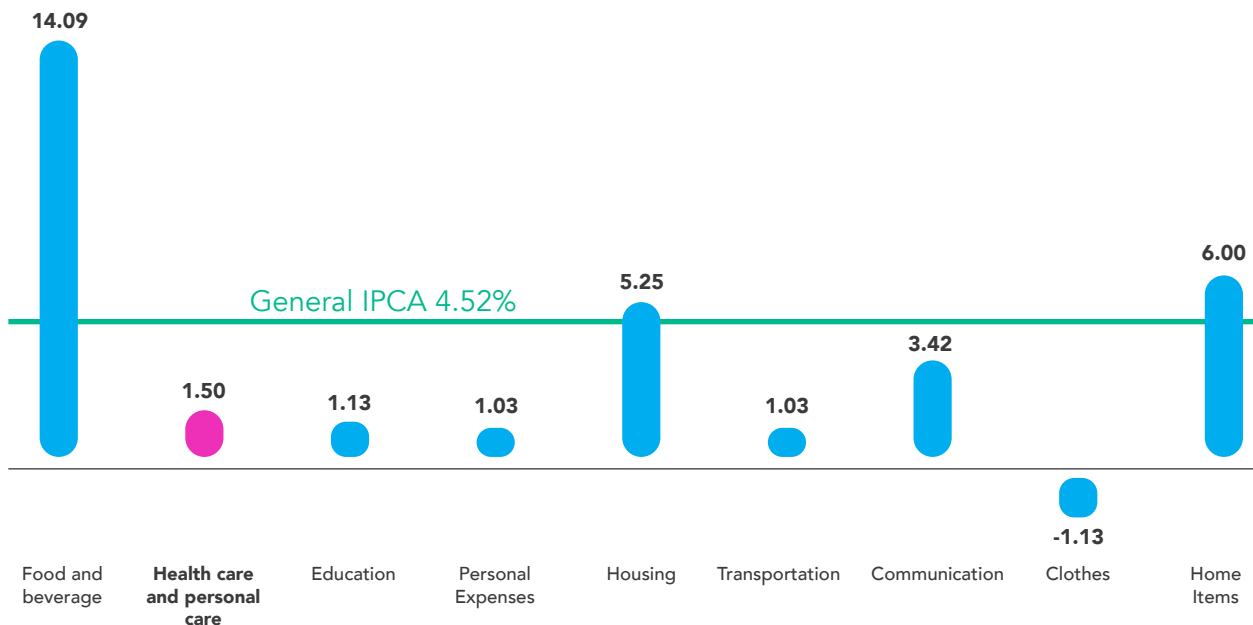
Source: IPCA - IBGE (accessed on 9/Mar/21).

This result displayed the lowest index since 2012, when the series started. By observing the subgroups that comprise the index, healthcare and personal care prices, except for medical and dental services, all reached variation below the results from 2019 **(Table 4)**, pharmaceutical products and auditory products showed 2.27% and 3.11% reduction in price levels, respectively, in 2020. The main increase in the year was observed for medical and dental services (3.75%), followed by personal care (3.52%) and healthcare plans (2.44%).

TABLE 4 | 12-month variation
IPCA - health care and personal care group | 2012-2020

Year	IPCA - Health care and personal care	Pharmaceutical products	Auditory products	Medical and dental products	Laboratory and hospital services	Healthcare plan	Personal hygiene
2012	5.95	4.11	4.24	10.03	6.57	7.79	4.71
2013	6.95	4.70	4.38	10.65	6.77	8.73	6.58
2014	6.97	4.93	3.91	8.88	6.44	9.44	6.25
2015	9.23	6.89	6.35	9.04	8.43	12.15	9.13
2016	11.04	12.50	2.78	7.21	6.96	13.55	9.49
2017	6.52	4.44	-1.05	5.34	3.80	13.53	1.77
2018	3.95	1.63	0.82	3.97	4.00	11.17	-3.22
2019	5.41	2.83	-1.28	3.18	6.45	8.24	5.66
2020	1.50	-2.27	-3.11	3.75	1.81	2.44	3.52

Source: IPCA - IBGE (accessed on 23/Mar/21,

As in 2019, healthcare market has maintained its growth pattern in increasing job offers in 2020. A total of 111,000 new jobs were created in healthcare, and more than half (78,000) are jobs in hospital settings. In 2020 there was a record in the balance between hiring and firing in healthcare and hospital care, exceeding the number observed in 2012, when the series started **(Graph 14)**.

Thanks to the generation of 78,000 new jobs, and considering the data from RAIS (Annual Social Information), the estimate is that the hospital industry has maintained about 1.33 million formal jobs in 2020[12].

In 2020 there were 111,000 new formal jobs in the health sector

GRAPH 14 | Hiring - firing balance - formal jobs in healthcare and hospital care (in thousands) 2012-2020

Year	Healthcare	Hospital care activities
2012	107	58
2013	93	49
2014	107	56
2015	52	21
2016	36	18
2017	53	20
2018	97	37
2019	93	48
2020	111	78

● Healthcare   ● Hospital care activities
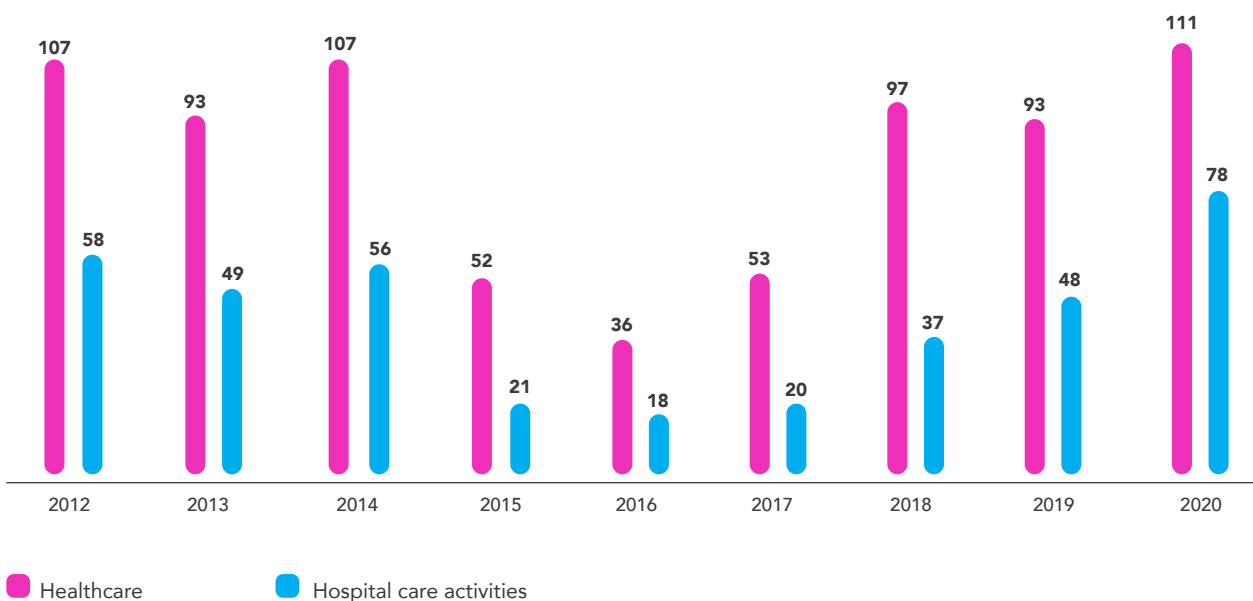
Source: Caged and Novo Caged – Ministry of Labor (accessed on 19/Mar/2021).

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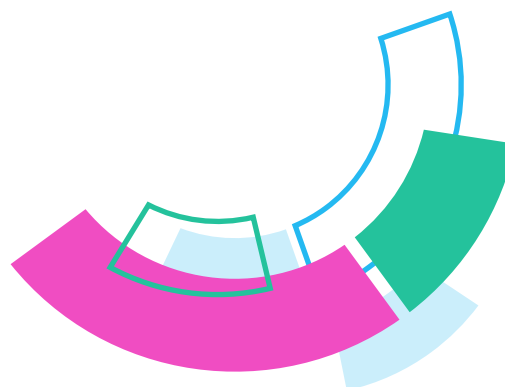
12 Anahp estimates for 2020 (official data not published yet) based on active jobs reported by RAIS fir the group "Hospital care activities" and the transactions registered by Novo Caged,

The pandemic in 2020 has also had influence in the employment market of healthcare as there has been an increased demand for hospital services. Thus, this situation has led to increase in clinical care networks, increasing the number of hospitals over 2019 (from 6,041 to 6,300), higher than what had been observed in the past five years. This increase was observed in corporate entities (from 1,860 to 1,868) and the public sector (from 2,392 to 2,644), and the reduction of only one hospital among not-for-profit entities **(Graph 15)**.

GRAPH 15 | Number of hospitals by legal entity
General and specialized hospital | 2012-2020

	dec/12	dec/13	dec/14	dec/15	dec/16	dec/17	dec/18	dec/19	dec/20
Total	6,296	6,297	6,340	6,152	6,097	6,161	6,038	6,041	6,300
Not-for-profit entity	1,930	1,929	1,909	1,849	1,826	1,814	1,800	1,789	1,788
Corporate entity	2,216	2,155	2,129	1,990	1,935	1,976	1,864	1,860	1,868
Public entity	2,150	2,213	2,302	2,313	2,336	2,371	2,374	2,392	2,644

● Public entity   ● Corporate entity   ● Not-for-profit entity
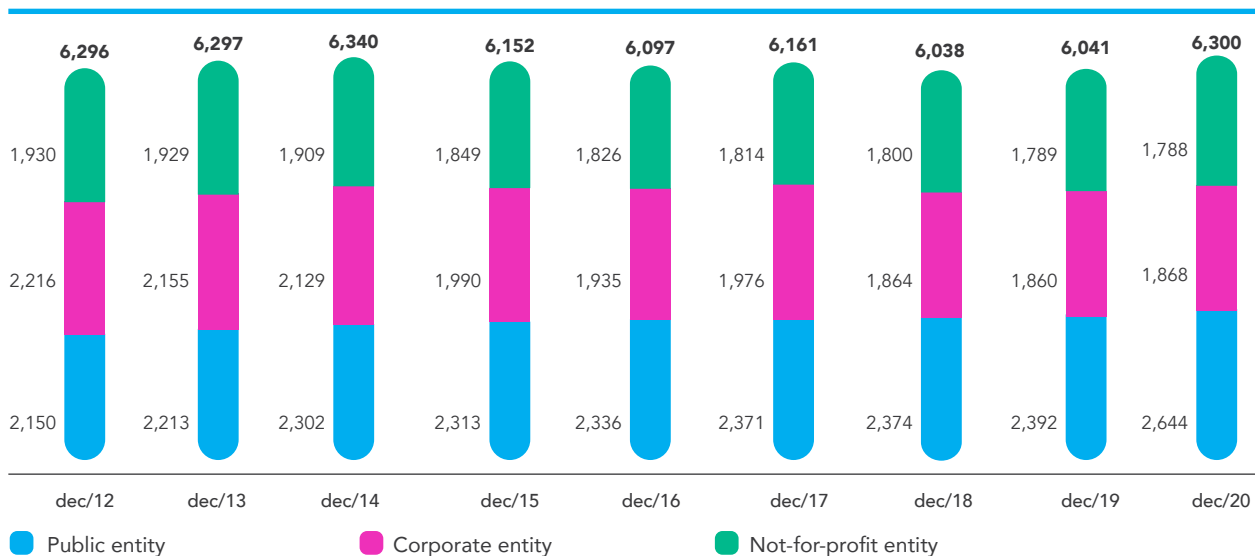
Source: CNES - Ministry of Health (accessed on 09/Feb/2021).

The number of hospital beds that had been decreasing in the past three years in absolute numbers showed 9.78% increase in 2020, over the previous year, totaling 506,880 beds for inpatient and ICU care **(Graph 16)**. Both types of beds showed increase compared to 2019, but ICU beds (86,588) has reached records in absolute numbers since the beginning of the series in 2012, increasing 46.77% in 2020 over 2019.

GRAPH 16 | Number of Inpatient and ICU beds – General and specialized hospitals - 2012-2020

	dec/12	dec/13	dec/14	dec/15	dec/16	dec/17	dec/18	dec/19	dec/20
Total	474,308	476,042	480,446	467,650	464,569	464,862	461,201	461,708	506,880
ICU beds	46,601	51,073	53,745	53,356	54,264	55,577	57,195	58,994	86,588
Inpatient beds	427,707	424,969	426,701	414,294	410,305	409,285	404,006	402,714	420,292

● Inpatient beds   ● ICU beds
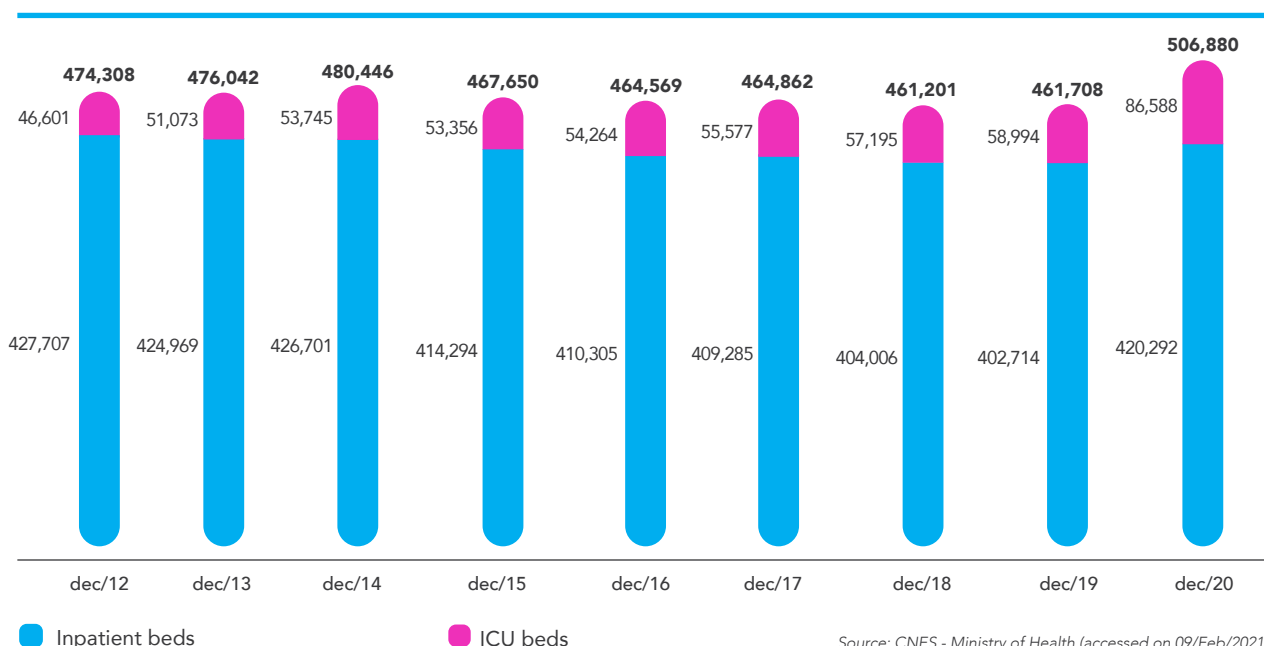
Source: CNES - Ministry of Health (accessed on 09/Feb/2021).

The number of private health care plans (with or without dental coverage) beneficiaries, which dropped in 2019, resumed its growth in 2020, reaching 47.62 million beneficiaries, in absolute numbers, which represents 1.24% increase compared to the previous year **(Graph 17)**. Even though the variation is positive, the result is inferior to what was observed in 2009 and 2014, periods in which the increase in number of beneficiaries was positive and above 2% **(Graph 18)**.

GRAPH 17 | Private healthcare plan beneficiaries by coverage (in million) | 2008-2020

Legend:
- Beneficiaries in private health care plans with or without dental coverage
- Beneficiaries in private dental plan only
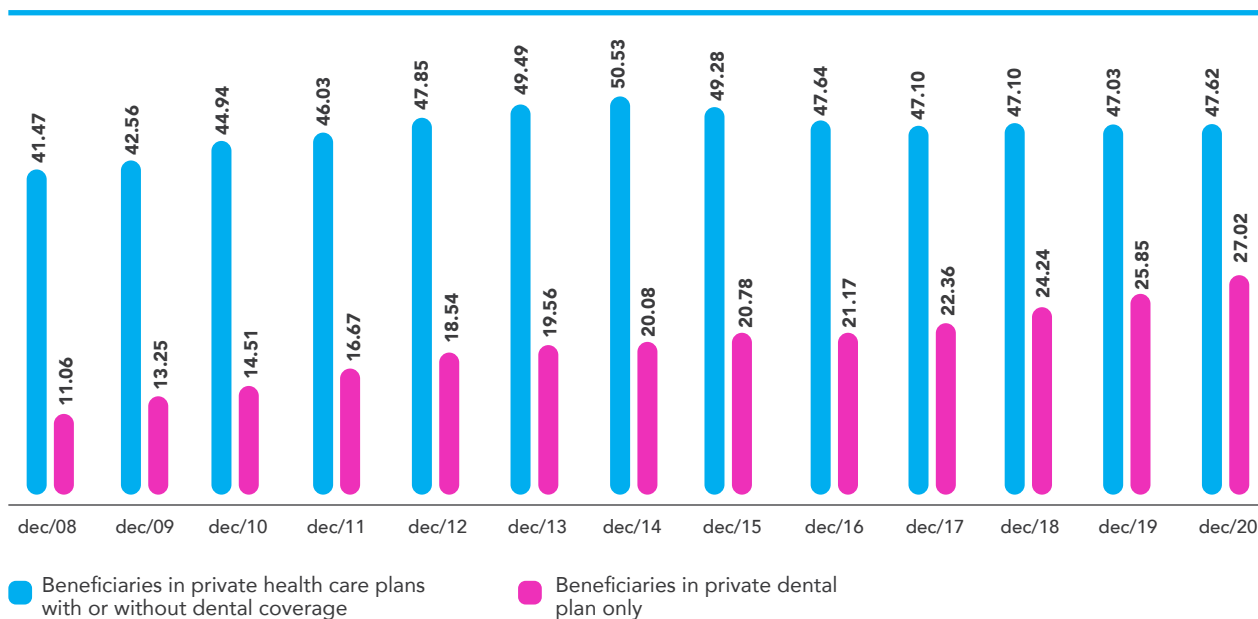
Source: ANS (accessed on 20/Mar/2021).

GRAPH 18 | Rate of growth in number of beneficiaries of private healthcare plans by coverage compared to previous year (%) | 2009-2020

Legend:
- Beneficiaries in private health care plans with or without dental coverage
- Beneficiaries in private dental plan only
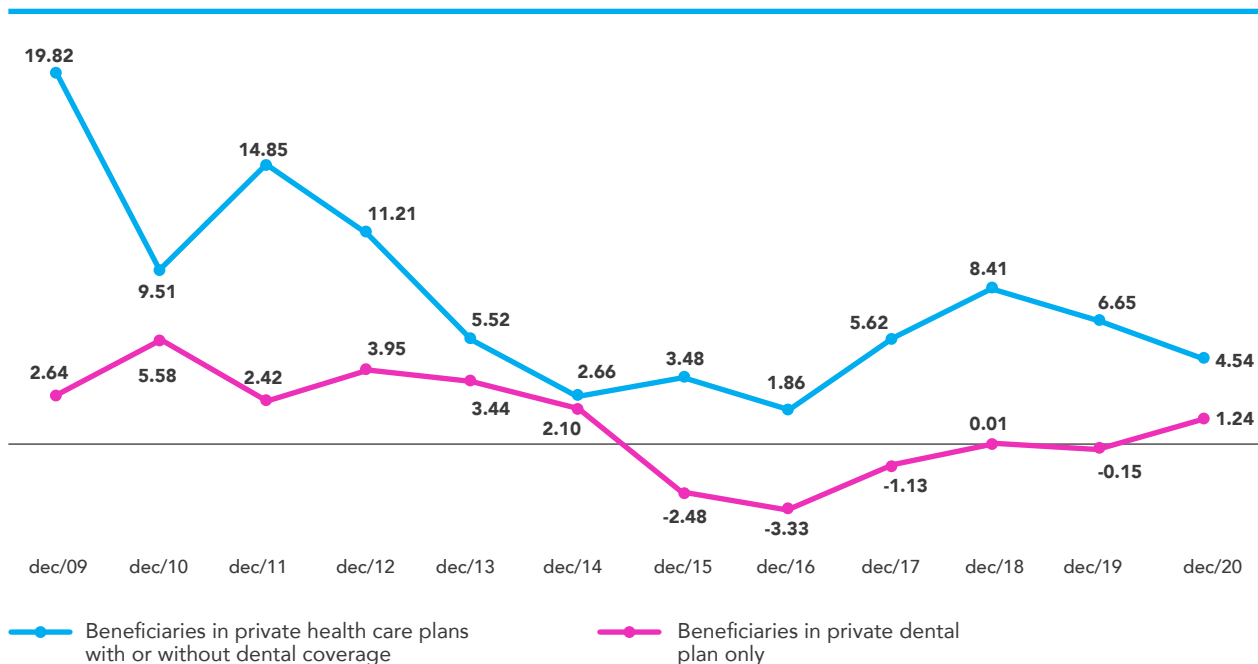
Source: ANS (accessed on 20/Mar/2021).

When analyzing type of contract, corporate plans presented the highest share in 2020 – 67.61%, increase of 1.62% between December 2016 and December 2020 in terms of number of beneficiaries **(Graph 19)**. Affinity plans, in turn, presented reduction of share from 13.31% to 13.25% in the same period. Thus, the total percentage of beneficiaries who had affinity plans in the end of 2020 reached 80.86%. Individual plans had the greatest reduction in number of beneficiaries, comparing 2016 to 2020, going from 19.81% to 18.99%, which corresponds to 4.18% reduction.

Individual plans have experienced the greatest reduction in relation to number of beneficiaries comparing 2016 to 2020

GRAPH 19 | Distribution of beneficiaries according to contract type (%) 2016 and 2020

DEC/16

0.38
19.81
13.31
66.50

DEC/20

0.15
18.99
13.25
67.61

● Business   ● Affinity   ● Individual or family   ● Not informed/ collective not identified
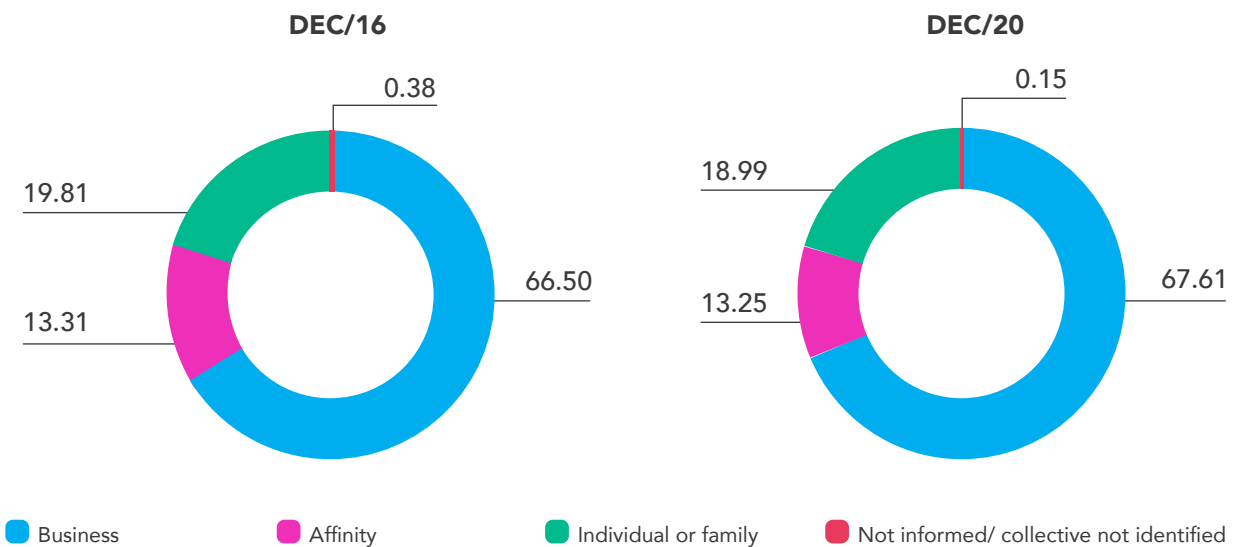
Source: ANS (accessed on 20/Mar/2021). Excludes exclusive dental care companies.

In 2020, when compared to 2019, the main increase was observed for affinity plans (1.96%), followed by corporate plans (1.44%) and individual or family plans (0.26%) **(Table 5)**. These results represent the greatest positive variation in number of beneficiaries since 2016, according to these three types of contracts.

TABLE 5 | Variation of number of beneficiaries of medical care by contract type (%) | 2016-2020

Period	Individual or family	Corporate	Affinity	Collective not identified	Not informed	Total
Δ % 16/15	-3.06	-3.39	-3.00	-14.36	-16.95	-3.33
Δ % 17/16	-2.43	-0.49	-1.88	-6.25	-19.82	-1.13
Δ % 18/17	-1.03	0.64	-0.97	-16.59	-30.00	0.01
Δ % 19/18	-1.03	0.03	0.43	-10.53	-10.93	-0.15
Δ % 20/19	0.26	1.44	1.96	-5.66	-20.78	1.24

Source: ANS (accessed on 23/Mar/2021). Excludes exclusive dental care companies.

The price adjustment of individual or family plans, authorized by ANS in 2020[13] was 8.14%, higher than the price adjustment authorized in 2019, interrupting the trend that had been observed since 2017 **(Graph 20)**. However, it is important to highlight that in view of the economic crisis brought by the pandemic, ANS suspended the price adjustment of healthcare plans from September to December 2020, and the difference in prices started to be applied from January 2021.

GRAPH 20 | ANS maximum authorized price adjustments for individual plans (%) | 2008-2020
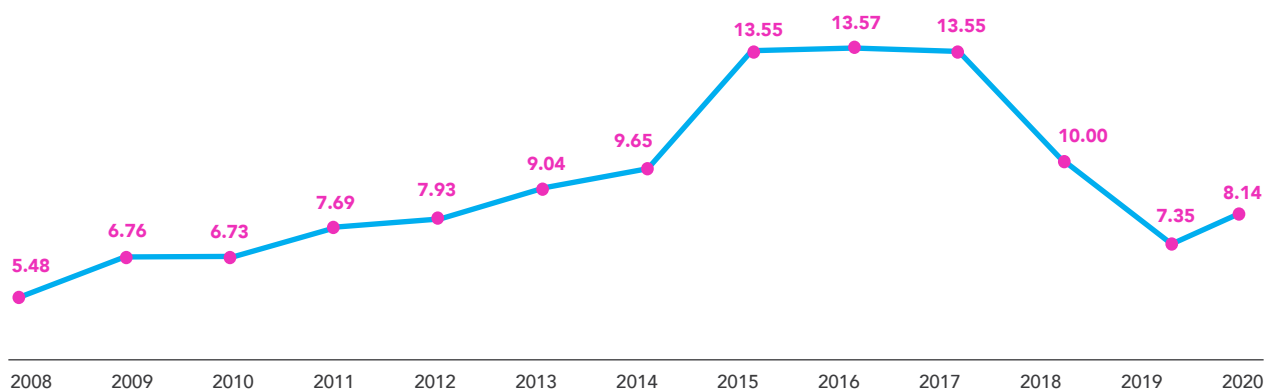
Source: ANS (accessed on 20/Mar/2021).

[13] Price adjustment authorized for the period of May 2020 to April 2021,

The increase in price was superior to the increase of the main inflation rates in the country. According to IBGE database, the accrued variation of IPCA from January to December 2019 was 4.31%; IGP-M (General Price Index - Market) measured by *Fundacao Getulio Vargas* for the same period reached 7.30%. In May, the month when the new price adjustment applied to the individual plans, year-to-date IPCA was 4.66%, whereas IGP-M for the same period was 7.64%.

Concerning the share of beneficiaries by age range, the main differences between 2008 and 2020 involve the increase of beneficiaries aged 30 to 44 years and the reduction of younger beneficiaries, aged 15 to 29 years **(Graph 21)**. There has also been an increase in beneficiaries aged over 60 years.

GRAPH 21 | Distribution of beneficiaries by age range (%) | 2008-2020

	dec/08	dec/09	dec/10	dec/11	dec/12	dec/13	dec/14	dec/15	dec/16	dec/17	dec/18	dec/19	dec/20
above 75	3.29	3.37	3.40	3.43	3.39	3.43	3.52	3.70	3.88	4.01	4.15	4.23	4.27
60 to 74	7.89	8.02	7.98	7.97	7.96	8.08	8.30	8.70	9.13	9.40	9.61	9.76	9.85
45 to 59	17.48	17.58	17.48	17.48	17.36	17.34	17.38	17.52	17.61	17.58	17.56	17.58	17.59
30 to 44	25.26	25.45	25.70	26.37	26.94	27.28	27.63	27.86	28.09	28.33	28.58	28.72	28.71
15 to 29	25.86	25.35	25.20	24.93	24.60	24.14	23.59	22.72	21.72	21.03	20.39	19.96	19.87
0 to 14	20.22	20.23	20.23	19.82	19.74	19.73	19.59	19.50	19.57	19.65	19.71	19.75	19.71

● 0 to 14   ● 15 to 29   ● 30 to 44   ● 45 to 59   ● 60 to 74   ● above 75

Source: ANS (accessed on 20/Mar/2021). Excludes exclusive dental care companies.

In 2020, there was increase in number of beneficiaries in the age range over 60 years

In 2020, there was increase in coverage level of medical-hospital plan beneficiaries (percentage of population covered by private health plans) in age ranges between 50 and 79 years, with considerable reduction of age range of 80 years or more (difference of -14.30 p.p. over 2019) **(Graph** **22)**. The increase was observed for younger age ranges, up to 1 year and between 15 and 29 years, including the greatest increase in the age range 20 to 29 years (11.40 p.p. difference) compared to 2019. The remaining age groups experienced reduction of coverage rate in 2020.

GRAPH 22 | Rate of coverage of medical-hospital plan beneficiaries according to age range (%) | 2019-2020

	up to 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 or more
2019	24.10	24.90	20.30	15.20	14.70	19.90	31.60	27.50	27.50	29.60	30.10	38.50
2020	25.00	20.60	15.20	14.40	19.50	31.30	28.30	27.40	30.00	30.80	39.40	24.20

2019   2020
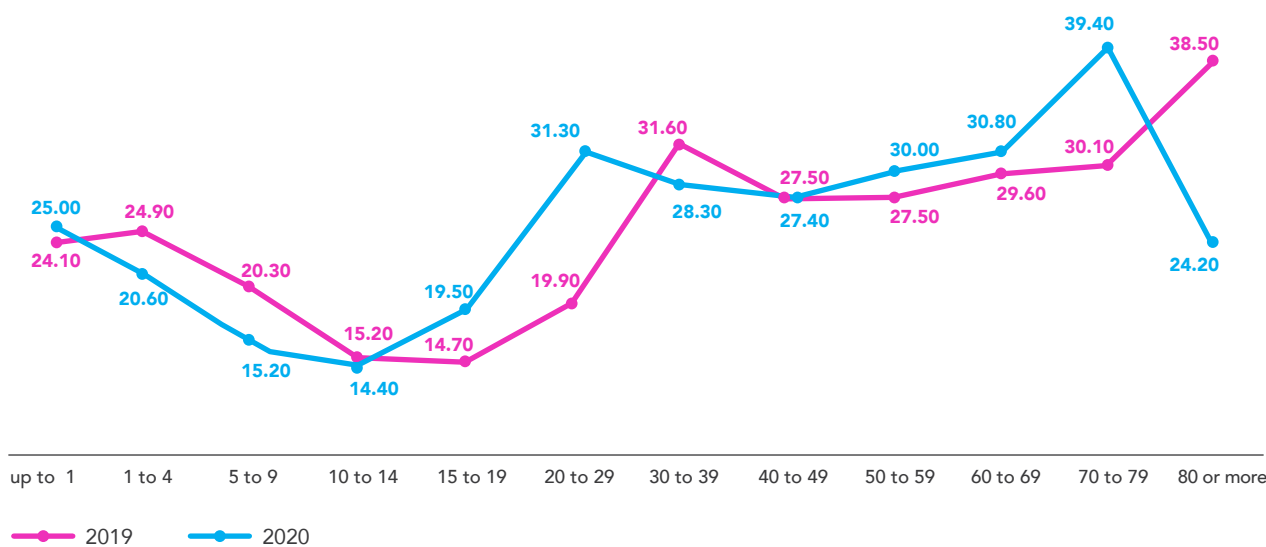
Source: ANS (accessed on 20/Mar/2021). Excludes exclusive dental care companies.

Concerning the distribution of health plans in 2020 by modality, the greatest share was taken by HMOs

Concerning the distribution of health plans by modality in 2020, most beneficiaries were found in HMO (39.83%) and in medical cooperatives groups (36.52%) **(Graph 23)**. Comparing to 2016, HMO was the only modality that gained market share, going from 36.63% in December 2016 to 39.83% in December 2020, which amounted to 8.68% more beneficiaries. The other modalities (medical cooperative, insurance company, self-managed and philanthropy) showed decrease in market share, with the greatest impact to self-managed modality (-15.64%).

GRAPH 23 | Distribution of beneficiaries according to modality – December (%) 2006 and 2020
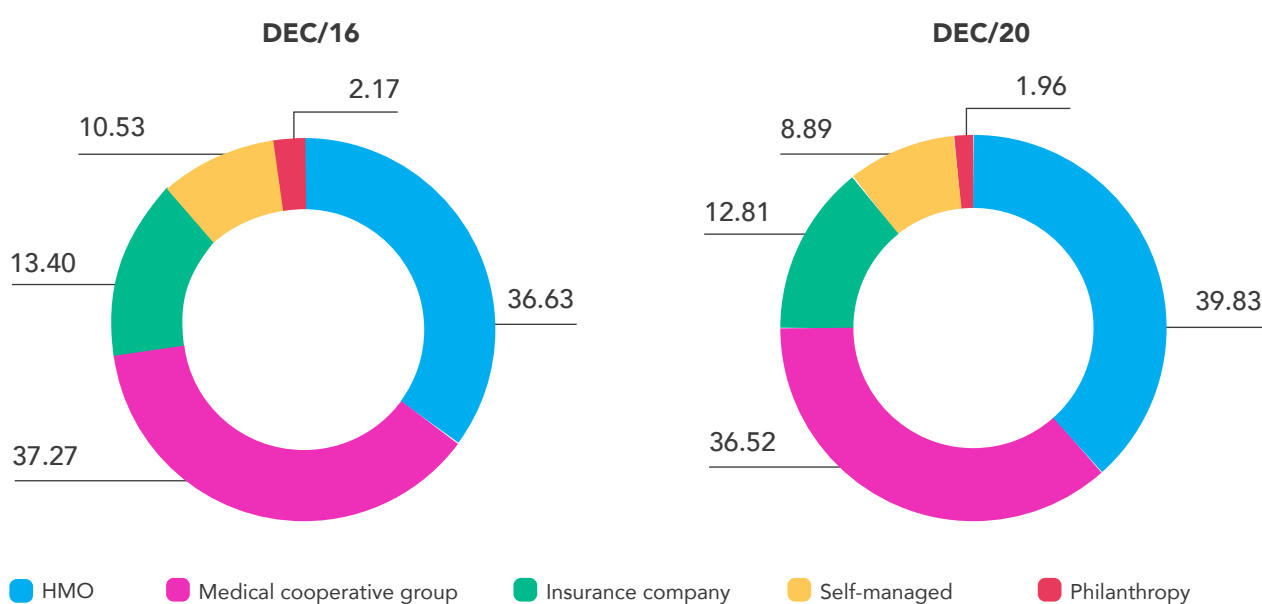
DEC/16

2.17
10.53
13.40
37.27
36.63

DEC/20

1.96
8.89
12.81
36.52
39.83

● HMO   ● Medical cooperative group   ● Insurance company   ● Self-managed   ● Philanthropy

Source: ANS (accessed on 20/Mar/2021). Excludes exclusive dental care companies.

Comparing to 2019, philanthropy and HMO were the plan modalities that presented the best performance in terms of market share, reporting growth of 3.35% and 3.24%, respectively. They were followed by medical cooperative groups, which reached growth of 1.07% over 2019. Self-managed and health care specialized insurance companies presented decrease in market share, reaching results of -4.25% and -0.62%, respectively **(Table 6)**.

TABLE 6 | Variation in number of beneficiaries distributed by health care provider modality | 2020

Modality	Variation % (2019-2020)
Self-managed plan	-4.25%
Health insurance company	-0.62%
Medical cooperative	1.07%
HMO	2.24%
Philanthropy	3.35%

Source: ANS (accessed on 20/Mar/2018). Excludes exclusive dental care companies.

The number of medical hospital providers with beneficiaries maintained its decreasing trend since 2008 (beginning of the historical series). In 2020, the year closed with 72 providers, a 2.20% drop compared to the number of companies in 2019 **(Graph 24)**.

GRAPH 24 | Number of medical-hospital providers with beneficiaries | 2008-2020

1,135 1,095 1,045 1,015 962 920 874 828 790 766 749 727 711

2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
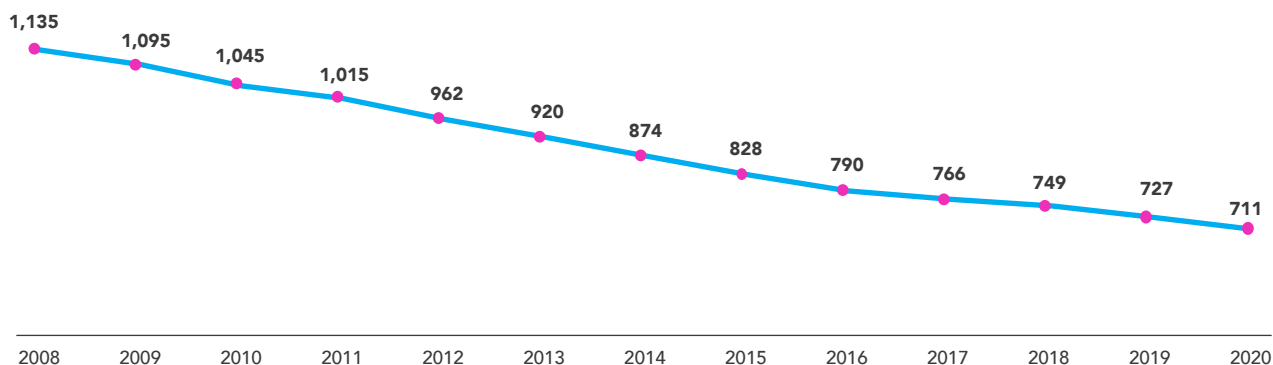
Source: ANS (accessed on 20/Mar/2021).

The loss ratio, which used to be over 80% between 2016 and 2019 (results of the third quarter), showed reduction to 73.74% in 2020 **(Graph 25)**. This last figure is accompanied by slight increase in revenue (0.07%) and by actual drop in expenses (-1.94%).

GRAPH 25 | Loss ratio (%), revenue from consideration and clinical expenses (nominal amount in billion) of healthcare providers in Brazil | 2016-2020

86.17% 85.07% 84.01% 83.80% 73.74%

116.23 100.16 | 129.83 110.45 | 142.91 120.06 | 154.63 129.58 | 161.73 119.26

3Q/2016   3Q/2017   3Q/2018   3Q/2019   3Q/2020

■ Revenue from consideration   ■ Loss ratio   — Clinical expenses
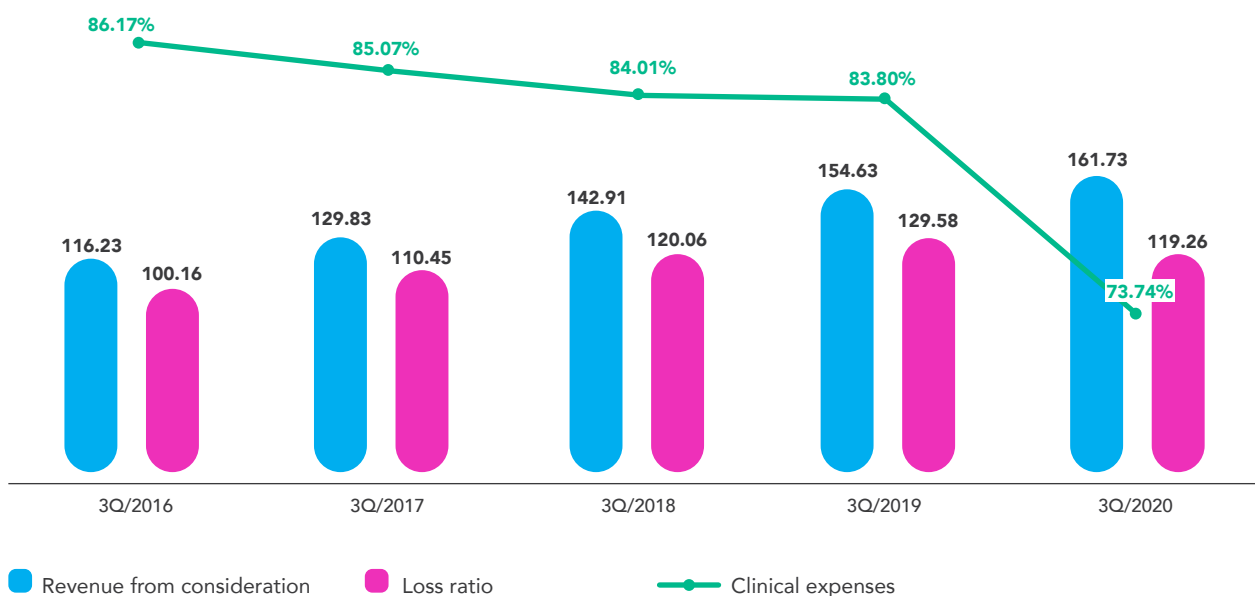
Source: Private Health Book of Information | ANS (accessed on 18/Apr/2021). Excludes exclusive dental care companies.

Regional characteristics of the market for medical-hospital plans

Southeast region, gathering 29.04 million beneficiaries, amounts to 60.98% of the medical-hospital market in the country, followed by the South region, with 6.88 million beneficiaries, which equals 14.45%. Northeast region ranks third with 6.58 million beneficiaries (13.82%). Even though these regions concentrate most of beneficiaries, this number dropped comparing

to 2016. When comparing December 2016 to December 2020, except for Center-West region, the remaining regions had reduction in number of beneficiaries. The South region had the worst result, observing variation of -1.28%. The Center-West was the only region that had 4.29% increase in number of beneficiaries between 2016 and 2020 **(Table 7)**.

TABLE 7 | Beneficiaries of medical care private plans, with or without dental care, per region (million beneficiaries) | 2016-2020

Region	dec/16	dec/17	dec/18	dec/19	dec/20	Variation 2016-2020	Variation 2019-2020
Southeast	29.10	28.67	28.60	28.65	29.04	-0.22%	1.34%
South	6.97	6.98	6.92	6.86	6.88	-1.28%	0.35%
Northeast	6.60	6.58	6.65	6.58	6.58	-0.25%	0.04%
Center-West	3.18	3.12	3.20	3,21	3.32	4.29%	3.31%
North	1.76	1.73	1.70	1,69	1.75	-0.04%	3.99%
Not identified	0.03	0.02	0.03	0.04	0.04	48.17%	-1.04%
Brazil	**47.64**	**47.10**	**47.10**	**47.03**	**47.62**	**-0.04%**	**1.24%**

Source: ANS (accessed on 22/Mar/2021). Excludes exclusive dental care companies.

Comparing to 2019, in turn, there was increase in number of beneficiaries in all regions, with more significant results in the North region (3.99%), followed by the Center-West region (3.31%). Southeast presented increase of 1.34% and the South and Northeast presented increase below 0.50% **(Table 7)**.

Center-West Region concentrated the greatest share of collective plans (83.69%), divided into 69.72% of corporate plans and 13.97% of individual affinity plan **(Graph 26)**. The Northeast Region presented the highest proportion of beneficiaries with individual or family plans (26.72% of the total).

GRAPH 26 | Distribution of beneficiaries according to type of contract by region (%) – December 2020
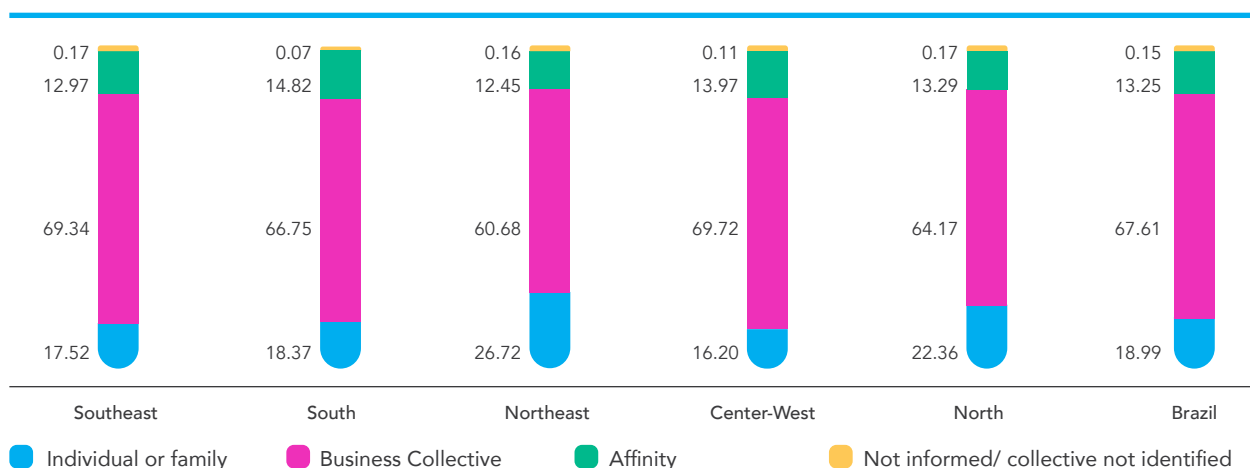
Source: ANS (accessed on 22/Mar/2021). Excludes exclusive dental care companies.

The Southeast Region represented the highest proportion of elderly (people aged 60 years or more) in the total population of beneficiaries – 15.35% in December 2020. On the other extreme, in the North region, there was a total of 9.28% of elderly, the lowest proportion of this age range observed among all regions (Graph 27).

GRAPH 27 | Distribution of beneficiaries according to age range by region – (%) December 2020
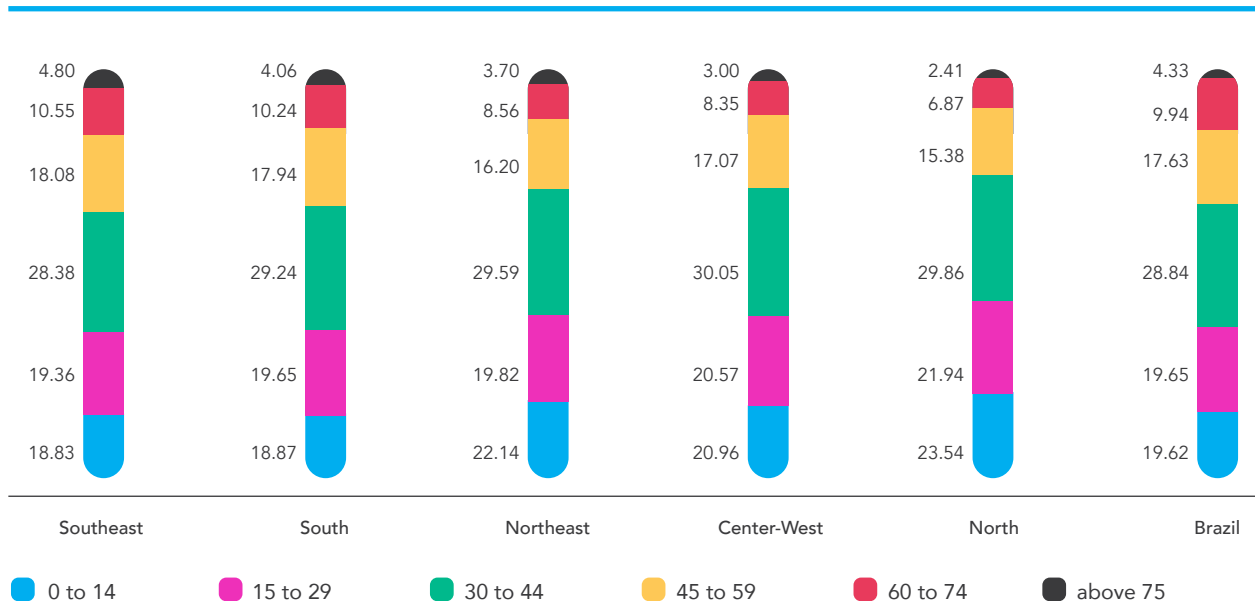
Source: ANS (accessed on 22/Mar/2021). Excludes exclusive dental care companies.

The coverage rate (percentage of the population covered by individual private healthcare plans) is higher in the Southeast Region (35.10%) and lower in the North Region (10.30%) (Table 8). Comparing to 2016, all regions presented reduction in coverage.

In 2019, however, Southeast and Center-West regions presented increase in coverage rate of 0.10 p.p. and 0.20 p.p., respectively, whereas North and Northeast region presented both reduction of 0.10 p.p., and the South regions had reduction of 0.20 p.p.

TABLE 8 | Rate of coverage of medical-hospital plan beneficiaries by region (%) | 2016-2020

Region	dec/16	dec/17	dec/18	dec/19	dec/20
Southeast	37.00	35.50	35.00	35.00	35.10
South	25.30	24.90	25.00	24.80	24.60
Northeast	12.40	12.20	12.20	12.30	12.20
Center-West	22.00	21.60	21.20	21.50	21.70
North	10.90	10.70	10.40	10.40	10.30
Brazil	25.20	24.40	24.20	24.10	24.20

Source: ANS (accessed on 07/Apr/2021). Excludes exclusive dental care companies.

When we consider the different health care plan modalities in Brazil, the predominance is of HMO and medical cooperative groups. Regionally, it is observed that in South, Center-West and North regions the predominant modality is medical cooperative group. In Southeast and Northeast regions, conversely, HMOs lead the ranking.

The presence of self-managed plans is more relevant in Center-West region, with 18.53% share of medical-hospital plan beneficiaries in December 2020. The greatest proportion of beneficiaries in healthcare insurance companies comes from the Southeast Region, reaching 15.24% of the total **(Graph 28)**.

GRAPH 28 | Distribution of beneficiaries according to modality by region – (%) | December 2020

Modality	Southeast	South	Northeast	Center-West	North	Brazil
Healthcare specialized insurance company	15.24	5.03	12.01	10.99	9.84	12.81
HMO	44.64	22.48	45.13	24.54	36.93	39.83
Philanthropy	2.28	3.19	0.31	0.02	1.65	1.96
Medical Cooperative	31.03	58.89	31.39	45.92	41.25	36.52
Self-managed	6.81	10.42	11.16	18.53	10.33	8.89

🔵 Self-managed   🟣 Medical Cooperative   🟢 Philanthropy   🟡 HMO   🔴 Healthcare specialized insurance company
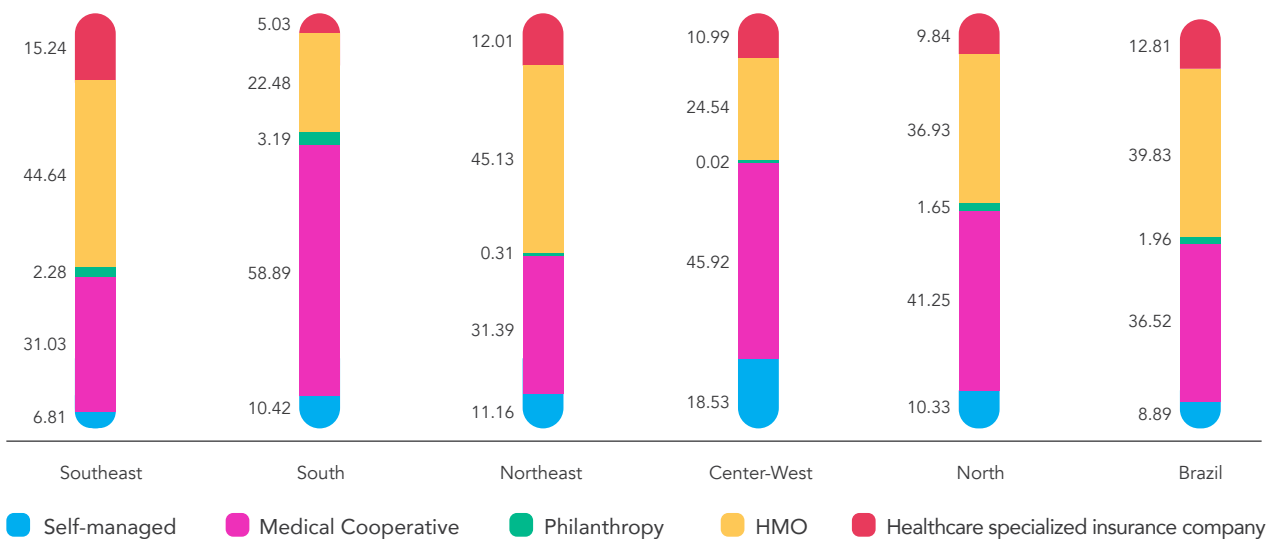
Source: ANS (accessed on 22/Mar/2021). Excludes exclusive dental care companies.

In a challenging year such as 2020, considering the pandemic and the economic crisis, there has been an increase in number of beneficiaries in medical-hospital care and a response from hospitals that expanded the number of beds. In view of uncertainties concerning the epidemic control, impacting both the supply and the demand, there are challenges related to changes in the market and relationship between consumers and providers. Clear information is required, both in terms of regulating public policies and management of the private sector, so that decisions can be more assertive to promote the wellbeing of society.

In a challenging year such as 2020, there has been an increase in number of beneficiaries of medical-hospital care

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Clinical and epidemiological profile

Covid-19 pandemic has changed the clinical profile of patients seen by member hospitals

Anahp reinforces the importance of keeping elective treatment and periodic tests and medical visits for early detection of severe diseases

Similarly to previous years, Anahp has asked member hospitals to prepare an annual report listing all admissions to describe the characteristics of the served population. To be relevant, correct identification of the patient diagnosis in the medical record is of utmost importance.

Hospital discharges are analyzed according to the main diagnosis, based on the respective chapter of the International Code of Diseases - 10th edition (ICD-10), by World Health Organization. In 2019, 9.48% of the hospital discharges of the sample were classified under ICD-10 chapter "Neoplasm (tumors)". The other very significant chapter was "Diseases of the Genitourinary System" (referring to genital and urinary organs), amounting to 9.46% of the total, followed by Pregnancy, delivery and post-natal care, with 8.40%.

The chapter "Infectious and parasitic diseases" (including hospital discharges of Covid-19 infection, code B34.2 - coronavirus infection, nonspecific, amounted to 6.28% of hospital discharges in 2020, a percentage above that of 2018 (2.96% of discharges) and in 2019 (4.17% of total discharges). For Covid-19, there were still discharges classified under codes U07.1 - Covid-19, identified virus, and U07.2 - Covid-19, non-identified virus, which are part of the ICD-10 chapter "Codes for special purposes", classified under "no information" (2.26% of hospital discharges in 2020) in this publication.

Note the changes in the profile of admissions due to the pandemic, as chronic patients refrained from coming to be the healthcare services to have appropriate follow up of their diseases. We should also reinforce the importance of maintaining elective treatments and periodic medical visits and workup for early detection of severe diseases, which contributes to increasing the possibility of cure.

Epidemiological profile 2020

The patient record is essential for clinical management monitoring, as it provides information about the diagnosis and the progression of the patient status, serving as a tool to provide evidence of safe care.

In most hospitals, Medical Archive and Statistics (SAME) is responsible for managing the clinical information by storing, tracking down and auditing the patient records, supported by the Committees of Patient Record Review and Deaths. To present, all hospitals keep track of their diagnoses and performed procedures after hospital discharge.

To ensure the quality of information, the Medical Archive team codifies the diagnoses and procedures, according to the rules advocated by the ICD-10. The active participation of Medical Archive in codifying the patient records conveys greater quality to the documented diagnoses.

In 2020, 91.49% of the respondents in the sample already had implemented electronic prescription. The implementation of electronic medical records reached 89.36% of the organizations. It is worth mentioning that 80% of the member hospitals in December 2020 completed the form using SINHA platform (Anahp Hospital Indicator System).

Other data about progression of the patient records are found in **Table 1** and indicate opportunities for improving hospitals' clinical management.

In 2020, 91.49% of the sample had already implemented electronic prescription

TABLE 1 | Quality indicators in medical records of Anahp hospitals (% of members) | 2020

Indicators	2020
Implemented electronic medical prescription	91.49
Implemented electronic medical record	89.36
Business intelligence (BI)	78.72
Bar code or RFID	77.66
Picture Archiving and Communication System (PACS) in the record	74.47

Source: SINHA/Anahp.

Hospital discharges were analyzed using the main diagnosis according to ICD-10 chapters.

Disease classification, excluding cases without information, involves: some affections originating from the perinatal period; certain infectious and parasitic diseases; factors that influence health status and contact with healthcare services; skin and subcutaneous tissue diseases; circulatory system diseases; digestive tract diseases; genitourinary system diseases; respiratory system diseases; eye and adnexa diseases; ear and mastoid diseases; nervous system diseases; nutritional and metabolic endocrine diseases; blood and hematopoietic diseases and some immune disorders; musculoskeletal and connective tissue diseases; pregnancy, delivery and puerperium; injuries, poisoning and some external cause consequences; congenital malformation, chromosome deformities and anomalies; neoplasm (tumors); symptoms, signs and abnormal findings of clinical examinations and laboratory tests; mental and behavioral disorders **(Table 2 and Graph 1)**. Improvement of clinical and epidemiological profile depends directly on the quality of the data inputted by the multiprofessional team during the care provided. Some general classification, such as factors and symptoms, may show a less specific epidemiological profile, with little guidance. In 2020, there was increase of hospital discharges classified under these factors, defining people who come to healthcare center for tests or investigation, such as follow up tests after neoplasm treatment, removal or adjustments of braces and prostheses, pre-natal care and tests.

The total number of hospital discharges presented reduction of 20.09% in 2020, over 2019. Out of the total hospital discharges analyzed, 9.48% fell within the chapter of neoplasm, closely followed by genitourinary diseases, which amounted to 9.46% of total discharges.

The increase in share of admissions related to infectious diseases - such as Covid-19, was evident, as the number in 2020 (6.28%) was greater than the number from 2018 (2.96% of discharges in that year) and 2019 (4.17% of total discharges). At the same time, it was observed that the remaining hospital discharges lost relative share in 2020, such as respiratory, digestive and circulatory system diseases.

TABLE 2 | Hospital discharges according to ICD-10 chapter (%) | 2018-2020

ICD-10 Chapter	2018		2019		2020	
	Total	%	Total	%	Total	%
Neoplasm	147,177	8.80	133,785	7.07	143,276	9.48
Genitourinary	176,855	10.57	186,922	9.88	142,974	9.46
Pregnancy	155,581	9.30	134,926	7.13	126,953	8.40
Digestive	164,615	9.84	176,124	9.31	126,500	8.37
Circulatory	135,907	8.13	160,855	8.50	115,618	7.65
Respiratory	149,892	8.96	197,671	10.45	95,517	6.32
Infectious diseases	49,540	2.96	78,834	4.17	94,913	6.28
Musculoskeletal	98,552	5.89	123,935	6.55	84,031	5.56
Lesions and poisoning	89,824	5.37	110,788	5.86	76,474	5.06
Perinatal	38,642	2.31	35,827	1.89	35,970	2.38
Endocrine	34,864	2.08	36,357	1.92	31,436	2.08
Nervous system	33,663	2.01	36,778	1.94	29,018	1.92
Skin	24,070	1.44	30,181	1.60	16,927	1.12
Congenital	15,936	0.95	16,956	0.90	14,509	0.96
Blood	9,044	0.54	10,817	0.57	9,068	0.60
Eyes and adnexa	7,321	0.44	8,965	0.47	8,010	0.53
Ear	11,490	0.69	16,644	0.88	7,406	0.49
Mental	9,288	0.56	12,476	0.66	7,254	0.48
Factors	156,921	9.38	143,518	7.59	221,262	14.64
Symptoms	151,205	9.04	212,598	11.24	90,076	5.96
No information	12,291	0.73	26,453	1.40	34,157	2.26
Total	1,672,677	100.00	1,891,413	100.00	1,511,350	100.00

Source: SINHA/Anahp.

GRAPH 1 | Hospital discharges according to ICD-10 chapter (%) | 2018-2020
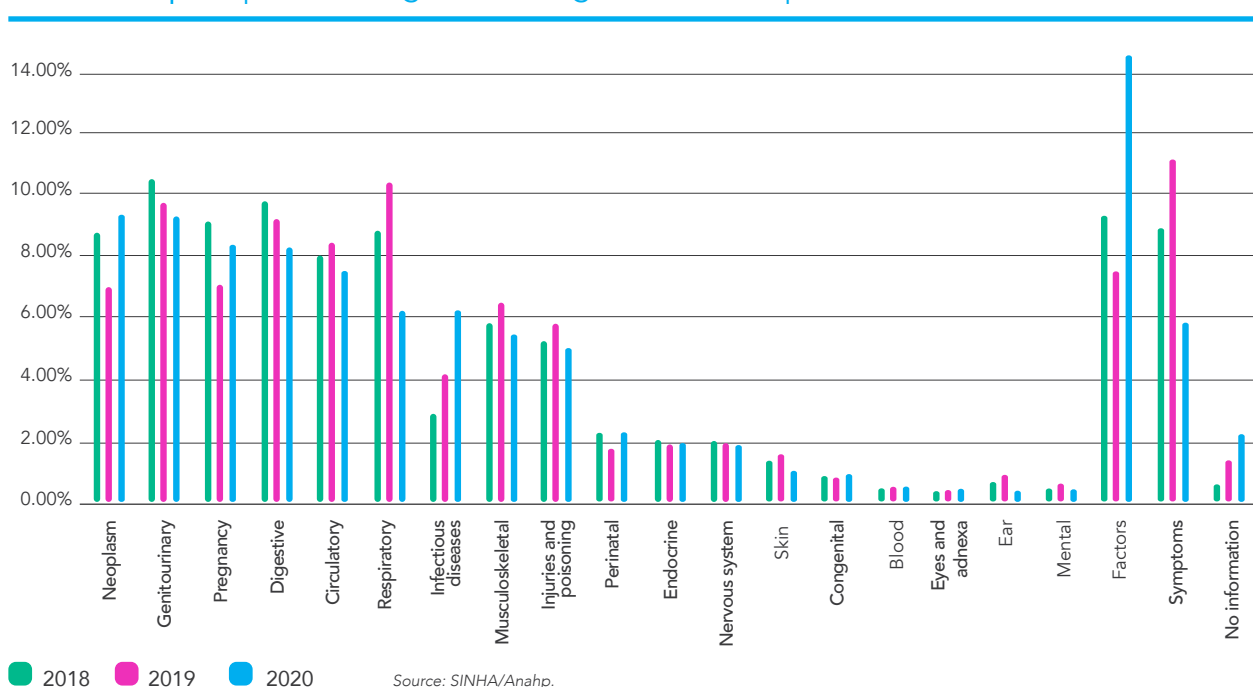
2018   2019   2020   Source: SINHA/Anahp.

We have carried out an analysis of hospital discharges by ICD-10 and region of the country **(Table 3)**, showing regional differences in prevalence.

TABLE 3 | Hospital discharges by ICD-10 chapter by region (%) | 2020

ICD-10 Chapter	2020				
	South	Southeast	Northeast	North and Center-West	Brazil
Neoplasm	8.83	11.40	12.53	2.45	**9.48**
Genitourinary	9.02	11.08	8.45	5.24	**9.46**
Pregnancy	8.90	9.09	13.04	2.58	**8.40**
Digestive	8.57	9.52	8.13	4.17	**8.37**
Circulatory	8.19	8.26	8.59	4.05	**7.65**
Respiratory	8.37	6.38	3.83	3.55	**6.32**
Infectious diseases	6.25	6.19	12.02	3.61	**6.28**
Musculoskeletal	5.55	6.48	4.90	2.76	**5.56**
Lesions and poisoning	5.59	5.73	3.04	2.81	**5.06**
Perinatal	1.56	3.29	3.01	0.45	**2.38**
Endocrine	2.37	2.16	2.28	1.17	**2.08**
Nervous system	2.23	2.22	1.46	0.57	**1.92**
Skin	1.19	1.27	1.05	0.48	**1.12**
Congenital	1.32	1.01	0.85	0.21	**0.96**
Blood	0.60	0.70	0.71	0.21	**0.60**
Eyes and adnexa	0.15	0.95	0.09	0.07	**0.53**
Ear	0.45	0.66	0.25	0.11	**0.49**
Mental	0.73	0.42	0.57	0.20	**0.48**
Factors	6.16	6.68	11.55	59.77	**14.64**
Symptoms	8.64	5.46	3.12	4.12	**5.96**
No information	5.31	1.07	0.55	1.41	**2.26**
Total	100.00	100.00	100.00	100.00	**100.00**

Source: SINHA/Anahp.

Graph 2 brings the percentage of hospital discharges by age range. It is possible to notice that the share of hospital discharges of patients aged 0 to 29 years reduced comparing 2019 to 2020, whereas the share of hospital discharges of patients over 30 years increased, considering the same period.

GRAPH 2 | Hospital discharges by age range (%) – 2019 and 2020

Age range	2019	2020
0 to 14	15.10	12.06
15 to 29	13.69	13.04
30 to 44	24.25	26.94
45 to 59	16.48	18.50
60 to 74	15.91	17.29
Older than 75	11.63	12.17
Ignored	2.96	0.00

● 2019 ● 2020   *Source: SINHA/Anahp.*
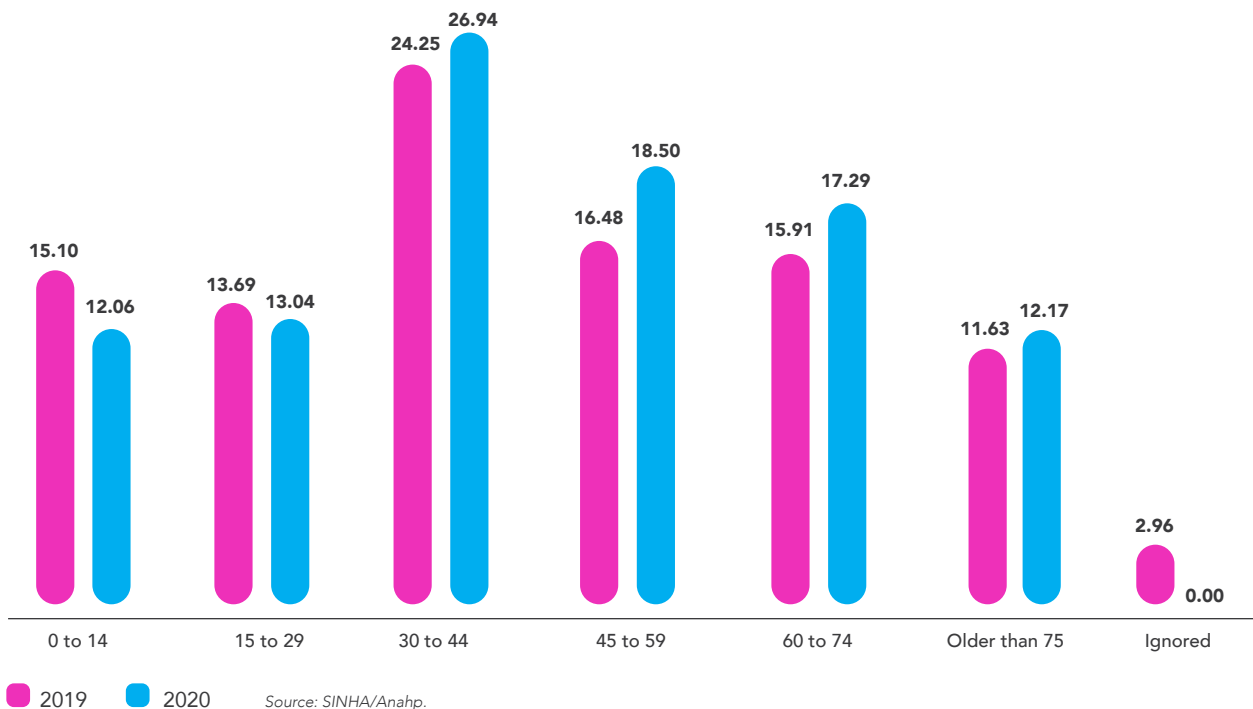
The share of hospital discharges of patients over 75 years was 12.17% in 2020.

The share of hospital discharges of patients over 75 years was 12.17% in 2020. It is exactly in the older age range that the healthcare plan beneficiary coverage rate (percentage of the population covered by private health) is higher, reaching 39.4% among beneficiaries aged 70 to 79 years and 24.2% among those aged 80 years or more **(Graph 3)**.

GRAPH 3 | Rate of coverage of medical-hospital plan beneficiaries according to age range (%) | 2019-2020

	Up to 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 or over
2019	24.10	24.90	20.30	15.20	14.70	19.90	31.60	27.50	27.50	29.60	30.10	38.50
2020	25.00	20.60	15.20	14.40	19.50	31.30	28.30	27.40	30.00	30.80	39.40	24.20

● 2019   ● 2020   *Source: ANS (accessed on 07/Apr/2021). Excludes exclusive dental care companies.*
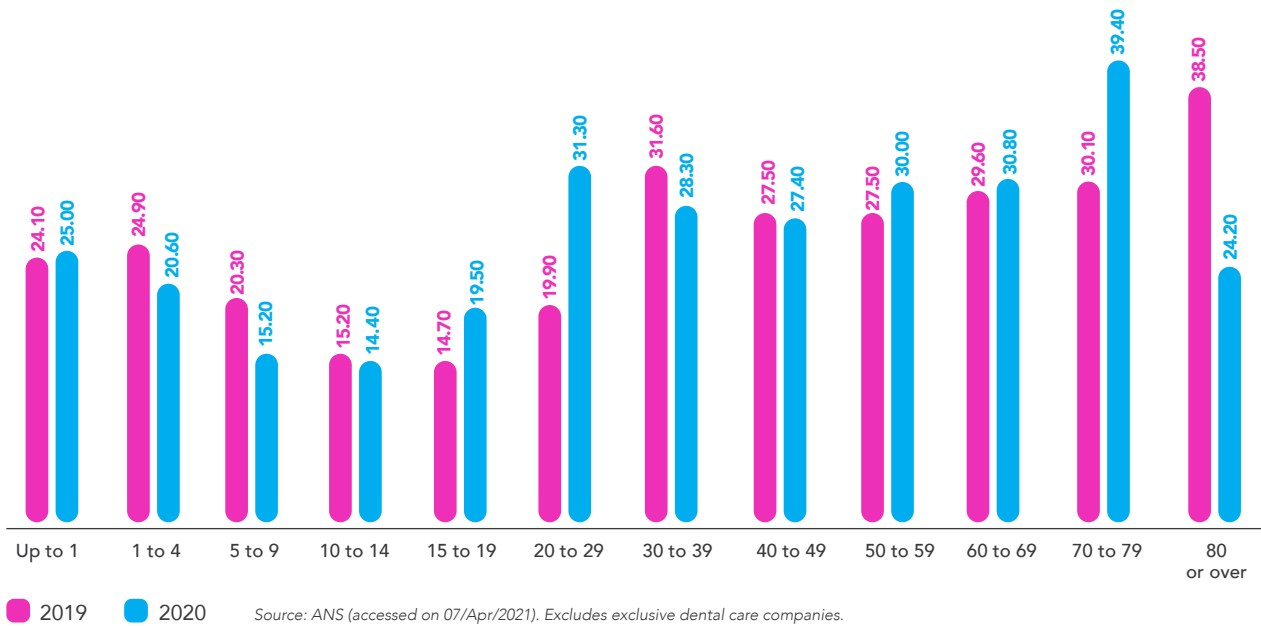
Upon analyzing the discharges by age range and region, it is possible to note that the South and Southeast regions had more patients aged over 75 years, whereas the Northeast region had more younger patients (aged 0 to 14 years).

North and Center-West regions, in turn, were responsible for the highest percentage of patients aged 30 to 59 years: 49.78% **(Graph 4)**.

GRAPH 4 | Hospital discharges by age range (%) – 2020

	0 to 14	15 to 29	30 to 44	45 to 59	60 to 74	Older than 75
South	11.83	14.33	25.51	17.38	18.29	12.66
Southeast	12.44	11.13	27.77	18.91	17.08	12.68
Northeast	17.98	13.55	23.08	15.27	17.75	12.37
North and Center-West	8.04	16.89	28.83	20.95	15.86	9.42

● South   ● Southeast   ● Northeast   ● North and Center-West   *Source: SINHA/Anahp.*
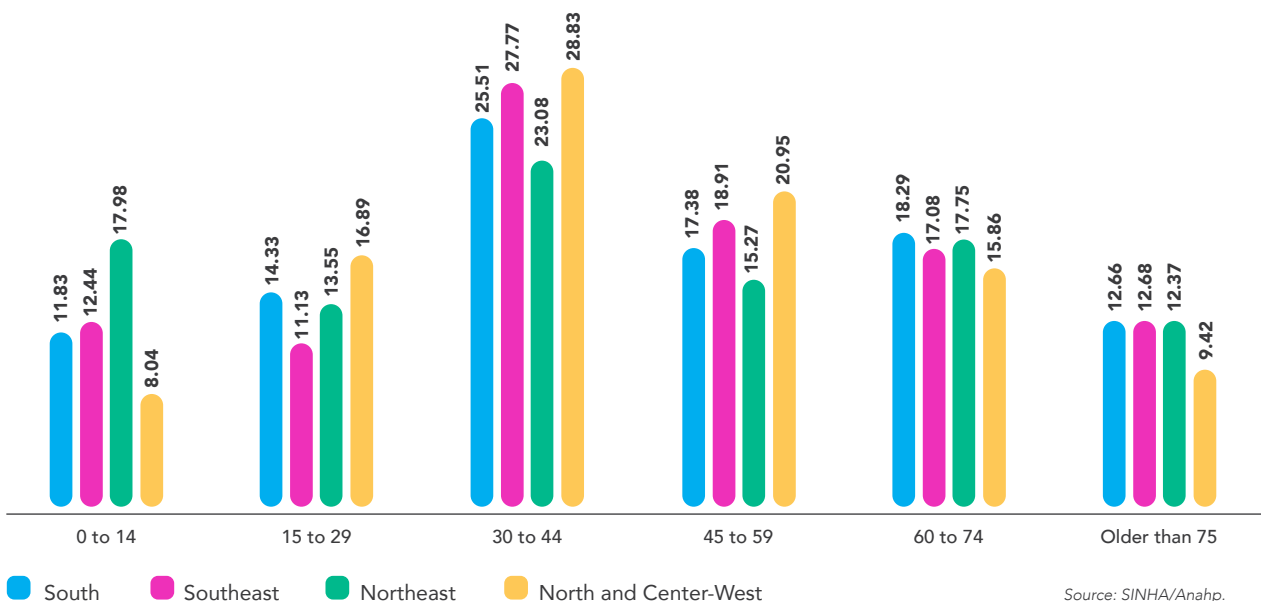
When we correlate main diagnosis to age range, it is possible to analyze the incidence of neoplasm among patients aged 45 to 74 years: 5.41%. Similarly, infectious diseases affected more age ranges over 30 years **(Table 4)**.

TABLE 4 | Hospital discharges according to main diagnosis grouped by ICD chapter and age range (%) | 2020

ICD-10 Chapter	2020						Gran Total
	0 to 14	15 to 29	30 to 44	45 to 59	60 to 74	Older than 75	
Neoplasm	0.43	0.48	1.72	2.45	2.96	1.43	9.48
Genitourinary	0.73	1.24	2.99	2.00	1.44	1.06	9.46
Pregnancy	0.04	2.69	5.62	0.05	0.00	0.00	8.40
Digestive	0.73	1.04	2.21	1.86	1.62	0.91	8.37
Circulatory	0.10	0.25	1.03	1.72	2.47	2.08	7.65
Respiratory	1.07	1.09	1.33	0.83	0.82	1.18	6.32
Infectious diseases	0.54	0.51	1.29	1.32	1.37	1.26	6.28
Musculoskeletal	0.21	0.49	1.50	1.65	1.25	0.47	5.56
Lesions and poisoning	0.47	0.79	1.28	0.98	0.80	0.74	5.06
Perinatal	2.33	0.02	0.03	0.00	0.00	0.00	2.38
Endocrine	0.13	0.33	0.79	0.39	0.24	0.20	2.08
Nervous system	0.33	0.23	0.40	0.38	0.33	0.24	1.92
Skin	0.19	0.19	0.26	0.18	0.16	0.14	1.12
Congenital diseases	0.71	0.09	0.08	0.05	0.02	0.01	0.96
Blood	0.14	0.06	0.11	0.09	0.10	0.11	0.60
Eyes and adnexa	0.03	0.02	0.06	0.13	0.20	0.10	0.53
Ear	0.08	0.05	0.08	0.09	0.13	0.07	0.49
Mental	0.02	0.10	0.11	0.08	0.07	0.11	0.48
Factors	3.02	2.38	4.13	2.68	1.70	0.73	14.64
Symptoms	0.69	0.71	1.29	1.06	1.16	1.06	5.96
No information	0.07	0.29	0.64	0.53	0.44	0.28	2.26
Total	12.06	13.03	26.94	18.50	17.29	12.17	100.00

Source: SINHA/Anahp.

Concerning the average length of stay by age range, there was increase in all age ranges in 2020, compared to 2019. Moreover, the number was higher than the overall mean for patients older than 75 years **(Graph 5)**.

GRAPH 5 │ Average length of stay by age range (days) | 2019 and 2020

Age range	2019	2020
0 to 14	3.90	4.84
15 to 29	2.54	2.90
30 to 44	2.57	2.79
45 to 59	3.22	4.10
60 to 74	4.53	5.96
older than 75	14.43	19.32
Ignored	2.39	0.00

● 2019   ● 2020   *Source: SINHA/Anahp.*
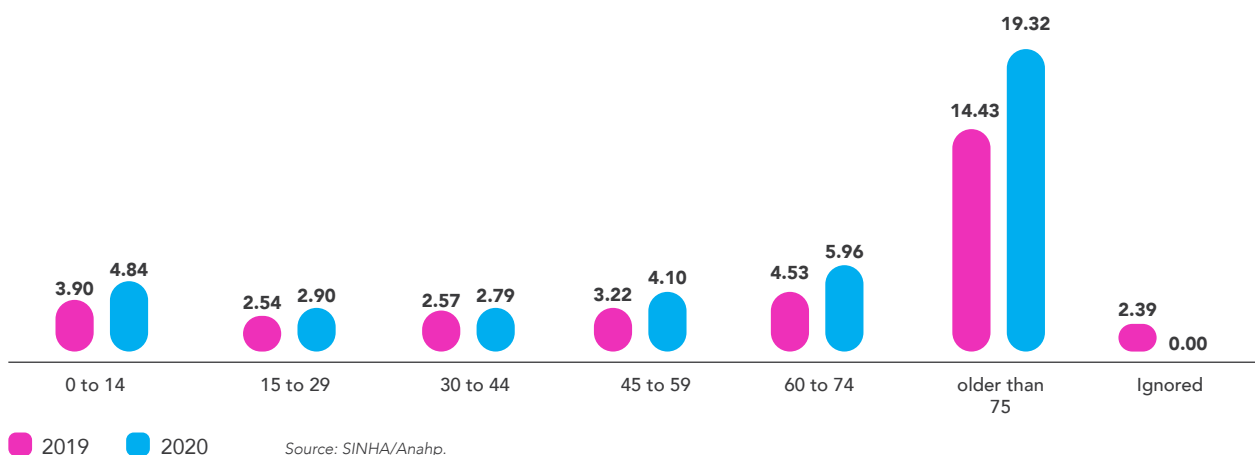
The cases that presented longer length of stay were related to infections originated in the perinatal period, followed by infectious diseases, the chapter that includes Covid-19 cases **(Table 5)**.

TABLE 5 | Average length of stay (LOS) according to ICD-10 chapter | 2019 and 2020

ICD-10 Chapter	2019		2020	
	LOS (days)	Gran Total (%)	LOS (days)	Gran Total (%)
Neoplasm	4.38	7.07	4.69	9.48
Genitourinary	2.89	9.88	3.25	9.46
Pregnancy	2.36	7.13	2.43	8.40
Digestive	2.66	9.31	3.61	8.37
Circulatory	5.39	8.50	6.49	7.65
Respiratory	6.17	10.45	9.06	6.32
Infectious diseases	8.73	4.17	9.60	6.28
Musculoskeletal	2.79	6.55	3.17	5.56
Lesions and poisoning	3.52	5.86	4.06	5.06
Perinatal	8.33	1.89	10.05	2.38
Endocrine	3.92	1.92	4.39	2.08
Nervous system	4.65	1.94	5.55	1.92
Skin	5.21	1.60	5.85	1.12
Congenital diseases	4.28	0.90	5.21	0.96
Blood	5.18	0.57	6.09	0.60
Eyes and adnexa	2.67	0.47	2.29	0.53
Ear	4.24	0.88	3.05	0.49
Mental	6.45	0.66	7.02	0.48
Factors	3.05	7.59	3.64	14.64
Symptoms	4.33	11.24	5.38	5.96
No information	4.68	1.40	5.49	2.26
Total		100.00		100.00

Source: SINHA/Anahp.

Concerning patients' gender, in 2020, among private healthcare plan beneficiaries, 53.12% were female and 46.88% were male.

Among Anahp hospitals, the same trend was observed: 57.40% of the total hospital discharges were of female patients against 42.58% of male patients; 0.02% of the patients did not inform or define gender **(Graph 6)**.

GRAPH 6 | Comparison of gender distribution among beneficiaries of healthcare plans and hospital discharges from Anahp hospitals (%) | 2020

BENEFICIARIES OF HEALTHCARE PLANS

53.12

46.88

ANAHP HOSPITAL DISCHARGES

57.40

42.58

0.02

● Female   ● Male   ● Undefined
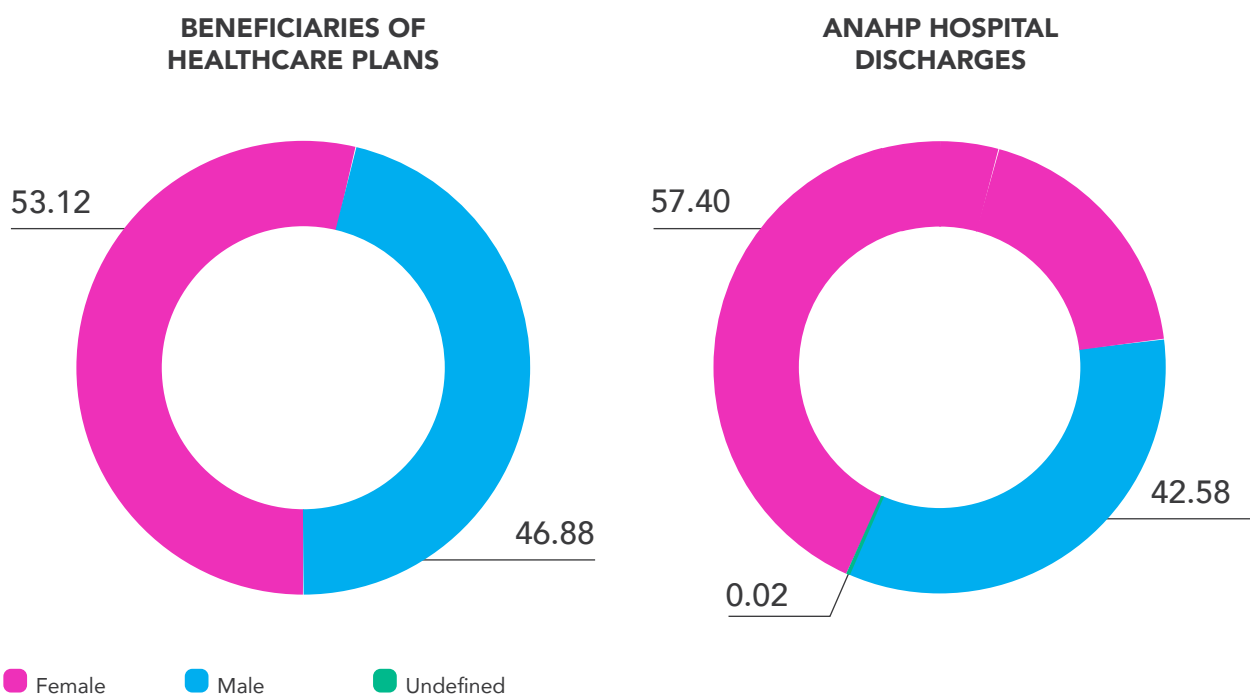
Source: SINHA/Anahp and ANS (accessed on 07/Apr/2021). Excludes exclusive dental care companies.

In 2020, concerning gender, among beneficiaries of Healthcare Plans 53.12% were female and 46.88% were male

In 2020 there was predominance of discharges in the age range 30 to 44 years: about 27% of the total

There was predominance of discharges in the age range 30 to 44 years, amounting to about 27% of the total. When classified by gender, 18.35% were women in this age range (in the range where normally there are more women). In turn, men are more predominant in the age range 60 to 74 years **(Graph 7)**.

GRAPH 7 | Hospital discharges by gender and age range (%) – 2020

	0 to 14	15 to 29	30 to 44	45 to 59	60 to 74	Older than 75
Male	6.74	4.21	8.59	8.59	8.94	5.51
Female	5.31	8.82	18.35	9.91	8.35	6.66
Undefined	0.02	0.00	0.00	0.00	0.00	0.00

● Male   ● Female   ● Undefined
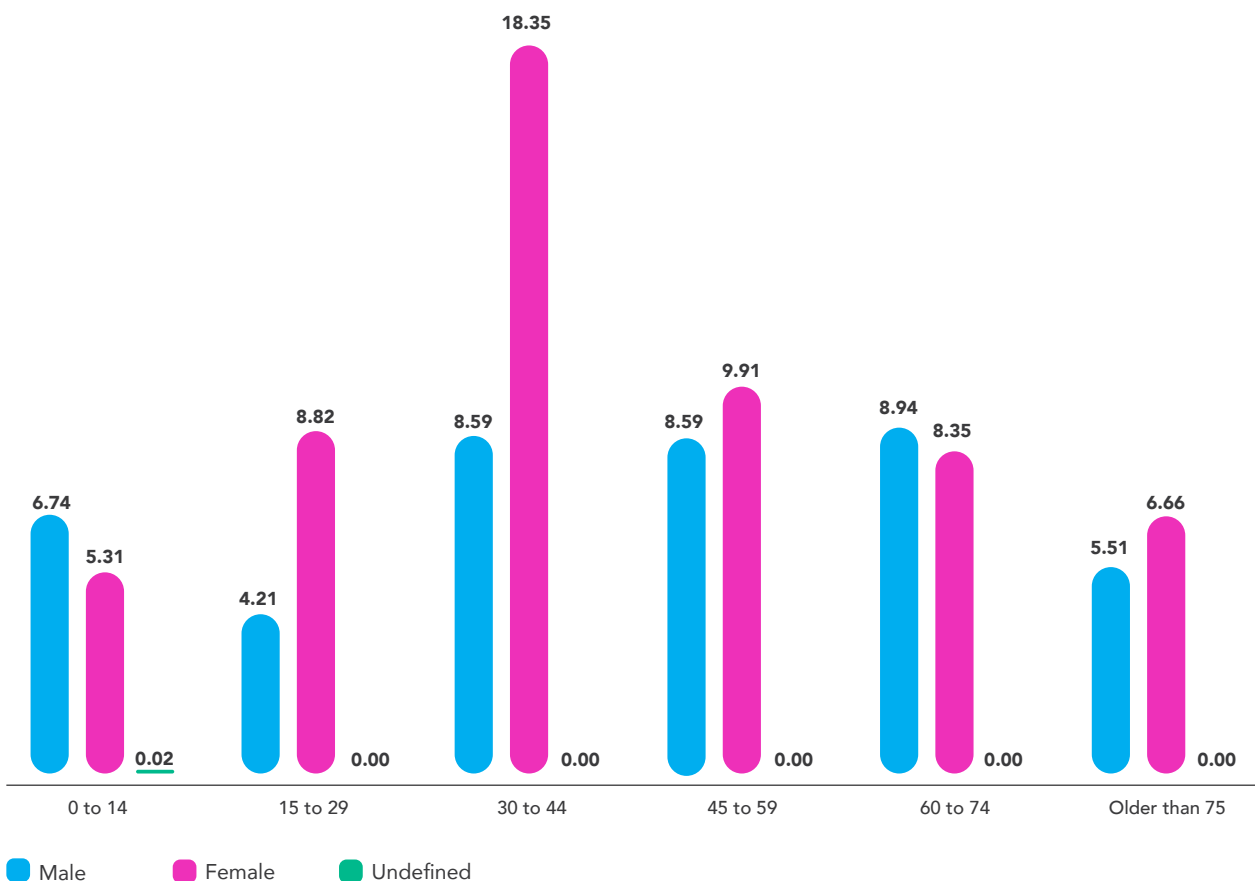
Source: SINHA/Anahp.

It is important to observe the outcomes of the discharges: in 89.91% of the cases, patient were discharged and better; administrative discharge (drop out, external transfer and discharge requested by patient) amounted to 6.48%, and 2.48% of the discharged had negative outcome - death.

The highest incidence of negative outcomes was among discharges due to infectious diseases, including Covid-19, leading to 0.54% of the total deaths **(Table 6)**.

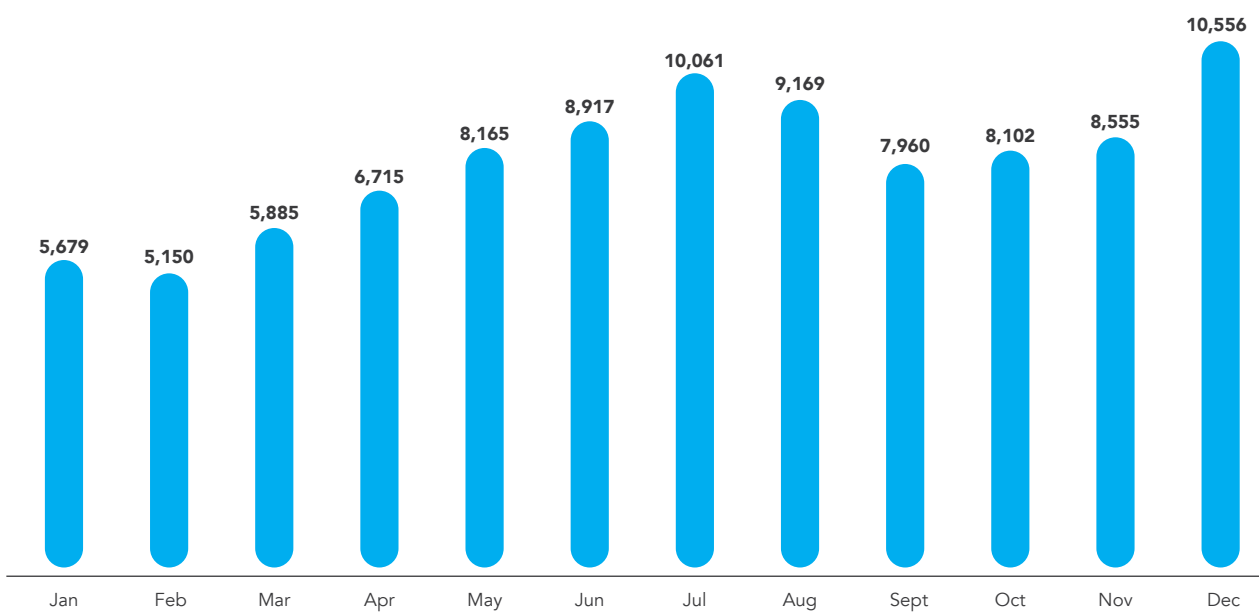**TABLE 6** | Type of hospital discharge according to ICD-10 chapter (%) | 2020

ICD-10 Chapter	2020				
	Discharge due to death	Discharge with improved status	Administrative discharge	Not disclosed	Gran Total
Neoplasm	0.51	8.53	0.34	0.09	9.48
Genitourinary	0.09	9.04	0.20	0.13	9.46
Pregnancy	0.00	8.26	0.10	0.03	8.40
Digestive	0.11	7.94	0.20	0.13	8.37
Circulatory	0.31	7.10	0.18	0.06	7.65
Respiratory	0.32	5.72	0.14	0.14	6.32
Infectious diseases	0.54	5.51	0.15	0.09	6.28
Musculoskeletal	0.01	5.45	0.08	0.02	5.56
Lesions and poisoning	0.06	4.84	0.11	0.05	5.06
Perinatal	0.03	2.17	0.17	0.01	2.38
Endocrine	0.02	1.98	0.05	0.03	2.08
Nervous system	0.03	1.84	0.04	0.02	1.92
Skin	0.01	1.06	0.03	0.02	1.12
Congenital	0.02	0.87	0.03	0.04	0.96
Blood	0.01	0.55	0.03	0.01	0.60
Eyes and adnexa	0.00	0.52	0.01	0.00	0.53
Ear	0.00	0.45	0.02	0.02	0.49
Mental	0.01	0.44	0.03	0.00	0.48
Factors	0.05	10.25	4.20	0.13	14.64
Symptoms	0.24	5.45	0.19	0.09	5.96
No information	0.10	1.96	0.16	0.03	2.26
Total	2.46	89.91	6.48	1.14	100.00

Source: SINHA/Anahp.

Analyzing hospital discharges by month, we can see a change in profile of admissions due to the new coronavirus pandemic, especially in March, the month in each the pandemic hit the country. The progressive increase of hospital discharges due to infectious diseases as of March can be observed in **Graph 8**.

Infectious diseases represent the chapter "Certain infectious and parasitic diseases" of ICD-10 that include, in addition to Covid-19, intestinal infectious diseases; tuberculosis; certain zoonotic bacterial diseases; other bacterial diseases; infections with a predominantly sexual mode of transmission; other spirochetal diseases; other diseases caused by chlamydia; rickettsioses; viral infections of the central nervous system; arthropod-borne viral fevers and viral hemorrhagic fevers; viral infections characterized by skin and mucous membrane lesions; viral hepatitis; human immunodeficiency virus (HIV) disease; other viral diseases; mycoses; protozoal diseases; helminthiases; pediculosis, acariasis and other infestations; sequelae of infectious and parasitic diseases; bacterial and viral infectious agents, and other infectious diseases.

GRAPH 8 | Hospital discharges of infectious diseases by month | 2020

| Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
5,679	5,150	5,885	6,715	8,165	8,917	10,061	9,169	7,960	8,102	8,555	10,556

Source: SINHA/Anahp.

In 2020, because of the new coronavirus, there was increase in hospital discharges caused by infectious diseases

Analyzing specifically the codes related to Covid-19 - B34.2, coronavirus infection - unspecific; U07.1, Covid-19, virus identified; U07.2, Covid-19, virus not identified, month by month, there was a trend of increase from March to June/ July, showing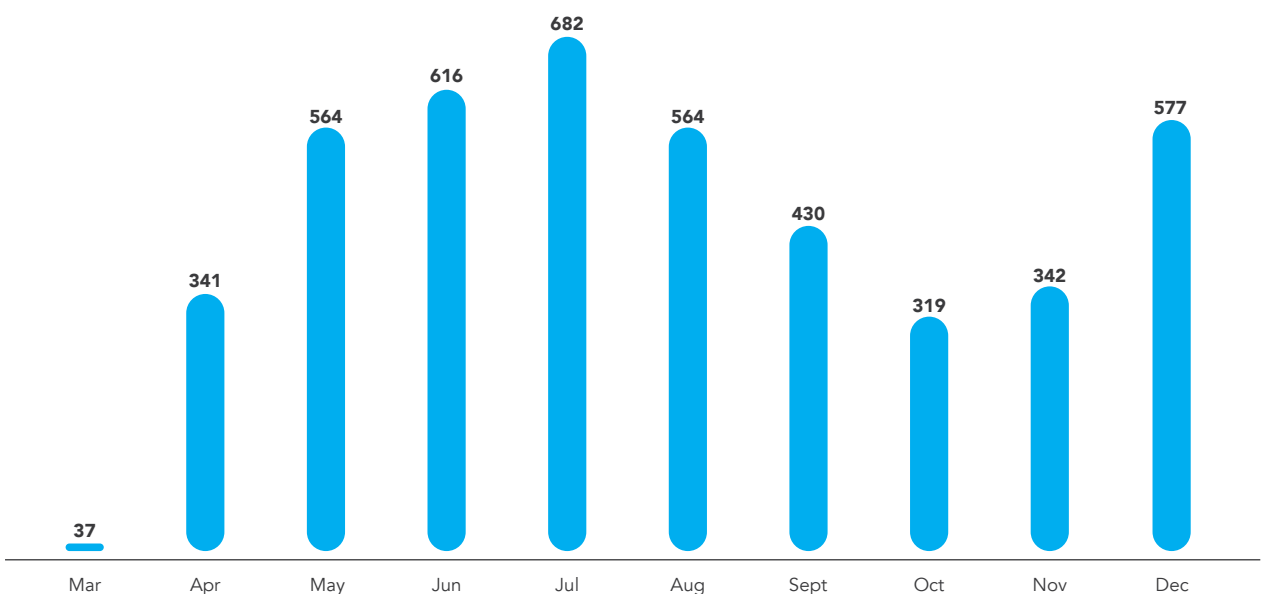 improvement after it, and significant increase again in November/ December 2020 **(Graph 9)**. Among Anahp hospitals, Covid-19 deaths followed the same behavior **(Graph 10)**.

GRAPH 9 | Hospital discharges of Covid-19 cases, by month | 2020
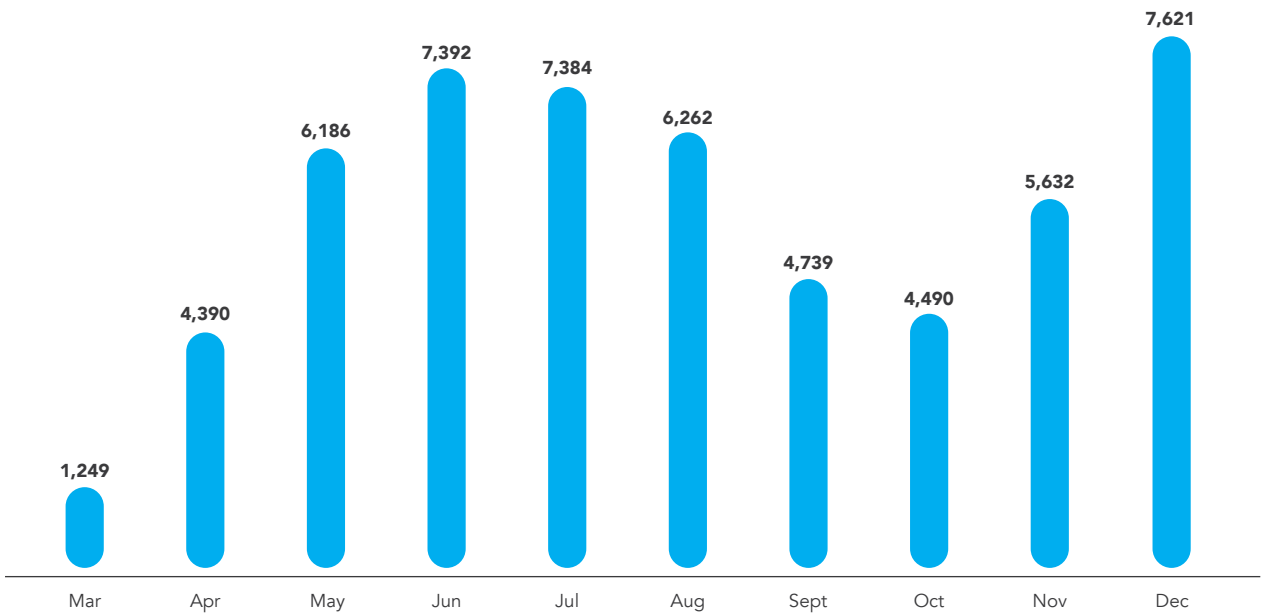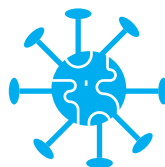

Source: SINHA/Anahp.

GRAPH 10 | Hospital discharges of Covid-19 infection whose outcome was death, by month | 2020
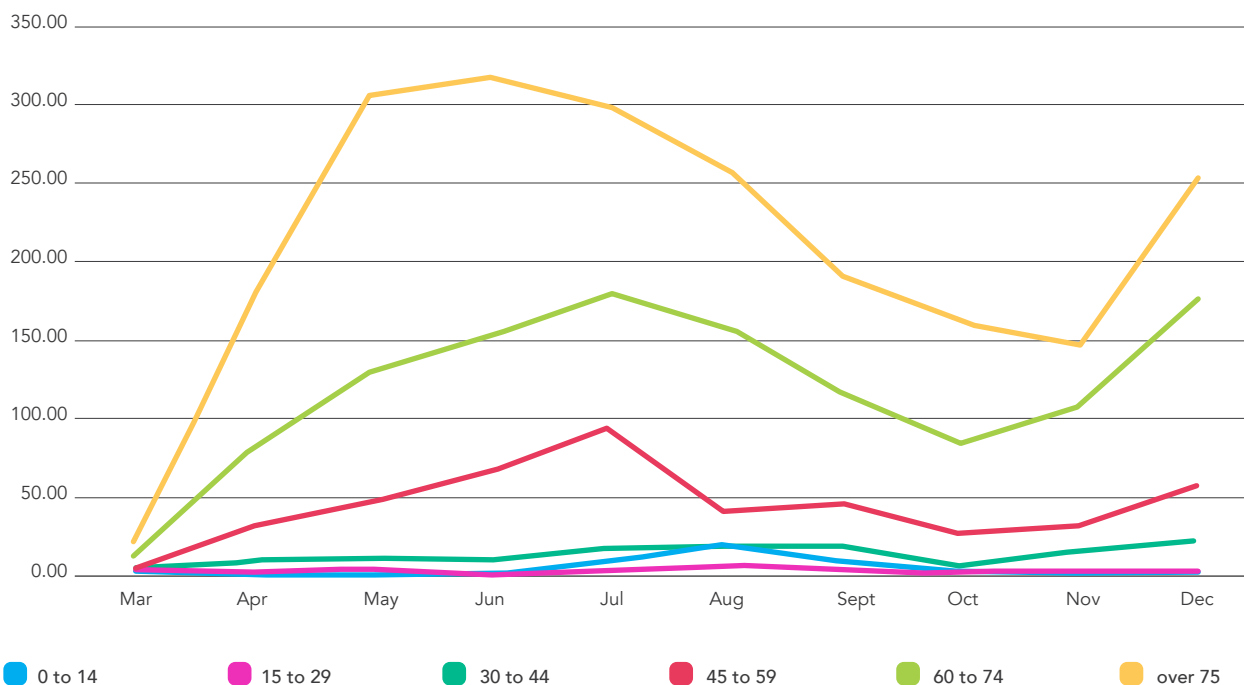

Source: SINHA/Anahp.

Upon analyzing hospital discharge with outcome of death by age range and month **(Graph 11)**, we can see that the negative outcome was more prevalent among elderly patients in all months of the year.

Studies have shown that, even though the susceptibility to Covid-19 analyzed by hospital rates in Brazil seems to be higher among men and younger groups, the deaths from the disease are more concentrated in the older age groups[1]. The Brazilian epidemiological situation suggests that Covid-19 mortality among the elderly had direct relation with demographic aspects - age, race and income, showing the need of care and specific support provided to elderly patients[2].

Brazilian epidemiological situation shows the need to provide specialized care and follow up to elderly people

GRAPH 11 | Hospital discharges of Covid-19 infections with death as outcome by age range and month | 2020

Legend:
- 0 to 14
- 15 to 29
- 30 to 44
- 45 to 59
- 60 to 74
- over 75

Source: SINHA/Anahp.

[1] SOUZA, L. G.; RANDOW, R.; SIVIERO, P. C. L. "Reflexões em tempos de COVID-19: diferenciais por sexo e idade". In: Comunicação em Ciências da Saúde, v. 31, p. 75-83, 2020. Available at: <http://www.escs.edu.br/revistaccs/index.php/comunicacaoemcienciasdasaude/article/view/672/294>; accessed on 09/04/2021.
[2] BARBOSA, I. R. et al. "Incidência e mortalidade por COVID-19 na população idosa brasileira e sua relação com indicadores contextuais: um estudo ecológico". In: Revista Brasileira de Geriatria e Gerontologia, v. 23, n. 1, 2020. Available at: <https://www.scielo.br/scielo.php?pid=S1809-98232020000100208&script=sci_arttext&tlng=pt>; accessed on 09/Apr/2021.

Admissions caused by respiratory system diseases, which are normally higher during the dry months (May, June, July and August), had a different behavior in 2020, as observed in **Graph 12**.
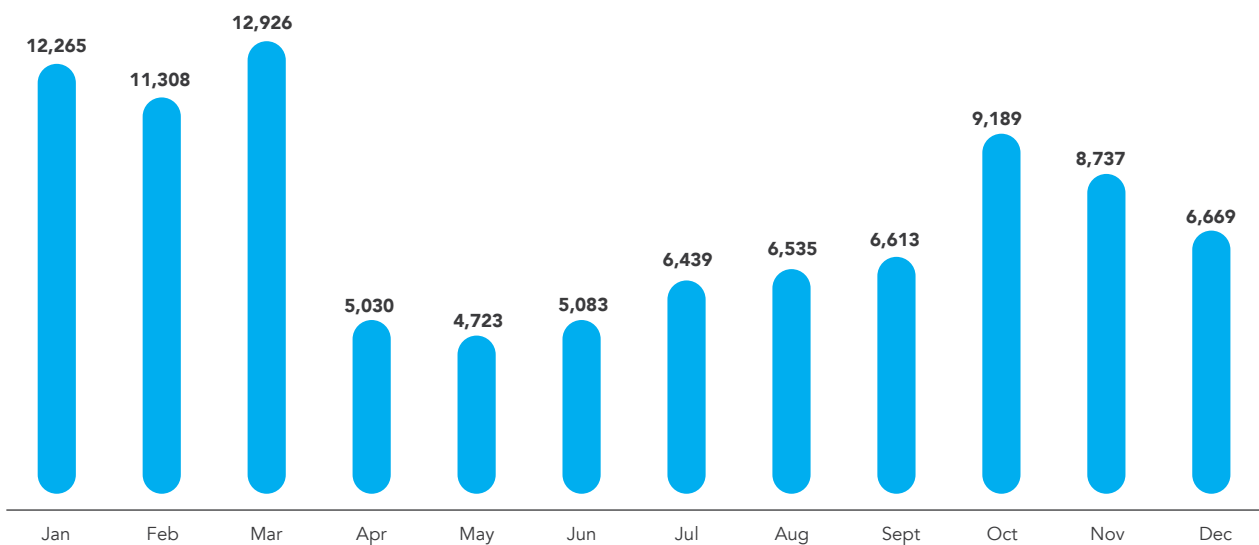
A study carried out in 15 pediatric hospitals revealed that pediatric ICU admissions due to common respiratory infections dropped 80% in 2020 compared to the three previous years. This result may be due to the social isolation measures adopted to fight Covid-19 (social distancing, use of masks and reinforced hand hygiene) and, in case of children, the fact that schools and day care centers were closed, which meant reduction of the circulation of other viruses[3].

The respiratory system diseases include: acute infections of upper respiratory tract (such as common cold, sinusitis, pharyngitis, tonsillitis, laryngitis); influenza (flu) and pneumonia; acute infections of lower respiratory tract (such as bronchitis, bronchiolitis); other diseases of upper respiratory tract (such as rhinitis, sinusitis, nasal polyp); chronic diseases of lower respiratory tract (such as bronchitis, emphysema, asthma); diseases of the lungs caused by external agents; other respiratory diseases that affect the interstitium; suppurative and necrotic conditions of lower respiratory tract; other pleural diseases; other diseases of respiratory system.

GRAPH 12 │ Hospital discharges by respiratory system diseases by month | 2020

Month	Value
Jan	12,265
Feb	11,308
Mar	12,926
Apr	5,030
May	4,723
Jun	5,083
Jul	6,439
Aug	6,535
Sept	6,613
Oct	9,189
Nov	8,737
Dec	6,669

Source: SINHA/Anahp.
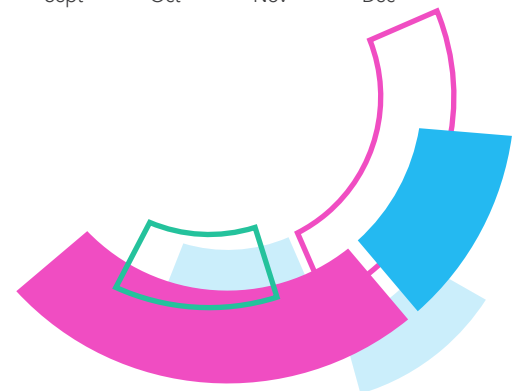
[3] "O Globo – Internações de crianças em UTIs por doenças respiratórias comuns caem 80% no ano, no Brasil". Available at: <https://www.rededorsaoluiz.com.br/instituto/ idor/ novidades/o-globo-internacoes-de-criancas-em-utis-por-doencas-respiratorias-comuns-caem-80-no-ano-no-brasil>; accessed on 14/Apr/2021.

Similarly, hospital discharges due to circulatory system diseases, which are normally more frequent in winter months (May, June and July), have been significantly impacted by the pandemic.

A study carried out in a regional cardiology reference unit (heart surgery, catheterization, angioplasty, implantable electronic devices, echocardiogram and car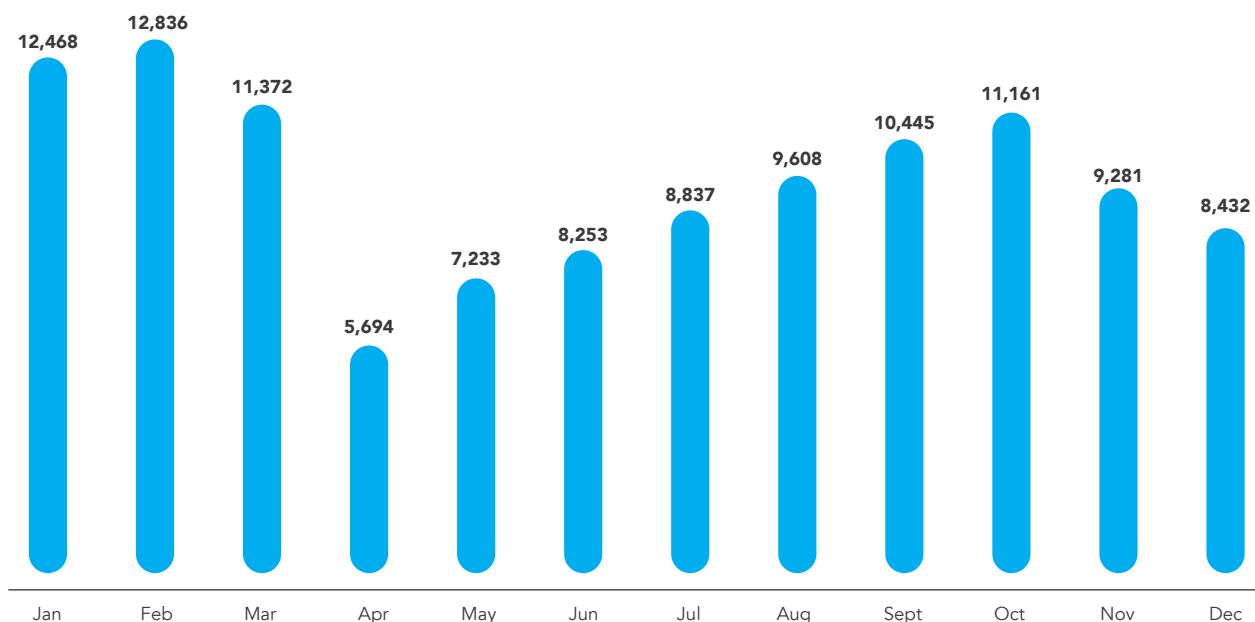diology emergency) and oncology unit (chemotherapy, radiotherapy and oncology diseases) that provide care to SUS patients and private health patients, showed that Covid-19 pandemic led to reduction in number of outpatient visits in cardiology, oncology and other specialties[4]. **Graph 13** presents the reduction of hospital discharges by circulatory system diseases, especially as of April 2020, in Anahp hospitals.

Diseases of the circulatory system include: acute rheumatic fever; chronic rheumatic heart diseases; hypertensive diseases; ischemic heart diseases; pulmonary heart disease and diseases of pulmonary circulation; other forms of heart disease; cerebrovascular diseases; diseases of arteries, arterioles and capillaries; diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified; other and unspecified disorders of the circulatory system.

GRAPH 13 | Hospital discharges by circulatory system diseases by month | 2020

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
12,468	12,836	11,372	5,694	7,233	8,253	8,837	9,608	10,445	11,161	9,281	8,432

Source: SINHA/Anahp.

[4] ALMEIDA, A. L. C. et al. "Repercussões da pandemia de COVID-19 na prática assistencial de um hospital terciário". In: Arquivos Brasileiros de Cardiologia, v. 115, n. 5, p. 862-870, 2020. Available at: <https://www.scielo.br/scielo.php?pid=S0066-782X2020001300862&script=sci_arttext&tlng=pt>; accessed on 09/Apr/2021.

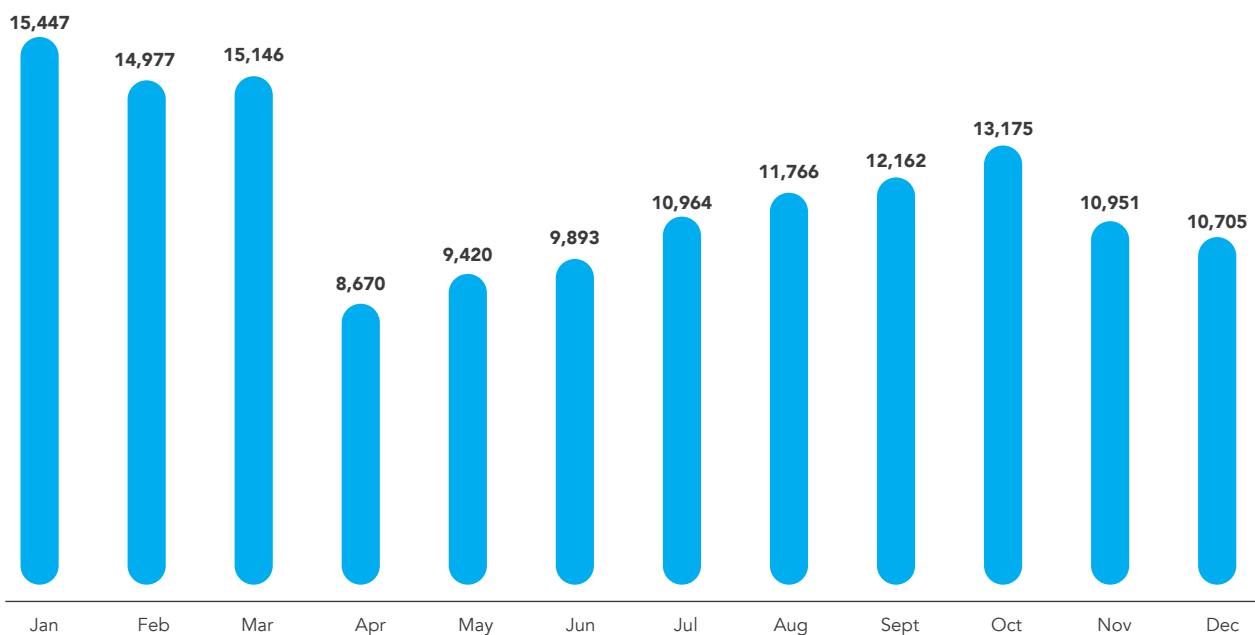Similarly, **Graph 14** shows the reduction in hospital discharges by neoplasm, especially as of April 2020.

The neoplasm chapter includes: malignant neoplasms of lip, oral cavity and pharynx, malignant neoplasms of digestive organs, malignant neoplasms of respiratory and intrathoracic organs, malignant neoplasms of bone and articular cartilage, melanoma and other malignant neoplasms of skin, malignant neoplasms of mesothelial and soft tissue, malignant neoplasms of breast, malignant neoplasms of female genital organs, malignant neoplasms of male genital organs, malignant neoplasms of urinary tract, malignant neoplasms of eye, brain and other parts of central nervous system malignant neoplasms of thyroid and other endocrine glands, malignant neoplasms of ill-defined, other secondary and unspecified sites, malignant neuroendocrine tumors, secondary neuroendocrine tumors, malignant neoplasms of lymphoid, hematopoietic and related tissue, in situ neoplasms, benign neoplasms, except benign neuroendocrine tumors, neoplasms of uncertain behavior, polycythemia vera and myelodysplastic syndromes, benign neuroendocrine tumors, neoplasms of unspecified behavior.

In view of these results, Anahp emphasizes the importance of continuing elective treatments and periodic follow up and medical assessments for early detection of severe diseases. By doing that, it is possible to enhance the likelihood of curing these diseases.

The pandemic caused the reduction of hospital discharges due to diseases of respiratory and circulatory systems and neoplasms

GRAPH 14 | Hospitals discharges due to neoplasms by month | 2020

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
15,447	14,977	15,146	8,670	9,420	9,893	10,964	11,766	12,162	13,175	10,951	10,705

Source: SINHA/Anahp.

Care delivery performance

Structure and annual production of Anahp hospitals, analyses of operational indicators, quality and safety, organizational protocols, and Covid-19

CARE DELIVERY PERFORMANCE

Executive summary

OPERATIONAL INDICATORS

OVERALL OPERATIONAL OCCUPANCY RATE (%)
was directly impacted by the Covid-19 pandemic

ANAHP HOSPITALS ARE HIGH COMPLEXITY

65.25%
Large size and special size
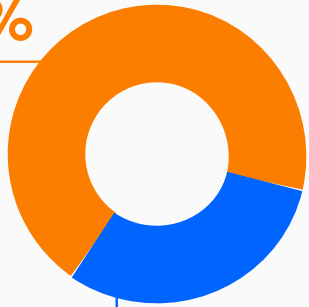
34.75%
Small and medium sizes

76.85 2017
76.44 2018
76.96 2019
67.59 2020

8.08 8.31 8.77 10.03
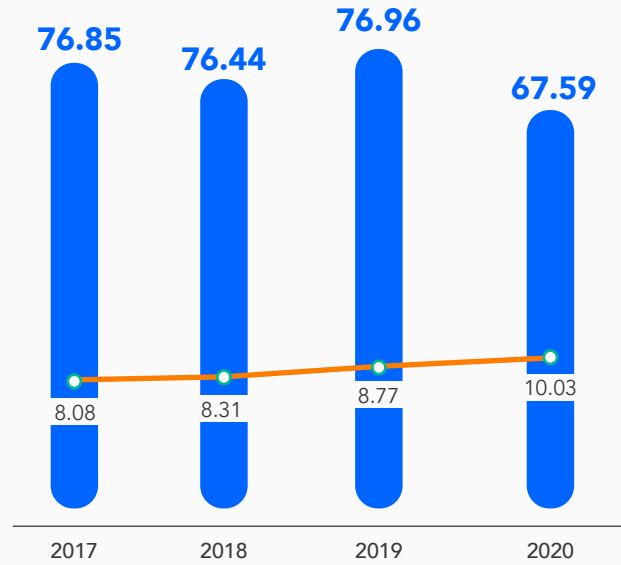
○— Standard deviation   *Source: SINHA/Anahp.*

MORTALITY RATE (%)
Growth trend in 2020 because of the pandemic
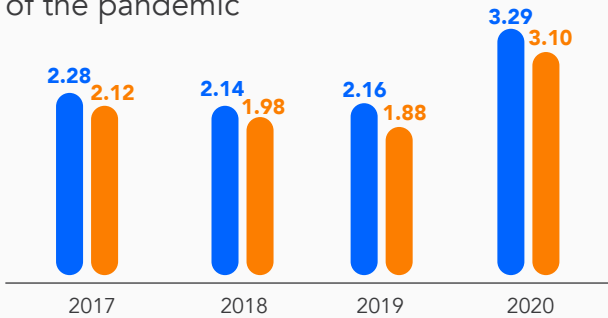
2017: 2.28 / 2.12
2018: 2.14 / 1.98
2019: 2.16 / 1.88
2020: 3.29 / 3.10

● Organizational mortality rate
● Organizational mortality rate (≥ 24h)
Source: SINHA/Anahp.

AVERAGE LENGTH OF STAY (DAYS)
Growth trend in 2020 because of the pandemic

2017: 4.27 / 1.13
2018: 4.13 / 1.14
2019: 4.04 / 1.20
2020: 4.59 / 1.62
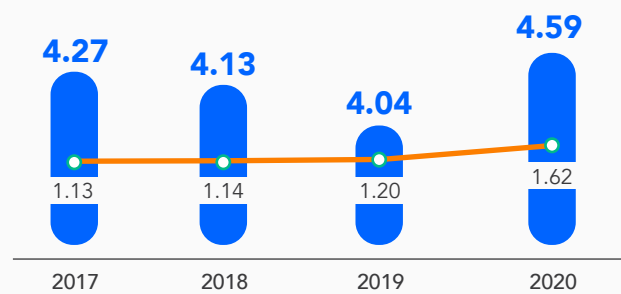
○— Standard deviation   *Source: SINHA/Anahp.*

INCIDENCE OF COVID-19 IN THE PERIOD (%)
Among Anahp hospitals, it was higher in June and December

March 12.49 / 10.51
April 24.07 / 20.09
May 33.78 / 22.80
June 37.50 / 22.55
July 33.51 / 18.09
August 31.13 / 18.76
September 28.50 / 16.66
October 26.96 / 15.17
November 33.54 / 20.27
December 37.76 / 24.91
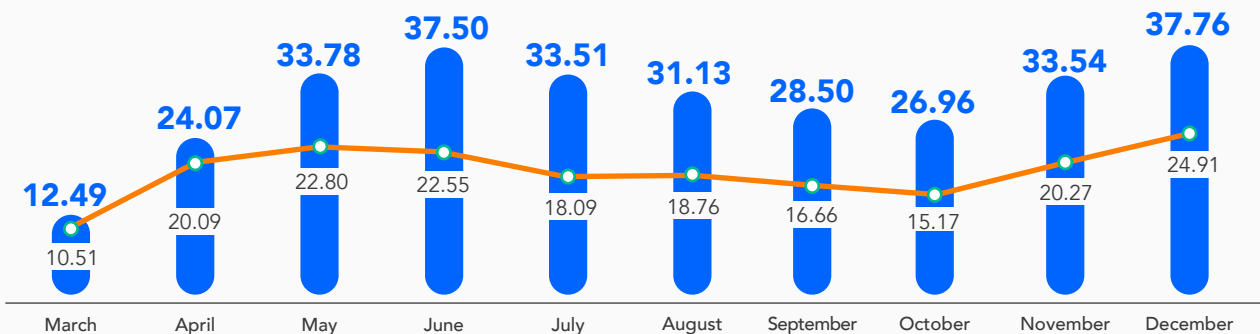
○— Standard deviation   *Source: SINHA/Anahp.*

INDICATORS OF QUALITY AND SAFETY IN CARE DELIVERY

Indicator	2019	2020
Incidence density of central line-associated bloodstream infection– adult ICU	1.96‰	**2.61‰**
Central line utilization rate – adult ICU	49.20%	**55.78%**
Incidence density of central line-associated bloodstream infection – neonatal ICU	4.65‰	**3.31‰**
Central line utilization rate – neonatal ICU	31.06%	**30.02%**
Incidence density of central line-associated bloodstream infection – Pediatric ICU	1.61‰	**1.51‰**
Central line utilization rate – Pediatric ICU	43.83%	**45.55%**
Incidence density of central line-associated bloodstream infection – step-down unit	2.00‰	**1.95‰**
Central line utilization rate – step-down unit	33.92%	**30.50%**

Source: SINHA/Anahp.

ORGANIZATIONAL PROTOCOLS

Selected diseases	Indicators	2020	Parameters	
Acute myocardial infarction	Door-to-balloon Median time (minutes)	**62.42**	90	American Heart Association
Ischemic stroke	Door-to-report Median time (minutes)	**38.33**	<45	American Stroke Association
	Door-to-venous-thrombolysis Median time (minutes)	**36.27**	<60	American Stroke Association

Source: SINHA/Anahp.

Annual structure and production

Member hospitals presented a reduction in contracted services in the year of the pandemic

65.25% of the member hospitals are large sized or special size

This chapter has been developed having based on the data obtained from Anahp's annual questionnaire, with 94 responding hospitals in 2020, that is, 79.66% of the total member hospitals.

Members have a heterogeneous structure: there are general hospitals and specialty hospitals, with and without maternity, most of them providing urgency/emergency care. In this chapter, the main features of the sample will be described in terms of service delivery.

At the end of 2020, Anahp had 118 member hospitals, and 92.37% of them had at least one certification of excellence.

Structure in 2020

The definitions of hospital size according to the Ministry of Health are:

- **Small hospital:**
  installed capacity of up to 50 beds.
- **Medium hospital:**
  installed capacity of 51 to 150 beds.
- **Large hospital:**
  installed capacity of 151 to 500 beds.
- **Special hospital:**
  installed capacity above 500 beds.

Based on this classification, in 2020, 65.25% of Anahp's hospitals were considered large and special.

Among the members that answered the questionnaire, 48.94% have maternity; of those, 40.43% provide care to high-risk pregnancies. Of the member hospitals, 81.91% have outpatient care units, totaling 2,859 offices **(Table 1)**.

48.94%
of the member hospitals have maternity

TABLE 1 | Outpatient units

	2020
Organizations that have outpatient units	81.91%
Number of offices	2,859

Source: SINHA/Anahp.

The diagnostic support structure of Anahp hospitals is robust:

• 92.55% of the hospitals perform computed tomography scans, and 70.21% have CT scanners inside the hospital. Production for outpatients is predominant; overall, more than 1.50 million tests were performed, and 1.17 million were outpatient tests (patients from the emergency department and scheduled appointments) and 389,270 tests were for inpatients.

• 86.17% of Anahp hospitals performed MRI tests, and 63.83% have MRI scanners in the hospital. Production was more than 725,000 tests, of which 559,420 tests were for outpatients (patients from the emergency department and scheduled appointments) and 126,280 tests were for inpatients **(Table 2)**.

• 89.36% of the responding hospitals have laboratory services, 72.34% offer chemotherapy and only 28.72% have radiation therapy **(Table 3)**.

• 51.06% of the responding hospitals performed transplants in 2020. There were 2,760 transplants in the period, especially bone marrow and kidney **(Table 4)**. In the category "others", the main ones were cornea and tissue transplants.

Most of Anahp hospitals that answered this research have contracted services for laundry and security, as shown in **Figure 1**.

TABLE 2 | Imaging services

	2020
Computed Tomography	1,568,677
Magnetic Resonance Imaging	725,701

Source: SINHA/Anahp.

TABLE 3 | Diagnostic and therapeutic support

	2020
Clinical Laboratory	89.36%
Chemotherapy	72.34%
Radiation Therapy	28.72%

Source: SINHA/Anahp.

TABLE 4 | Transplants

	2020
Organizations performing transplants	51.06%
Bone marrow	1,224
Kidney	658
Liver	628
Heart	40
Pancreas	15
Others	200

Source: SINHA/Anahp.

FIGURE 1 | Contracted Services | 2020

LAUNDRY

74.71%

SECURITY

65.06%

HOUSEKEEPING

46.15%

DIET, NUTRITION, KITCHEN

25%

RECEPTION

12.16%

ACCOUNTING

9.20%

IT

7.46%

MAINTENANCE

6.94%
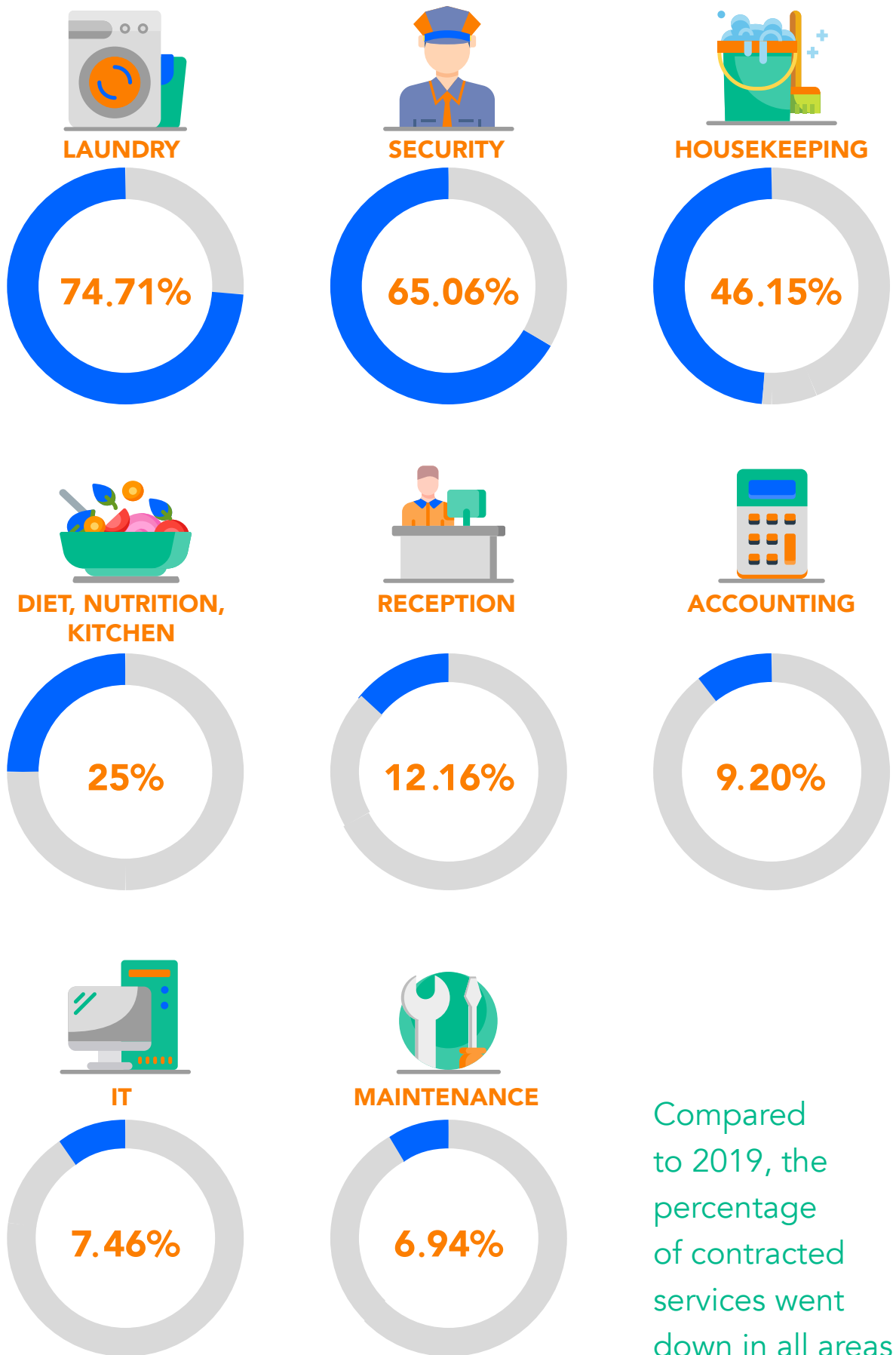
Compared to 2019, the percentage of contracted services went down in all areas

Source: SINHA/Anahp.

Compliance Structure

With the movements seen in the global scene claiming for more ethics and transparency in internal and external relations of organizations, in 2015, Anahp identified the need to contribute with the industry by sharing the experiences of its member organizations, seeking international benchmarking, and having a constructive debate about compliance, a theme addressed in practically every event of the association ever since.

Observing the strategic guidelines of Anahp's Board of Directors and to encourage the adoption of good compliance practices, the first edition of the Code of Corporate Conduct / Compliance for Private Hospitals was designed. It is a guiding document for the design of an encompassing Code of Conduct capable of providing to hospitals recognition and credibility by fostering transparent practices in the market.

In that same year, Anahp convened its Strategic Compliance Committee, with the aim of proposing strategies, policies, standards, and procedures aimed at the dissemination and adoption of a compliance culture at corporate and clinical spheres of healthcare organizations.

In 2018, when the discussions on the theme were more mature and healthcare organizations had the essential requirements to understand the importance of a compliance program, Anahp, through its Strategic Compliance Committee, took another important step with the launch of Anahp's Code of Conduct for member hospitals, which – differently from previous publications that had the aim of helping hospitals build their own codes of conduct and compliance programs – defined a set of minimal standards of ethical conduct required from member organizations.

As this work continued, in 2018, Anahp proposed structuring some simple quantitative indicators, that would provide evidence of the evolution of member organizations in the implementation of compliance initiatives. Since then, this survey has been applied every year.

Figure 2 shows the information provided by member organizations in 2020.

FIGURE 2 | Compliance

92.55% have a Code of Conduct

88.30% have an ethics and compliance committee

71.28% have a compliance professional or department/area

88.30% know their main critical ethical and compliance topics

85.11% train and report to staff issues related to ethics and compliance

85.11% have a report channel dedicated to ethical issues

91.49% have policies and standards that contemplate administrative consequences and/or disciplinary action for violations of the law or norms of conduct

85.11% have independent internal audits that review and recommend improvement actions for internal environment and controls

Source: SINHA/Anahp.

Operational Management

In a year as challenging as 2020, best practices were essential for patient care

The Covid-19 pandemic had a direct impact on operational management indicators and the occupancy rate of Anahp hospitals was at its lowest level
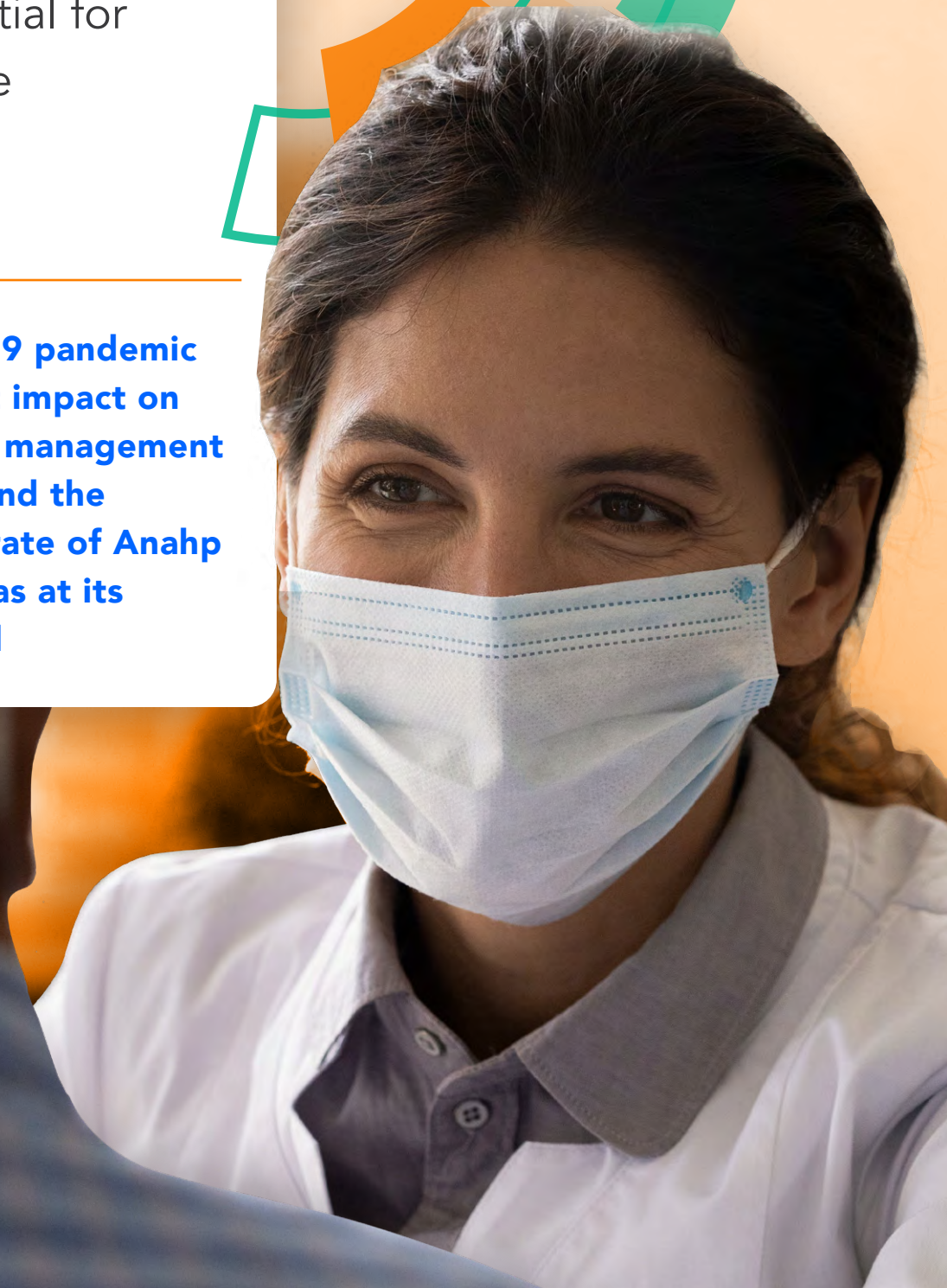
With the aim of setting references for continuing improvement in healthcare organizations, Anahp has been collecting, since 2007, indicators on care delivery performance that assess management efficiency of operational beds, productivity, and care delivery effectiveness.

Experience sharing, benchmarking and alignment of operational practices among Anahp member hospitals still is fundamental to keep appropriate operational standards and indicators in organizations, especially in 2020, a year marked by the Covid-19 pandemic.

Overall, operational indicators of Anahp hospitals were directly impacted by the postponement of elective procedures and surgeries and the fear of users to seek hospital care. Occupancy rates recorded their lowest level since 2012, with a growth trend in average length of stay, at the same time as bed turnover went down and replacement interval went up.

Operational indicators

The analyses below show the evolution of general management operational indicators; it is also possible to analyze them by region of the country, which permits demonstrating the dynamics of the impact of Covid-19 in 2020. Next, indicators are presented per type of intensive care unit – adult ICU, pediatric ICU, neonatal ICU, and step-down unit.

The operational management indicators of Anahp Integrated Hospital Indicator System (SINHA) were calculated based on the data of 109 responding hospitals in 2020 **(Table 1)**.

In face of the change in patient profile, average length of stay presented an increasing trend in 2020

TABLE 1 | Annual summary of operational indicators

Indicator	2017	2018	2019	2020	2020 Standard deviation
Occupancy rate	76.85%	76.44%	76.96%	67.59%	**10.03%**
Average length of stay (days)	4.27	4.13	4.04	4.59	**1.62**
Turnover rate (times)	5.34	5.62	5.85	4.73	**1.76**
Replacement interval (days)	1.32	1.36	1.27	2.39	**1.09**
Conversion rate (admissions over the total ED visits)	8.15%	8.55%	8.29%	11.91%	**5.72%**
Rate of admissions through urgency/ emergency (over total hospital discharges)	41.93%	43.21%	44.74%	48.83%	**15.88%**
Organizational mortality rate	2.28%	2.14%	2.16%	3.29%	**2.04%**
Organizational mortality rate ≥ 24h	2.12%	1.98%	1.88%	3.10%	**2.03%**
Rate of patients staying in the hospital > 90 days	0.58%	0.47%	0.45%	0.50%	**0.60%**

Source: SINHA/Anahp.

The occupancy rate, which between 2017 and 2019 was above 75%, was only 67.59% in 2020. As a consequence of Covid-19, the reduction of admissions resulting from elective surgeries and procedures related to other comorbidities led to the lowest occupancy rate seen in recent years **(Graph 1)**.

GRAPH 1 | Overall operational occupancy rate (%)

	2017	2018	2019	2020
Occupancy	76.85	76.44	76.96	67.59
Standard deviation	8,08	8,31	8,77	10,03

Source: SINHA/Anahp.
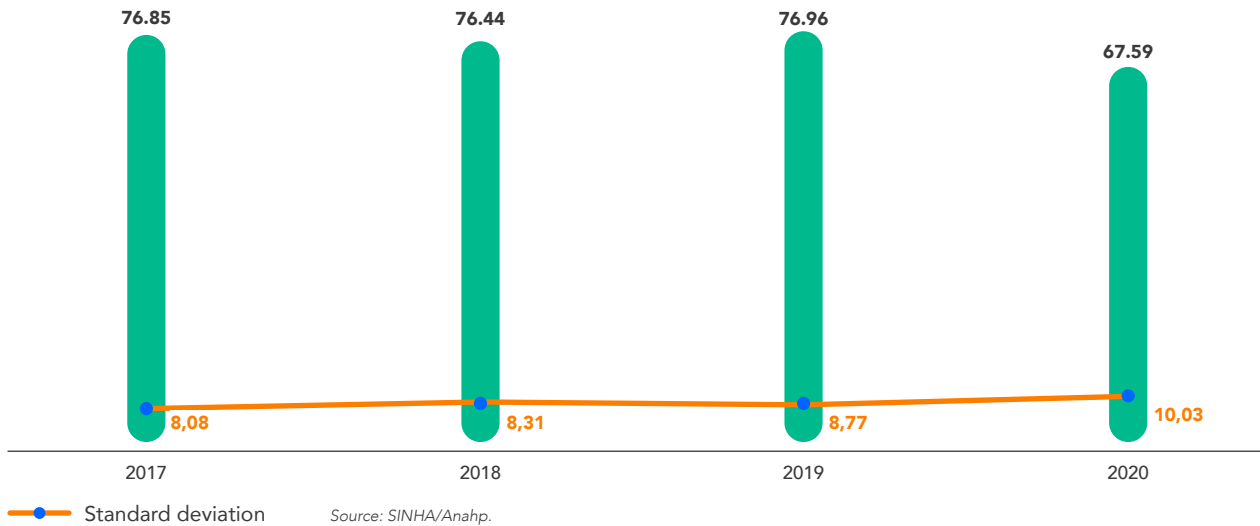
Between 2017 and 2019, the number of health plan members remained stable. In 2020, despite the impact of the Covid-19 pandemic in the economy, an increase was observed in the number of beneficiaries compared to the previous year, which, however, did not lead to an increase in the occupancy rate of Anahp hospitals **(Graph 2)**.

GRAPH 2 | Overall operational occupancy rate (%) vs. number of health plan members

	2017	2018	2019	2020
Number of health plan members	47,088,080	47,100,199	47,039,728	47,615,162
Overall operational occupancy rate	76.85	76.44	76.96	67.59

Source: SINHA/Anahp and ANS (on 31/Mar/2021).
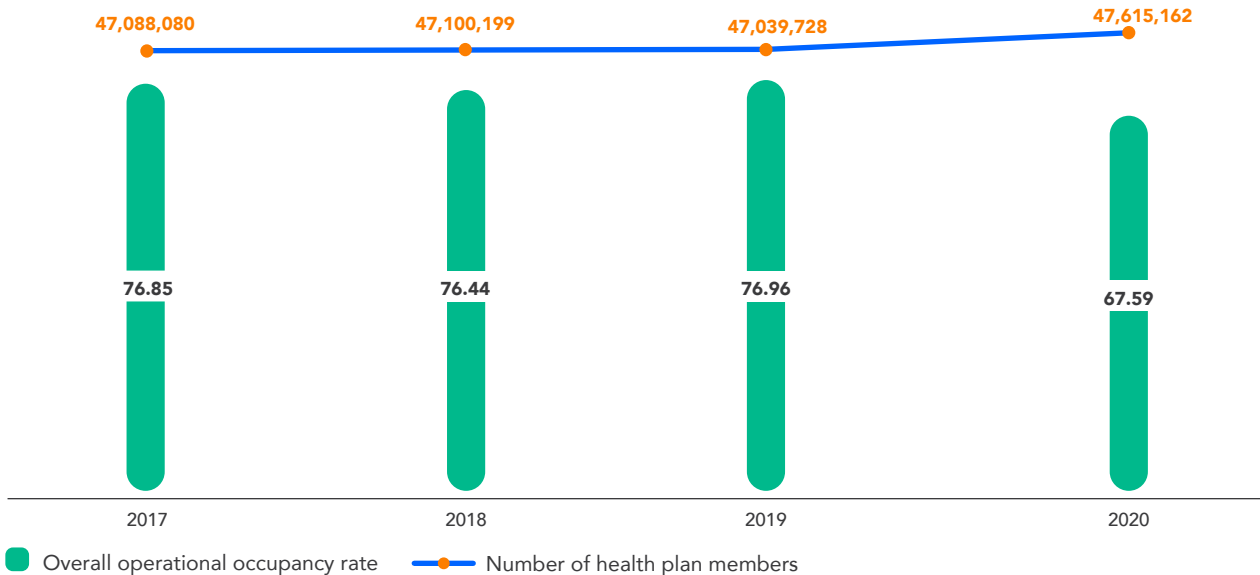
The overall average length of stay, which had been showing a downward trend between 2017 and 2019, increased to 4.59 days in 2020 **(Graph 3)**. It is worth highlighting that patients with Covid-19 have a longer average length of stay than those with other comorbidities who receive care at Anahp hospitals.

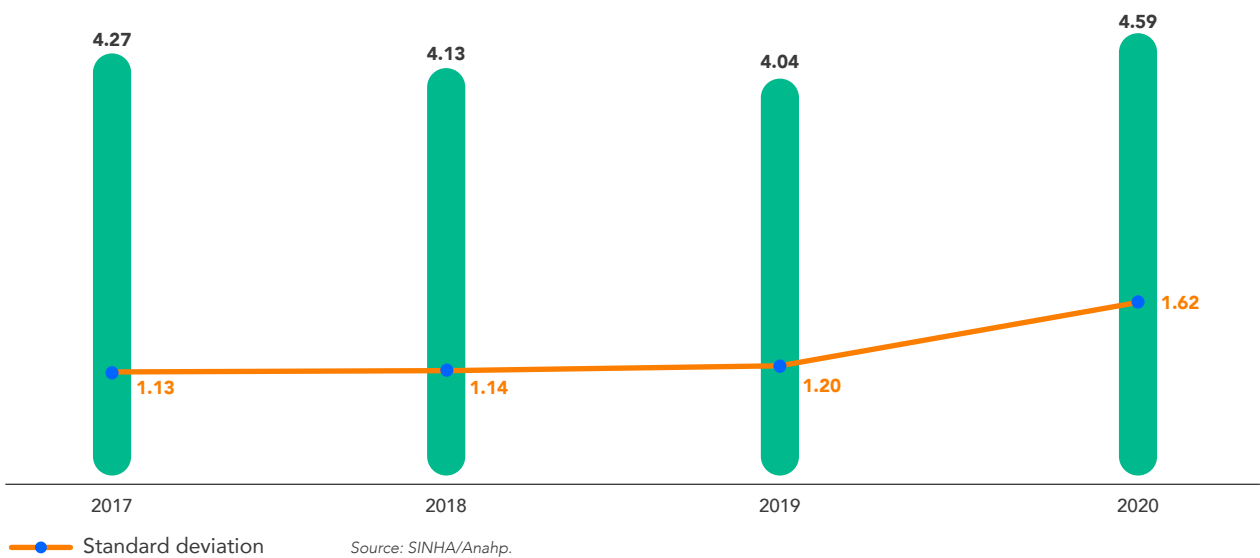In face of this scenario, the turnover rate, which in essence measures the monthly utilization average for admissions to each bed, went down from 5.85 times in 2019 to 4.73 times in 2020, on average. The replacement interval, which shows the average time a bed remains unoccupied between the discharge of one patient and the admission of another, consequently increased, going from 1.27 day in 2019 to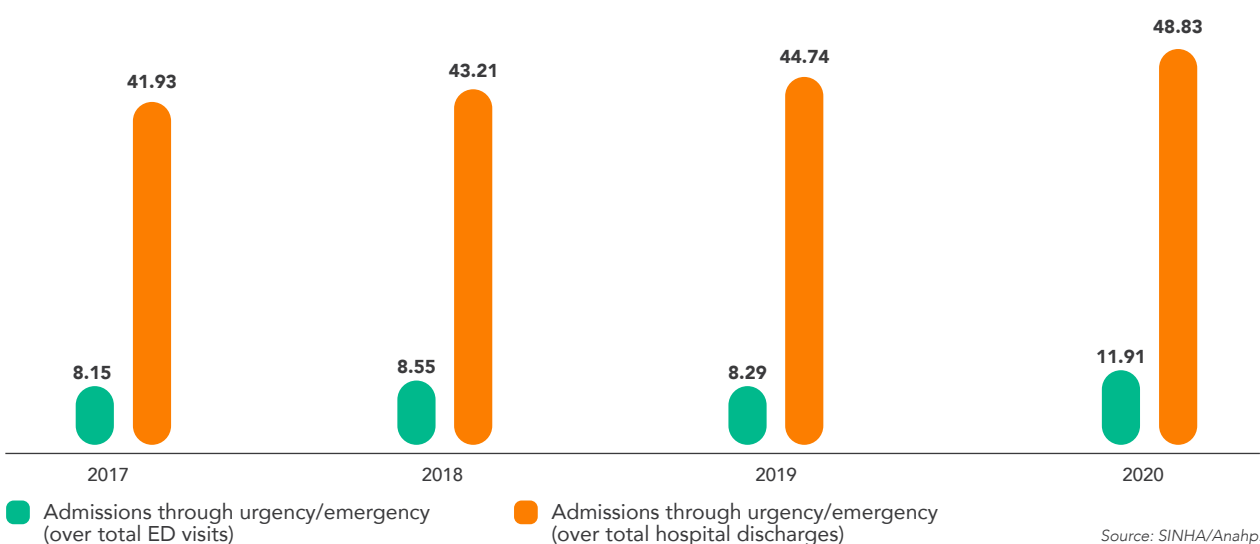 2.39 days in 2020. The emergency department (ED) has been a relevant gateway into the hospital system and is the main one for clinical patients.

In 2020, the percentage of admissions through the emergency department (ED) was 48.83% of total hospital discharges. This percentage, which had been growing since 2017, presented a sharper increase in 2020. The percentage of admissions of inpatients through the emergency department over the total number of visits to the emergency department, which was stable between 2017 and 2019, grew in 2020, getting to 11.91% **(Graph 4)**. These results are related to a change in the profile of patients seen at the emergency department, with a higher proportion of more severe cases, as evidenced by the comparative analysis with previous years.

GRAPH 3 | Average length of stay in Anahp hospitals (days)

	2017	2018	2019	2020
Length of stay	4.27	4.13	4.04	4.59
Standard deviation	1.13	1.14	1.20	1.62

Standard deviation

Source: SINHA/Anahp.

GRAPH 4 | Admissions through the Emergency Department (%)

	2017	2018	2019	2020
Admissions through urgency/emergency (over total ED visits)	8.15	8.55	8.29	11.91
Admissions through urgency/emergency (over total hospital discharges)	41.93	43.21	44.74	48.83

● Admissions through urgency/emergency (over total ED visits)   ● Admissions through urgency/emergency (over total hospital discharges)
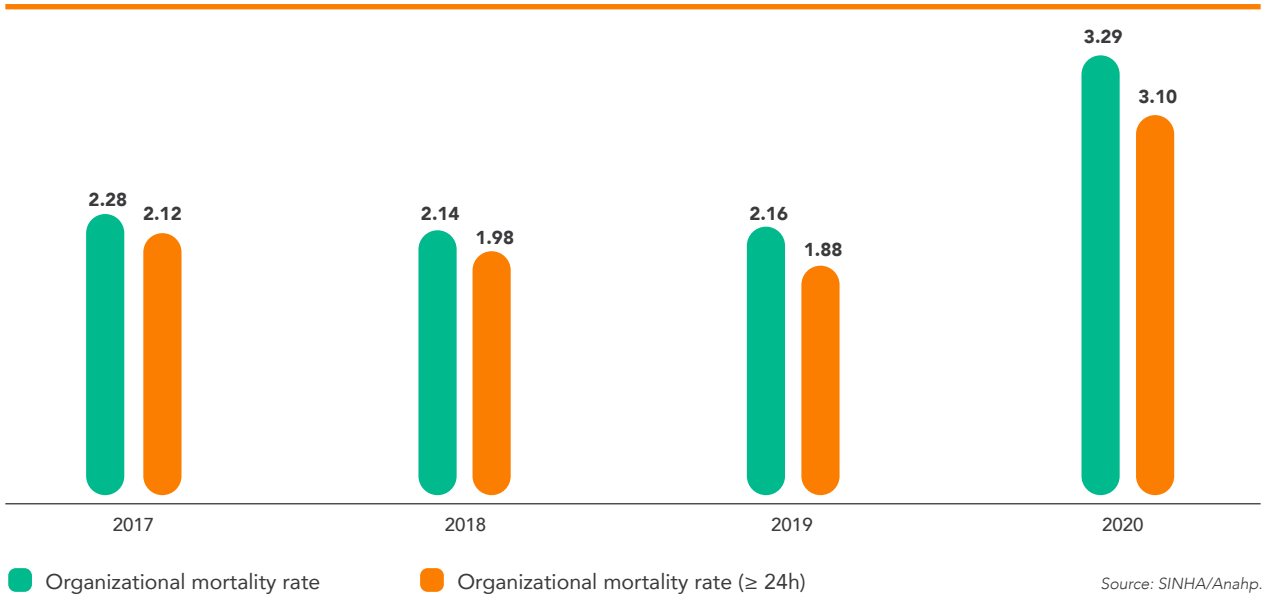
Source: SINHA/Anahp.

Organizational mortality rates, which represent the percentage of deaths compared to the number of hospital discharges (discharges to home, transfers to other organizations, and deaths), had been presenting a downward trend in recent years, independently of the length of stay and also for hospitalizations longer or equal to 24 hours. However, with the pandemic, there was a significant increase in these indicators.

In 2020, the organizational mortality rate independently of the length of stay was 3.29%, while the organizational mortality rate for hospitalizations equal to or longer than 24 hours was 3.10% **(Graph 5)**. After a period of subsequent reductions between 2017 and 2019, the number of patients staying longer than 90 days grew in 2020. This indicator was 0.50% in the year, because of the change in the mix of inpatients **(Graph 6)**.

In 2020, there was increase in the number of hospitalizations longer than 90 days

GRAPH 5 | Mortality rate (%)

	2017	2018	2019	2020
Organizational mortality rate	2.28	2.14	2.16	3.29
Organizational mortality rate (≥ 24h)	2.12	1.98	1.88	3.10

● Organizational mortality rate   ● Organizational mortality rate (≥ 24h)

Source: SINHA/Anahp.

GRAPH 6 | Hospitalizations longer than 90 days (%)

	2017	2018	2019	2020
	0.58	0.47	0.45	0.50
Standard deviation	0.58	0.51	0.51	0.60

━● Standard deviation   *Source: SINHA/Anahp.*
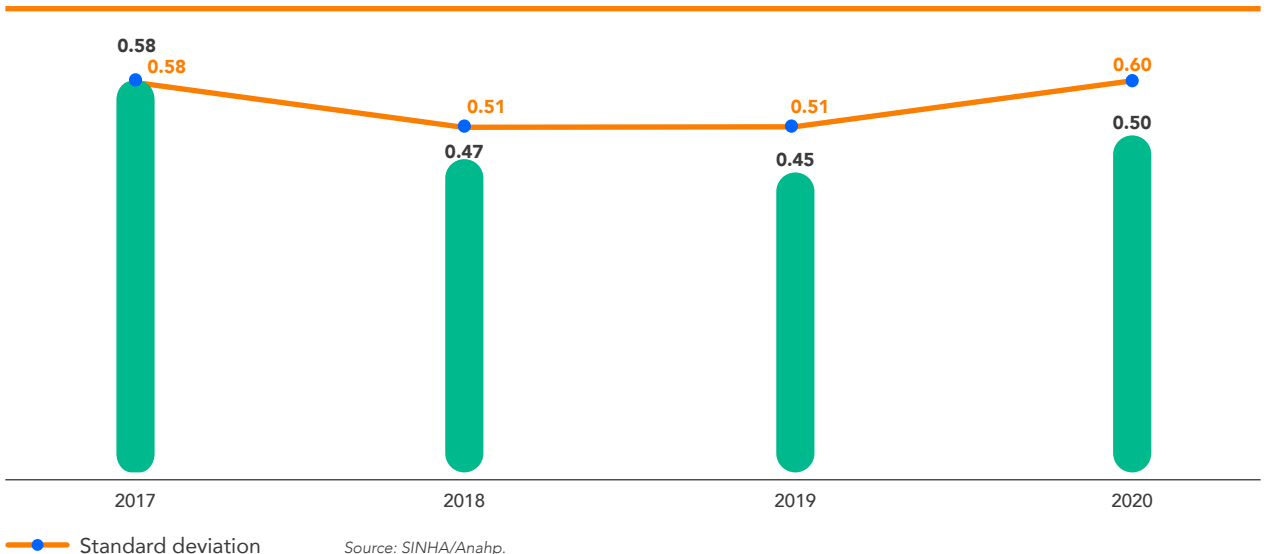
It is also possible to analyze operational indicators by region of the county. **Table 2** shows that the occupancy rate of Anahp hospitals was 69.16% in the Southeast region, which concentrates most of the health plan members.

In the North and Center-West regions, together, the average length of stay was lower (3.80 days in 2020) than in other regions, which enabled the highest bed turnover in the country – 5.89 times, on average, in 2020.

In the South region, the admission rate compared to total hospital discharges was 42.30%, while in the Northeast, the number of patients staying in the hospital longer than 90 days was only 0.24% in the year.
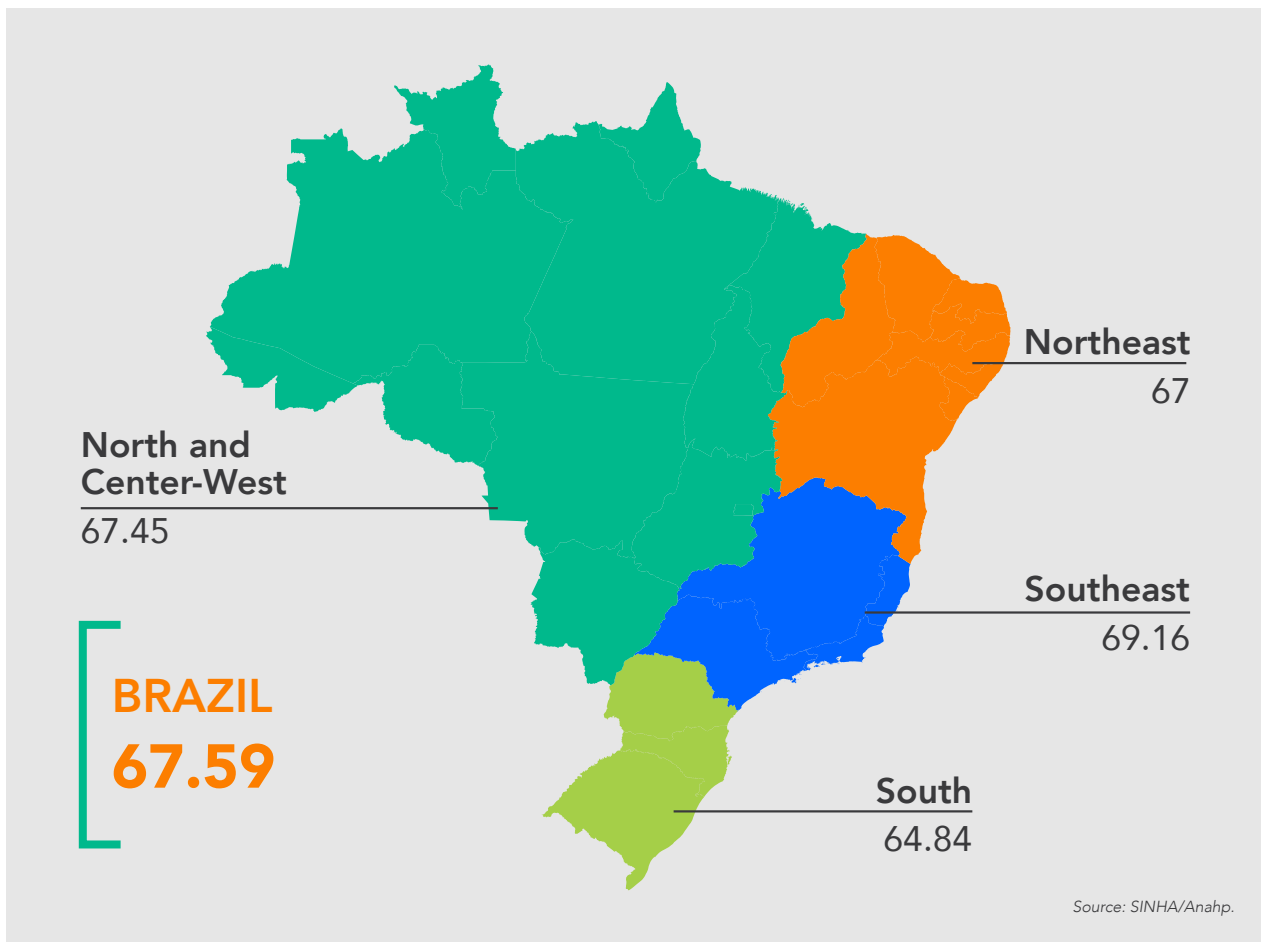
The southeast region concentrates most of the health plan members

TABLE 2 | Regional operational indicators

Indicator	2020				
	South	Southeast	Northeast	North and Center-West	Brazil
Occupancy rate	64.84%	69.16%	67.00%	67.45%	**67.59%**
Average length of stay (days)	4.73	4.69	5.01	3.80	**4.59**
Turnover rate (times)	4.19	4.61	4.37	5.89	**4.73**
Replacement interval (days)	2.59	2.34	2.59	1.89	**2.39**
Conversion rate (admissions over the total ED visits)	13.89%	11.26%	11.98%	8.07%	**11.91%**
Rate of admissions through urgency/ emergency (over total hospital discharges)	42.30%	50.45%	52.77%	51.53%	**48.83%**
Organizational mortality rate	4.19%	2.80%	4.14%	2.99%	**3.29%**
Organizational mortality rate ≥ 24h	3.79%	2.55%	3.81%	3.39%	**3.10%**
Number of patients staying in the hospital longer than 90 days	0.39%	0.61%	0.24%	0.37%	**0.50%**

Source: SINHA/Anahp.

FIGURE 1 | Occupancy rate of Anahp hospitals in Brazil (%) | 2020

Northeast
67

North and
Center-West
67.45

Southeast
69.16

BRAZIL
67.59

South
64.84

Source: SINHA/Anahp.

In 2020, with the postponement of elective procedures and surgeries, the rate of patients undergoing surgical procedures was 50.73%, below that of previous years **(Table 3)**. The number of surgeries per patient was 1.70; and the surgical mortality rate was 0.43% in 2020 **(Graph 7)**.

Considering the classification established by the American Society of Anesthesiologists (ASA), which groups people in anesthetic risk classes – small (ASA I and II), medium (ASA III and IV) and high (ASA V and VI) –, in 2020, there was stability in the surgical mortality rate in ASA groups I and II, a growth trend in ASA groups III and IV, and fall in ASA groups V and VI, when compared to 2019.

TABLE 3 | Operational indicators

Indicator	2017	2018	2019	2020	2020 Standard deviation
Rate of patients undergoing surgical procedures	55.59%	57.96%	55.14%	50.73%	**19.88%**
Number of surgeries per patient	1.46	1.51	1.52	1.70	**0.68**
Surgical mortality rate	0.38%	0.30%	0.30%	0.43%	**0.52%**
Surgical mortality rate for ASA I and II	0.06%	0.05%	0.04%	0.05%	**0.12%**
Surgical mortality rate for ASA III and IV	2.73%	2.32%	2.07%	2.40%	**2.73%**
Surgical mortality rate for ASA V and VI	10.22%	12.02%	20.01%	18.02%	**30.10%**

Source: SINHA/Anahp.

GRAPH 7 | Surgical mortality (%)

	2017	2018	2019	2020
(line)	0.40	0.32	0.33	0.52
(bar)	0.38	0.30	0.30	0.43
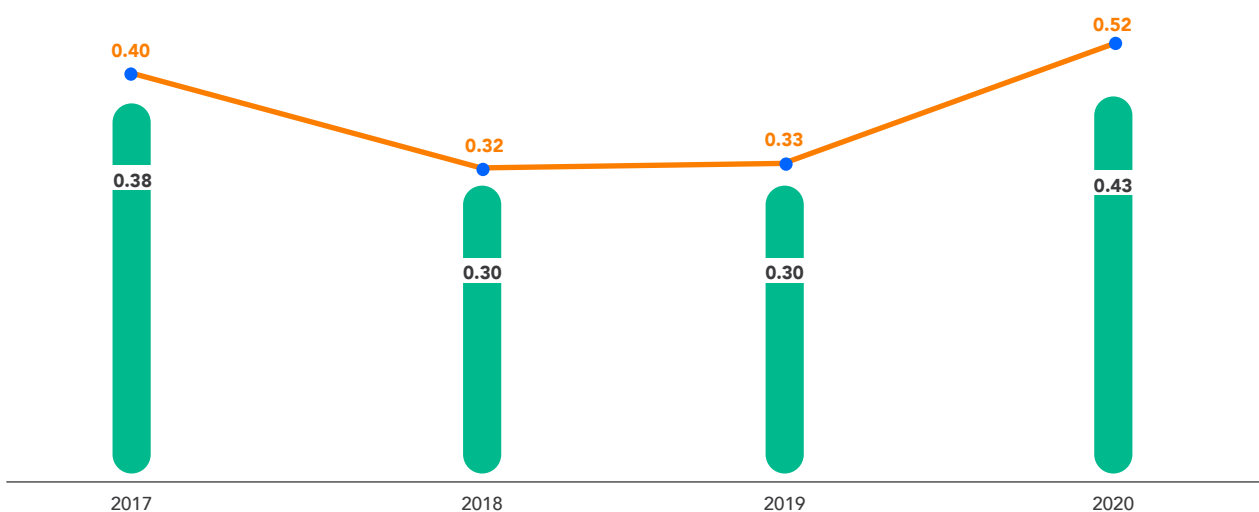
Standard deviation

Source: SINHA/Anahp.

Operational indicators – intensive care units

As to the activities of intensive care units, the adult ICU presented a downward trend in occupancy rates and a slight reduction in the average length of stay, as compared to 2019 and 2020 **(Table 4)**.

Likewise, step-down units showed lower occupancy rates and lower length of stay in 2020, when compared to 2019 **(Table 5)**.

It is worth highlighting that hospitals dedicated part of their beds exclusively for the treatment of Covid-19 patients, due to the risk of contamination to other patients. These Covid-19 dedicated beds presented, along 2020, the opposite trend, that is, higher occupancy rates and higher length of stay.

TABLE 4 | Operational indicators – Adult ICUs

Indicator	2017	2018	2019	2020	2020 Standard deviation
Occupancy rate	79.82%	78.12%	79.33%	74.91%	13.62%
Average length of stay (days)	5.51	6.78	5.53	5.34	2.17
Turnover rate (times)	4.46	4.28	4.82	4.43	1.55
Replacement interval (days)	1.58	1.94	1.48	2.06	1.95

Source: SINHA/Anahp.

TABLE 5 | Operational indicators – Step-down units

Indicator	2017	2018	2019	2020	2020 Standard deviation
Occupancy rate	85.17%	80.88%	83.32%	73.27%	15.75%
Average length of stay (days)	7.24	7.83	5.85	5.44	2.33
Turnover rate (times)	3.93	3.80	4.12	4.05	1.87
Replacement interval (days)	1.09	1.42	1.19	1.98	1.37

Source: SINHA/Anahp.

The occupancy rates of Pediatric ICUs presented a downward trend in 2020, when compared to 2019, 56.23%. The average length of stay was 6.51 days, with a turnover rate of 2.84 times, on average, in the year **(Table 6)**.

The occupancy rates of neonatal ICUs also presented a downward trend in 2020, and the average length of stay remained stable as compared to 2019 and 2020, getting to 13.67 days in the last year analyzed. Turnover rate was 1.46 times on average in 2020 **(Table 7)**.

TABLE 6 | Operational indicators – Pediatric ICUs

Indicator	2017	2018	2019	2020	2020 Standard deviation
Occupancy rate	72.96%	73.17%	72.35%	56.23%	19.80%
Average length of stay (days)	7.59	7.77	6.29	6.51	3.04
Turnover rate (times)	3.12	3.19	3.64	2.84	1.19
Interval index (days)	3.20	3.46	2.77	5.64	4.47

Source: SINHA/Anahp.

TABLE 7 | Operational indicators – Neonatal ICU

Indicador	2017	2018	2019	2020	2020 Standard deviation
Occupancy rate	75.59%	72.08%	69.70%	65.60%	20.66%
Average length of stay (days)	13.23	15.93	13.84	13.67	5.53
Turnover rate (times)	1.71	1.45	1.51	1.46	0.60
Replacement interval (days)	5.49	7.67	6.81	8.40	7.50

Source: SINHA/Anahp.

Still compared to the specific indicators for maternity/neonatal care, one may note, on **Table 8**, that maternity occupancy rates were 59.19% in 2020. The average length of stay in that year was 2.17 days, with a turnover rate of 8.19 times, results similar to those observed in the year before.
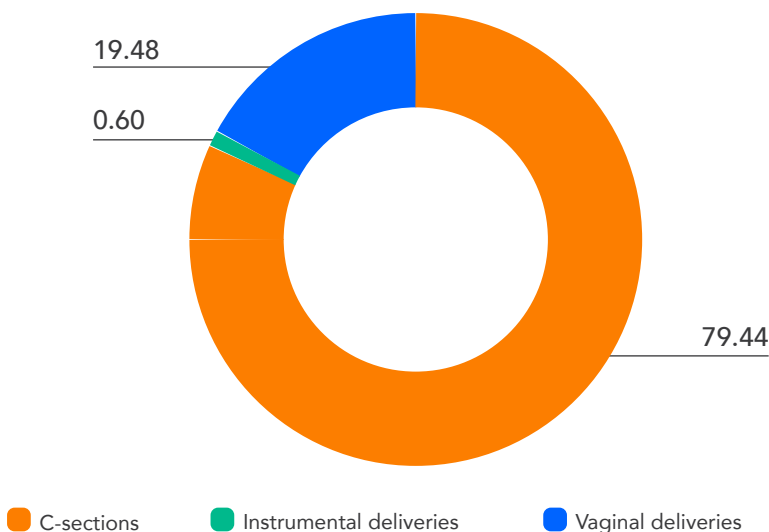
TABLE 8 | Operational indicators – Maternity/Neonatal

Indicator	2017	2018	2019	2020	2020 Standard deviation
Occupancy rate	72.04%	67.65%	67.33%	59.19%	**13.84%**
Average length of stay (days)	2.25	2.20	2.12	2.17	**0.49**
Turnover rate (times)	8.99	8.65	8.49	8.19	**2.11**
Replacement interval (days)	0.94	1.09	1.04	1.49	**0.86**

Source: SINHA/Anahp.

Among Anahp hospitals, more than 130,000 deliveries were performed in 2020. Of those, about 80% were C-sections (including instrumental deliveries).

GRAPH 8 | Profile of deliveries (%)

19.48
0.60
79.44

● C-sections   ● Instrumental deliveries   ● Vaginal deliveries

Source: SINHA/Anahp.

TABLE 9 | Indicators – Maternity/Neonatal

Indicator	2017	2018	2019	2020	2020 Standard deviation
Rate of C-sections	82.19%	82.49%	81.14%	79.44%	12.79%
Rate of instrumental deliveries	0.43%	0.41%	0.44%	0.60%	1.34%
Rate of vaginal deliveries	17.56%	17.22%	17.65%	19.48%	12.35%
Neonatal mortality within 27 days (for every 1,000 live births)	2.56	3.30	3.90	4.48	4.12
Maternal mortality (for every 100,000 women)	25.86	19.71	17.96	28.80	87.37

Source: SINHA/Anahp.

Maternal death, according to the International Classification of Diseases and Health Related Problems, 10th revision (ICD-10), is the "death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes".

Data of the Brazilian Ministry of Health[1] show that the ratio of maternal mortality[2] in Brazil was 59.10 deaths for every 100,000 live births in 2018. It is important to note that, historically, the identification of maternal deaths presents two problems: 1) underdiagnosing: when death is attributed to another cause; 2) underreporting: when the death is not reported. Among Anahp hospitals, maternal mortality was 28.80 for every 100,000 women in 2020.

Also, according to data of the Brazilian Ministry of Health[3], early neonatal mortality[4] in Brazil was estimated to be 7.20 in 2017 (last data available). Late neonatal mortality[5] in Brazil was estimated to be 2.30 in 2017 (last data available). Among Anahp hospitals, neonatal mortality was 4.48 for every 1,000 newborn infants in 2020.

[1] MINISTÉRIO DA SAÚDE. Boletim Epidemiológico. Brasília, v. 51, n. 20, 2020
Available at: <https://antigo.saude.gov.br/images/pdf/2020/May/20/Boletim-epidemiologico-SVS-20-aa.pdf>; accessed on 31/Mar/2021.
[2] Maternal mortality ratio is defined as the number of maternal deaths for every 100,000 live births from mothers living in a certain geographical space.
[3] MINISTÉRIO DA SAÚDE. Saúde Brasil 2019: uma Análise da Situação de Saúde com Enfoque nas Doenças Imunopreveníveis e na Imunização. Brasília, 2019.
Available at: <https://portalarquivos2.saude.gov.br/images/pdf/2019/dezembro/05/Saude-Brasil-2019-imunizacao.pdf>; accessed on 31/Mar/2021.
[4] Early neonatal mortality defined as "(number of deaths of inhabitants from 0 to 6 days of age ÷ number of live births from resident mothers) × 1,000".
[5] Late neonatal mortality defined as "(number of deaths of inhabitants from 7 to 27 days of age ÷ number of live births from resident mothers) × 1,000".

Non-member Hospitals

SINHA was opened to public and philanthropic hospitals at the end of 2019

The use of the tool encourages the dissemination of best management practices in the Brazilian health system

At the end of 2019, the association opened Anahp Integrated Hospital Indicator System (SINHA) to public and philanthropic organizations that are not members of Anahp. By opening the tool, it was intended to disseminate best management practices to the Brazilian health system, making available the platform's resources and functionalities for results' assessment and measurement, as well as to provide parameters for the comparison of results (benchmarking) and to encourage continuing improvement processes. About fifteen non-member hospitals joined this initiative in 2020, twelve of which have already entered data into the platform; twenty more are expected to join in 2021.

In the first phase of collection, organizations had access to about forty care-delivery and management indicators in the platform SINHA. By crossing this information with that of other registered hospitals, it is possible to benchmark data.

Operational indicators

The analyses below show the first results of the operational management indicators for this group of hospitals in 2020. The indicators were calculated based on a sample of twelve organizations that registered in the year.

TABLE 1 | Annual summary of operational indicators

Indicator	2020	2020 Standard deviation
Occupancy rate	70.52%	14.63%
Average length of stay (days)	5.21	1.81
Turnover rate (times)	4.33	1.31
Replacement interval (days)	2.43	1.66
Conversion rate (admissions over the total ED visits)	19.29%	11.70%
Admissions through urgency/emergency (over total hospital discharges)	57.08%	21.43%
Organizational mortality rate	6.19%	3.73%
Organizational mortality rate ≥ 24h	5.26%	3.20%
Number of patients staying in the hospital longer than 90 days	0.86%	0.88%

Source: SINHA/Anahp.

In 2020, the occupancy rate was 70.52%, with an average length of stay of 5.21 days, which led to a turnover rate of 4.33 times and a replacement interval of 2.43 days. The rate of patients undergoing surgical procedures was 54.50%, with 1.37 surgeries per patient.

Among non-member hospitals, the occupancy rate was 70% in 2020 according to SINHA

TABLE 2 | Operational indicators

Indicator	2020	2020 Standard deviation
Rate of patients undergoing surgical procedures	54.50%	20.71%
Surgeries per patient	1.37	0.29
Surgical mortality rate	1.03%	1.01%

Source: SINHA/Anahp.

Of the deliveries performed in this group of hospitals, about 57% were C-sections (including instrumental delivery).

GRAPH 1 | Profile of births (%)

43.92

55.38

1.10
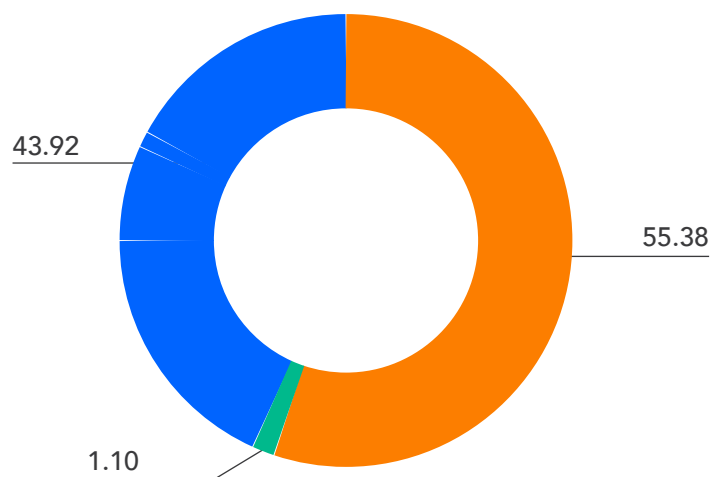
● C-sections   ● Instrumental deliveries   ● Vaginal deliveries

Source: SINHA/Anahp.

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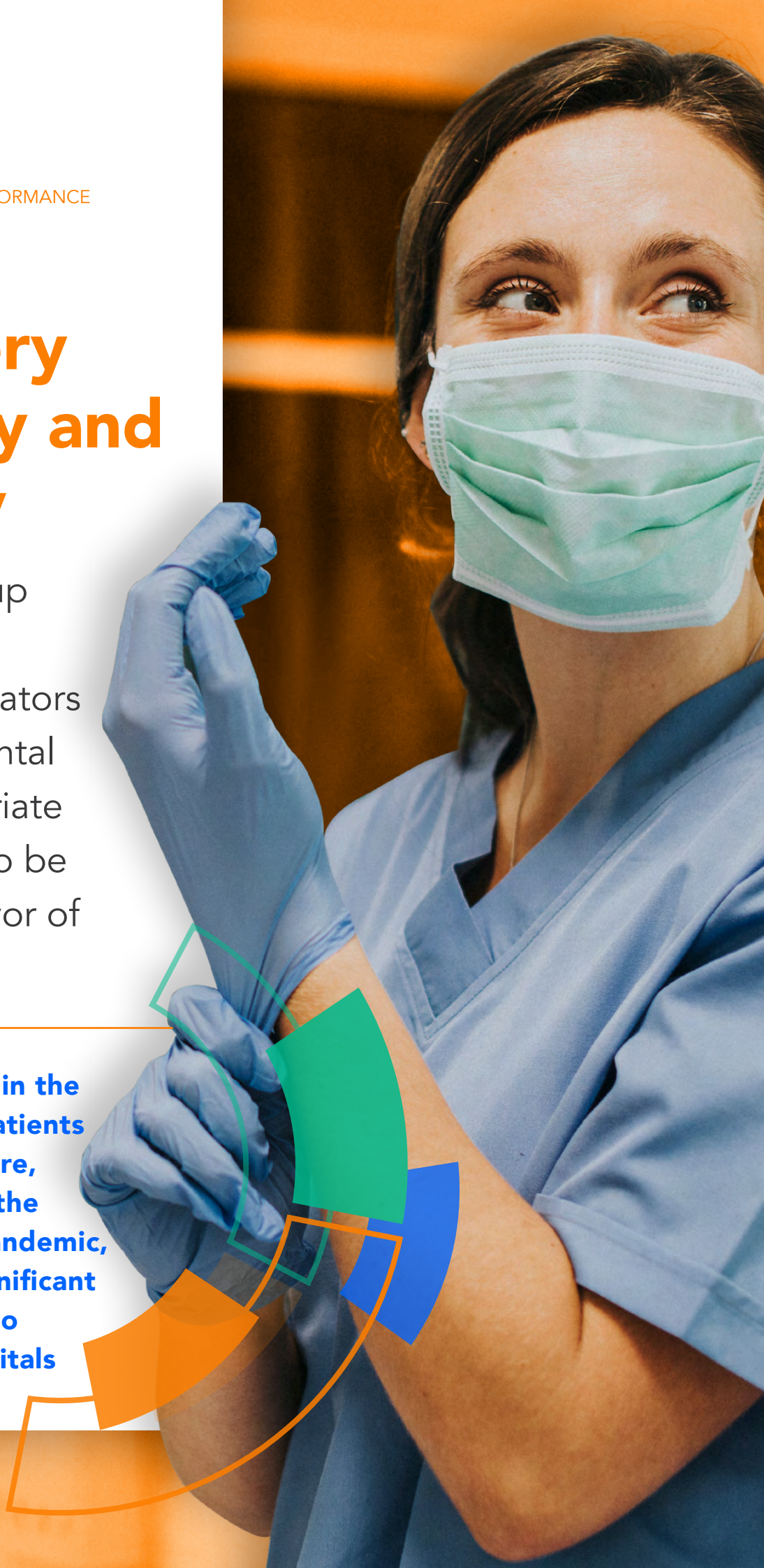
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TOTVS

Care delivery quality and safety

Following up quality and safety indicators is fundamental for appropriate measures to be taken in favor of patients

The change in the profile of patients receiving care, because of the Covid-19 pandemic, brought significant challenges to Anahp hospitals

For years, Anahp and its members have been seeking to improve the quality of care and to make hospitals a safer environment. This agenda has been one of Anahp's purposes since its creation in 2001.

The pursuit for transparency in processes and patient safety are themes that are always present in the discussions and concerns of our industry, and 2020 was no different. Like in previous years, among other actions, hospitals worked to prevent pressure ulcers and healthcare-related infections, to have safe medication prescription, and to increase the barriers to assure surgical safety.

Through the action of its Work Groups, Anahp provides protocols and manuals that contribute significantly for safety and quality in patient care, standardizing best practices that are frequently revisited and updated by groups.

As to the quality and safety indicators presented in this chapter, it is important to note that there may be a relevant standard deviation because of the heterogeneous characteristics of Anahp hospitals.

In general, the indicators suffered the impacts of the Covid-19 pandemic, especially due to the change in the profile of patients receiving care in organizations. In adult ICUs, it is possible to observe higher utilization rates of central lines, indwelling vesical catheters, and mechanical ventilation. In that sense, the dissemination of best quality and safety practices is essential in care delivery so that infections related to the use of these devices do not show unfavorable results.

Safety indicators

The patient safety system has the aim of reducing patient harm. A priority among the organizations affiliated to Anahp, it results in the improvement of care, more appropriate utilization of resources and higher efficiency in care delivery. This process also requires independent external assessments to identify opportunities for improvement and assess the effectiveness of their implementation.

In recent years, several member hospitals of Anahp have won more than one certification, both for the hospital and for certain clinical care programs.

Organizations can be recognized by one or more accreditation model, Brazilian – National Accreditation Organization (ONA) – or international – Qmentum International Accreditation Program, Joint Commission International (JCI), and DNV International Accreditation Standard / National Integrated Accreditation for Healthcare Organizations (DIAS/NIAHO).

Patient safety is an agenda acknowledged as relevant by the Ministry of Health, which, in 2013, launched the National Patient Safety Program with the aim of monitoring and preventing harm in the delivery of healthcare, based on the application and inspection of care delivery rules and protocols that prevent failures in care. The data assessed include prevention of healthcare-associated infections, safe surgery, prevention of pressure ulcers and falls.

Hospital accreditations certify the quality of the healthcare organization

Prevention of healthcare-associated infections

For years, Anvisa considers mandatory to monitor and share data regarding healthcare-associated infections. In 2017, the agency updated the criteria for the monitoring and handling of hospital materials with the aim of mitigating this type of harm to patients.

In the same year, Anahp hospitals changed the specifications of the indicators proposed by Anahp Integrated Hospital Indicator System (SINHA) to meet market expectations and Anvisa's criteria. The indicators the association monitors include the incidence density of central line associated bloodstream infections in intensive care units (ICU) **(Table 1)**.

According to Anvisa's data[1], the incidence density of laboratory-confirmed primary central line associated bloodstream infections in adult ICUs was 4.10 for every 1,000 patients-day in 2018. In neonatal ICUs this number was 7.50 for every 1,000 patients-day, while in pediatric ICUs, it was 4.60 for every 1,000 patients-day in that year.

Among Anahp hospitals, the incidence density of central line associated bloodstream infections in adults ICU was 2.61 for every 1,000 patients-day in 2020. It is worth noticing that the utilization rate of central lines in adult ICUs was 55.78% in that year, higher than previous years, which may be related to a higher number of Covid-19 patients.

In 2020, the incidence density of central line-associated bloodstream infections was 3.31 for every 1,000 patients-day in neonatal ICUs; 1.51 for every 1,000 patients-day in pediatric ICUs; and 1.95 for every 1,000 patients-day in step-down units. The utilization rate of central lines in neonatal and pediatric ICUs and step-down units was 30.02%, 45.55% and 30.50%, respectively, in that same year.

TABLE 1 | Central line associated bloodstream infections in Anahp hospitals

Indicator	2017	2018	2019	2020	2020 Standard deviation
Incidence density of central line-associated bloodstream infection – adult ICU	2.84‰	2.61‰	1.96‰	2.61‰	2.98‰
Central line utilization rate – adult ICU	49.56%	49.27%	49.20%	55.78%	22.48%
Incidence density of central line-associated bloodstream infection – neonatal ICU	4.78‰	4.87‰	4.65‰	3.31‰	5.54‰
Central line utilization rate – neonatal ICU	29.20%	30.16%	31.06%	30.02%	18.01%
Incidence density of central line-associated bloodstream infection – Pediatric ICU	1.48‰	1.75‰	1.61‰	1.51‰	3.02‰
Central line utilization rate – Pediatric ICU	46.47%	43.64%	43.83%	45.55%	24.20%
Incidence density of central line-associated bloodstream infection – step-down unit	1.52‰	1.56‰	2.00‰	1.95‰	3.03‰
Central line utilization rate – step-down unit	36.48%	32.48%	33.92%	30.50%	19.26%

Source: SINHA/Anahp.

[1] ANVISA. "Avaliação nacional dos indicadores de IRAS e RM – 2018". In: Boletim Segurança do Paciente e Qualidade em Serviços de Saúde, n. 21. Available at: <https://www.gov.br/anvisa/pt-br/centraisdeconteudo/publicacoes/servicosdesaude/publicacoes>; accessed on 31/Mar/2021.

Monitoring the incidence density of the use of central lines has contributed to make more appropriate indications, for more timely withdrawals, and more standardized handling by nursing teams.

Hospitals should increase their efforts to reduce the utilization de of central lines – or limit the time the device stays in the patient, because, according to Anvisa, prolonged exposure to an invasive device is the main risk factor for patient infection.

Another indicator monitored by Anahp hospitals is the density of urinary tract infections (UTI) associated to indwelling vesical catheters in relation to the utilization rate of this device **(Table 2)**.

The literature recommends limiting to the minimal time necessary the use of urinary catheters by inpatients. Anvisa's 2018 data[2] show that the incidence density of urinary tract infections associated to indwelling vesical catheters in adult ICUs was 4 for every 1,000 devices-day, while in pediatric ICUs, it was 4.20 for every 1,000 devices-day. Among Anahp hospitals, the incidence density of urinary tract infections associated to indwelling vesical catheters in adult ICUs was 1.22 for every 1,000 devices-day in 2020. It should be noted that the utilization rate of indwelling vesical catheters in adult ICUs was 42.52% in the year mentioned, higher than reported in previous years, which may be the result of the hospitalization of Covid-19 patients.

In 2020, in pediatric ICUs, the incidence density of urinary tract infections associated to indwelling vesical catheters was 0.66 for every 1,000 devices-day and, in step-down units, it was 1.67 for every 1,000 devices-day. The utilization rate of indwelling vesical catheters in pediatric ICUs and in step-down units was, respectively, 12.79% and 14.17% in that same year.

TABLE 2 | Urinary tract infection in Anahp hospitals

Indicator	2017	2018	2019	2020	2020 Standard deviation
Incidence density of urinary tract infections associated to indwelling vesical catheters – adult ICU	1.99‰	1.95‰	1.34‰	1.22‰	2.10‰
Utilization rate of indwelling vesical catheter – adult ICU	39.67%	37.20%	35.42%	42.52%	19.12%
Incidence density of urinary tract infections associated to indwelling vesical catheters – Pediatric ICU	0.78‰	0.99‰	0.24‰	0.66‰	2.31‰
Utilization rate of indwelling vesical catheter – Pediatric ICU	16.64%	12.57%	12.18%	12.79%	9.51%
Incidence density of urinary tract infections associated to indwelling vesical catheters – step-down unit	3.13‰	2.56‰	2.93‰	1.67‰	4.12‰
Utilization rate of indwelling vesical catheter – step-down unit	11.81%	10.57%	11.12%	14.17%	10.11%

Source: SINHA/Anahp.

[2] ANVISA. "Avaliação nacional dos indicadores de IRAS e RM – 2018". In: Boletim Segurança do Paciente e Qualidade em Serviços de Saúde, n. 21. Available at: <https://www.gov.br/anvisa/pt-br/centraisdeconteudo/publicacoes/servicosdesaude/publicacoes>; accessed on 31/Mar/2021.

The assessment of these correlated indicators serves as the basis for each hospital, with their own epidemiological characteristics, to adopt preventive measures to reduce the incidence of infections.

The prevalence of comorbidities and higher patient severity scores at admission increase the risk of device-associated hospital infection. Thus, the quality of the measures adopted in intensive care units is one of the key aspects for the management of hospital services. Ventilation-associated pneumonia (VAP) is an infection related to the intubation of patients for more than two days. The results obtained in the period under analysis are shown in **Table 3**.

According to Anvisa's 2018 data[3], the incidence density of ventilation-associated pneumonia in adult ICUs was 11.50 per 1,000 ventilator days. In neonatal ICUs, this number was 3.20 per 1,000 ventilator days, while in pediatric ICUs it was 4.50 per 1,000 ventilator days in that same year.

Among Anahp hospitals, the incidence density of ventilation-associated pneumonia in adult ICUs was 5.27 per 1,000 ventilator days in 2020. It is worth noticing that the utilization rate of mechanical ventilation in adult ICUs was 31.47% in the year, higher than reported in previous years, which may be the result of patients admitted with Covid-19.

In neonatal ICUs, the incidence density of ventilation-associated pneumonia was 1.75 per 1,000 ventilator days, in pediatric ICUs, it was 0.98 per 1,000 ventilator days and in step-down units, it was 2.80 per 1,000 ventilator days. The utilization rate of mechanical ventilation in neonatal ICUs, in pediatric ICUs and in step-down units was 13.21%, 23.69% and 3.46%, respectively, in that same year.

TABLE 3 | Ventilation-associated pneumonia in Anahp hospitals

Indicator	2017	2018	2019	2020	2020 Standard deviation
Incidence density of ventilation-associated pneumonia – adult ICU	5.21‰	5.40‰	4.25‰	5.27‰	6.54‰
Utilization rate of mechanical ventilation – adult ICU	24.04%	22.62%	21.57%	31.47%	16.73%
Incidence density of ventilation-associated pneumonia – neonatal ICU	1.22‰	1.88‰	1.09‰	1.75‰	5.14‰
Utilization rate of mechanical ventilation – neonatal ICU	13.70%	15.05%	14.74%	13.21%	10.50%
Incidence density of ventilation-associated pneumonia – Pediatric ICU	1.29‰	0.83‰	1.22‰	0.98‰	2.92‰
Utilization rate of mechanical ventilation – Pediatric ICU	26.58%	25.32%	22.92%	23.69%	16.58%
Incidence density of ventilation-associated pneumonia – step-down unit	1.67‰	1.78‰	1.82‰	2.80‰	5.45‰
Utilization rate of mechanical ventilation – step-down unit	4.76%	4.80%	4.62%	3.46%	5.43%

Source: SINHA/Anahp.

[3] ANVISA. "Avaliação nacional dos indicadores de IRAS e RM – 2018". In: Boletim Segurança do Paciente e Qualidade em Serviços de Saúde, n. 21. Available at: <https://www.gov.br/anvisa/pt-br/centraisdeconteudo/publicacoes/servicosdesaude/publicacoes>; accessed on 31/Mar/2021.

The reduction of the risk of healthcare-associated infections and the prevention of complications for patients is a continuing improvement effort in organizations. Thus, actions in this direction make patients resume their activities earlier, at a lower social cost, with less disability, and better quality of life. These actions also contribute to reduce the risk of readmissions, which provides resource savings for the health system.

Surgical site infections are those related to surgical procedures, with or without the placement of implants, in inpatients and outpatients. Clean surgeries are those without signs of inflammation, without contact with the respiratory, digestive, genital, and urinary tracts and, therefore, with a lower probability of causing infection in patients.

Data from Sao Paulo's Epidemiological Surveillance Center (CVE) indicate that acceptable infection rates for clean surgeries may range from 1% to 5%[4]. The measurement of indicators related to this type of infection favors the identification of the correlation between prevention actions conducted by the hospital staff, and their impact on the occurrence of such infections.

Below, we present the data related to clean surgeries **(Table 4)**:

TABLE 4 | Infections associated to clean surgeries in Anahp hospitals

Indicator	2017	2018	2019	2020	2020 Standard deviation
Rate of surgical site infection after clean surgeries	0.46%	0.60%	0.46%	0.42%	**0.53%**
Rate of surgical site infection after appendicectomy	0.25%	0.09%	0.11%	0.16%	**0.71%**
Rate of surgical site infection after knee replacement	0.92%	0.69%	0.42%	0.27%	**1.29%**
Rate of surgical site infection after total hip replacement	0.70%	0.47%	0.68%	0.66%	**2.58%**
Rate of surgical site infection after cholecystectomy	0.10%	0.08%	0.10%	0.04%	**0.18%**
Rate of surgical site infection after colectomy	1.79%	2.75%	1.99%	1.97%	**5.96%**
Rate of surgical site infection after craniotomy	2.57%	2.04%	1.85%	1.36%	**4.34%**
Rate of surgical site infection after herniorrhaphy/hernioplasty	0.17%	0.18%	0.29%	0.17%	**0.80%**
ate of surgical site infection after hysterectomy	0.16%	0.19%	0.10%	0.06%	**0.38%**
Rate of surgical site infection after mastectomy	0.05%	0.31%	0.44%	0.16%	**0.90%**
Rate of surgical site infection after C-section	0.31%	0.37%	0.38%	0.26%	**0.51%**
Rate of surgical site infection after CABG	3.41%	2.84%	2.87%	1.35%	**4.05%**

Source: SINHA/Anahp.

[4] SECRETARIA DE ESTADO DA SAÚDE DE SÃO PAULO, Coordenadoria de Controle de Doenças (CCD), Centro de Vigilância Epidemiológica "Prof. Alexandre Vranjac", Divisão de Infecção Hospitalar. Manual de Orientações e Critérios Diagnósticos: Definições e Conceitos – Sistema de Vigilância Epidemiológica das Infecções Hospitalares do Estado de São Paulo. São Paulo, 2021. Available at: <https://www.prefeitura.sp.gov.br/cidade/secretarias/upload/saude/Definicoes_Conceitos_2021.pdf>; accessed on 31/Mar/2021.

Side marking

Still talking about patient safety in the surgical environment, Anahp hospitals monitor the indicator of side marking, that is, the site of the surgical intervention (right, left, both, or multiple structures) marked by the surgeon. In the analysis of this indicator, the higher it is, the better, that is, the risk of site errors in surgical procedures will be lower. Among member hospitals, the side marking rate was 95.91% in 2020, as seen in **Table 5**.

TABLE 5 │ Side marking in Anahp hospitals

Indicator	2017	2018	2019	2020	2020 Standard deviation
Rate of side marking	95.79%	94.91%	95.87%	95.91%	**8.06%**

Source: SINHA/Anahp.

Among Anahp hospitals, side marking rate was 95.91% in 2020

Care delivery quality

In order to assess nursing care delivery quality and the practices adopted for continuing improvement of care, two indicators have been historically used: the incidence density of falls and the incidence density of pressure ulcers.

According to the Joint Commission International (JCI), a fall is an unintentional change in position coming to rest on the ground, floor, or onto the next lower surface, and it may be classified according to the severity of the injury caused to the patient: minor (required the application a dressing, ice, wound cleaning, elevation of a limb, topical medication, contusion, or abrasion); moderate (required suture, application of adhesive suture of skin glue, splitting, or muscle or joint strain); or major (involving surgery, modelling, traction, fracture or required appointment for neurological, other structures or internal organ injuries) and death (patient dies because of the injuries caused by the fall).

According to Anvisa's 2018 data[5], 11,372 cases of fall in hospitals were reported. This number may be underestimated due to underreporting of the event by multidisciplinary team. Thus, to analyze this indicator, we should assume that the lower the number of events, or the lower the incidence, the better.

In 2020, these indicators obtained the results presented in **Table 6**.

TABLE 6 | Falls in Anahp hospitals

Indicator	2017	2018	2019	2020	2020 Standard deviation
Incidence density of falls in patients aged 18 years and over	0.99‰	0.92‰	0.73‰	0.79‰	**0.66‰**
Incidence density of falls that caused injury in patients aged 18 years and over	0.20‰	0.22‰	0.18‰	0.20‰	**0.26‰**
Percentage of falls that caused moderate or severe injury, in patients aged 18 years and over	7.47%	6.76%	12.91%	8.06%	**15.25%**
Incidence density of falls in patients younger than 18 years	0.31‰	0.22‰	0.29‰	0.12‰	**0.33‰**
Incidence density of falls that caused injury in patients younger than 18 years	0.06‰	0.05‰	0.02‰	0.02‰	**0.09‰**
Percentage of falls that caused moderate or severe injury, in patients younger than 18 years	10.00%	8.49%	5.96%	11.11%	**14.76%**

Source: SINHA/Anahp.

[5] ANVISA. "Incidentes relacionados à assistência à saúde – 2018". In: Boletim Segurança do Paciente e Qualidade em Serviços de Saúde, n. 20. Available at: <https://www.gov.br/anvisa/pt-br/centraisdeconteudo/publicacoes/servicosdesaude/publicacoes>; accessed on 31/Mar/2021.

Pressure ulcers are injuries on the skin and/or underlying soft tissues, usually over the patient's bones or relate to the use of medical devices or another device. The ulcer occurs as the result of intense and/or prolonged pressure in combination with shearing.

According to Anvisa's data[6], in 2018, 19,297 cases of pressure ulcers were reported in Brazil in inpatient units alone, data which stresses the importance of monitoring these indicators.

The indicators of incidence and prevalence of this adverse event are constantly monitored by Anahp hospitals, so that, together they may find effective barriers to mitigate harm. The results obtained are shown in **Table 7**.

TABLE 7 | Pressure ulcers in Anahp hospitals

Indicator	2017	2018	2019	2020	2020 Standard deviation
Incidence density of hospital acquired pressure ulcers in patients aged 18 years and over	0.85‰	1.44‰	1.38‰	1.68‰	1.50‰
Incidence density of hospital acquired pressure ulcers in patients younger than 18 years	0.10‰	0.29‰	0.47‰	0.33‰	0.96‰
Prevalence of hospital acquired pressure ulcers in patients aged 18 years and over	0.73‰	0.92‰	1.01‰	1.39‰	1.46‰
Prevalence of hospital acquired pressure ulcers in patients younger than 18 years	0.01‰	0.07‰	0.24‰	0.14‰	0.56‰

Source: SINHA/Anahp.

[6] ANVISA. "Incidentes relacionados à assistência à saúde – 2018". In: Boletim Segurança do Paciente e Qualidade em Serviços de Saúde, n. 20. Available at:<https://www.gov.br/anvisa/pt-br/centraisdeconteudo/publicacoes/servicosdesaude/publicacoes>; accessed on 31/Mar/2021.

Organizational protocols

The standardization of protocols reduces the variability of practices and guides professionals on patient care

The scenario of the Covid-19 pandemic posed additional challenges for the maintenance of performance indicators of organizational protocols

Organizational protocols are care delivery resources to standardize medical-surgical processes and to guide professionals on what to do to provide care to a certain pathology. In this manner, hospitals strive to reduce care variability and to have better outcomes, that is, more homogeneous and safer care delivery, better management of the resources used and higher patient satisfaction.

This chapter presents the results from 2017 to 2020 of indicators related to acute myocardial infarction, ischemic stroke, congestive heart failure, and sepsis (in patients aged 18 years and over).

Acute myocardial infarction

Acute myocardial infarction (code I21 of the International Classification of Diseases and Health-Related Problems, 10th revision – ICD-10) is an injury in the cardiac muscle caused by the interruption of blood circulation in part of heart. It accounted for 7.08% of the mortality in the country (95,557 deaths) in 2019. In that same year, there was a total of 1,349,802 deaths in Brazil, according to data from the Ministry of Health[1]. The increase in this disease is related to risk factors like an unbalanced diet high in fat, carbohydrates, and salt, consumption of processed foods, alcohol, smoking, and other drugs, in addition to stress and sedentarism.

Table 1 presents the numbers of Anahp hospitals, as well as international references. The indicator median door-to-balloon time – which measures the time elapsed between the patient's arrival at the hospital door to the opening of their coronary artery in the cath lab – was 62.42 minutes in 2020 among Anahp member hospitals.

In the international literature, the American Heart Association recommends 90 minutes, maximum. It is worth remembering that data dispersion is great: the standard deviation for this indicator was 44.53 minutes, demonstrating the heterogeneity of the sample. In the same year, the length of stay of patients with this pathology was 4.49 days, and the lethality of the sample was 6.24%. Aspirin prescription at the discharge of patients diagnosed with acute myocardial infarction was 97.30% in 2020.

TABLE 1 | Acute myocardial infarction protocol

Pathology	Indicators	2017	2018	2019	2020	2020 Standard deviation	Parameters	
ACUTE MYOCARDIAL INFARCTION (AMI)	Median door-to-balloon time (minutes)	72.90	62.90	61.19	62.42	44.53	90	American Heart Association
	Median length of stay (days)	5.50	5.70	5.23	4.49	2.37	-	-
	Lethality	4.79%	4.86%	4.45%	6.24%	9.86%	-	-
	Aspirin prescription at discharge	97.63%	98.60%	96.58%	97.30%	7.49%	-	-

Source: SINHA/Anahp.

[1] MINISTÉRIO DA SAÚDE. Banco de Dados do Sistema Único de Saúde – Datasus. Brasília, 2020.
Available at: <http://tabnet.datasus.gov.br/cgi/deftohtm.exe?sim/cnv/obt10uf.def>; accessed on 31/Mar/2021.

Ischemic stroke

Ischemic stroke is caused by the lack of blood supply to a certain area of the brain because of an obstruction in an artery. Data of the World Stroke Organization[2] indicate that one in every four people will have a stroke in their lifetime and up to 90% of the cases could be avoided.

In Brazil, stroke (code I64 of ICD-10, stroke, not specified as hemorrhage or infarction) accounted for 2.51% of the country's mortality (33,895 deaths) in 2019, according to data of the Ministry of Health[3]. The incidence of stroke is associated to the degree of patient compliance with the treatment for hypertension and to the level of exposure to risk factors. They include especially smoking, high blood glucose levels, alcohol intake, sedentarism, and obesity. Therefore, initiatives focusing on prevention, as smoking cessation campaigns, encouragement to exercise, and reduction of the body mass index are fundamental to decrease the incidence of cerebrovascular diseases.

Quick access to health services in such cases determines prognosis, medical intervention and the degree of incapacity resulting from the disease.

The quality of life of the individual and the social impact for families after patient discharge are directly affected by speed and appropriateness of these interventions.

The results of Anahp hospitals **(Table 2)** show that the indicator door-to-report time, which is the median time a patient takes between admission at the emergency department with suspected ischemic stroke until receiving the report of a brain imaging test to support diagnosis – was 38.33 minutes in 2020. International parameters say it should be below 45 minutes.

In turn, the indicator door-to-thrombolysis time, which is the median time between admission at the emergency department and the beginning of venous thrombolysis in patients with suspected ischemic stroke eligible for this procedure – was 36.27 minutes in 2020. The American Stroke Association recommends it should be up to 60 minutes.

In the year, the median length of stay of patients with this pathology was 5.36 days, and disease lethality was 11.99%.

TABLE 2 | Ischemic stroke protocol

Pathology	Indicators	2017	2018	2019	2020	2020 Standard deviation	Parameters	
ISCHEMIC STROKE	Median door-to-report time (minutes)	35.68	37.05	38.40	38.33	29.94	< 45	American Stroke Association
	Median door-to-venous thrombolysis time (minutes)	32.34	35.01	34.70	36.27	39.54	< 60	American Stroke Association
	Median length of stay (days)	5.79	5.67	5.92	5.36	3.30	-	-
	Lethality	6.85%	5.64%	6.27%	7.77%	11.99%	-	-

Source: SINHA/Anahp.

[2] WORLD STROKE ORGANIZATION. "Stroke Prevention". Genebra, 2020.
Available at: <https://www.world-stroke.org/world-stroke-day-campaign/why-stroke-matters/stroke-prevention>; accessed on 31/Mar/2021.
[3] MINISTÉRIO DA SAÚDE. Banco de Dados do Sistema Único de Saúde – Datasus. Brasília, 2020.
Available at: <http://tabnet.datasus.gov.br/cgi/deftohtm.exe?sim/cnv/obt10uf.def>; accessed on 31/Mar/2021.

Congestive heart failure

Know by the acronym CHF, this condition prevents blood from being pumped at the necessary amount and frequency for the human body to function appropriately. In Brazil, data from the Ministry of Health[4] indicate that there were 27,080 deaths related to this disease (code I50 of ICD-10, heart failure) in 2019. The results of Anahp hospitals **(Table 3)** show that the median length of stay of these patients was 7.27 days, with the lethality of 7.86%, in 2020.
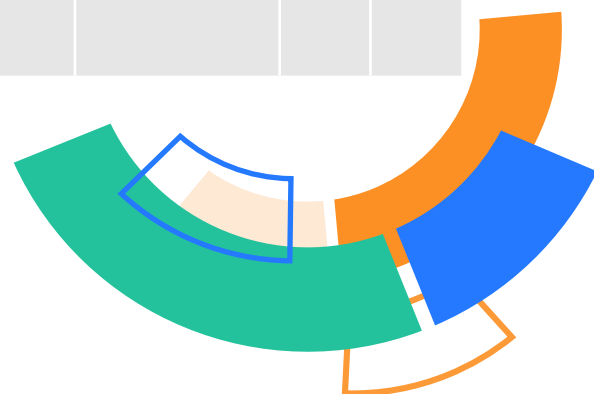
The use of angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor antagonists (ARA), and betablockers reduces mortality and morbidity in patients with heart failure and left ventricle systolic dysfunction. In 2020, the utilization rate of ACE inhibitors or ARAs was 96.49%, and it was 98.16% for betablockers. The standard deviation of these indicators was 11.27% for the utilization rate of ACE inhibitors or ARA by patients with CHF at discharge, and 9.76% for the rate of betablocker use at discharge among eligible patients with CHF.

TABLE 3 | Congestive heart failure

Pathology	Indicators	2017	2018	2019	2020	2020 Standard deviation	Parameters	
CONGESTIVE HEART FAILURE (CHF)	**Median length of stay (days)**	7.56	6.72	6.84	7.27	**4.18**	-	-
	Lethality	7.49%	5.26%	5.13%	7.86%	**9.36%**	-	-
	Utilization rate of ACEI or ARA at discharge	89.43%	88.41%	90.66%	96.49%	**11.27%**	-	-
	Rate of betablocker at discharge for eligible patients	93.29%	94.29%	98.66%	98.16%	**9.76%**	-	-

Source: SINHA/Anahp.

[4] MINISTÉRIO DA SAÚDE. Banco de Dados do Sistema Único de Saúde – Datasus. Brasília, 2020.
Available at: <http://tabnet.datasus.gov.br/cgi/deftohtm.exe?sim/cnv/obt10uf.def>; accessed on 31/Mar/2021.

Compliance with the first hour bundle for sepsis minimizes the risks for patients

Sepsis

Sepsis is a life-threatening organ failure caused by a dysregulated response of the body to an infection. The importance of implementing the protocol is due to its high prevalence and high rate of morbidity and mortality, in addition to the high cost related to its treatment.

The first hour bundle consists of a series of actions that the hospital should implement within one hour after the diagnosis of this pathology, to minimize risks for the patient. Such actions include measuring arterial lactate, obtaining blood culture from peripheral accesses and from short- and long-stay central lines (if the patient has one), and administration of antibiotic.

In 2020, the compliance of Anahp hospitals with the one-hour bundle was 84.24%, for patients aged 18 years or over, and the rate of antibiotic within one hour from diagnosis was 88.70% **(Table 4)**. In that same year, among Anahp hospitals, the median length of stay for this disease was 8.82 days; the lethality rate of the disease was 20.55% for patients aged 18 years or over.

TABLE 4 | Community sepsis

Pathology	Indicators	2017	2018	2019	2020	2020 Standard deviation	Parameters	
SEPSIS ≥ 18 YEARS	**Compliance with first hour bundle**	78.81%	80.67%	84.05%	84.24%	**23.13%**	-	-
	Median length of stay (days)	9.45	8.59	7.93	8.82	**4.94**	-	-
	Rate of antibiotic within one hour from diagnosis	82.69%	86.72%	89.43%	88.70%	**17.22%**	-	-
	Lethality	21.24%	16.24%	14.21%	20.55%	**16.46%**	-	-

Source: SINHA/Anahp.

Covid-19

The pandemic caused by the coronavirus remains a major challenge for the Brazilian health system

Indicators related to the pathology show that the pandemic caused intense pressure to Anahp hospitals in 2020

In the first quarter of 2020, health systems all over the world found themselves weak to handle the overwhelming transmission power of Covid-19.

In face of this scenario, in March 2020, Anahp structured four monthly indicators (rate of patients seen in the emergency department with suspected Covid-19, incidence of Covid-19, rate of urgency and emergency visits converted into hospitalizations due to Covid-19, and Covid-19 lethality rate) to be monitored by member hospitals. These indicators are exceptionally reported in this chapter, presented on monthly frequency.

Covid-19 indicators

The data reveal two moments of weakness related to Covid-19. The first pandemic wave, when the total number of patients seen in urgency and emergency care with suspected Covid-19, compared to the total number of urgency and emergency visits, reached the percentage of 16.14% in May; and, later, in the beginning of the second pandemic wave, in the months of November and December, when rates higher than 21% were reached **(Graph 1)**.

GRAPH 1 | Rate of patients seen in the emergency department with suspected Covid-19 (%)

Standard deviation
Source: SINHA/Anahp.
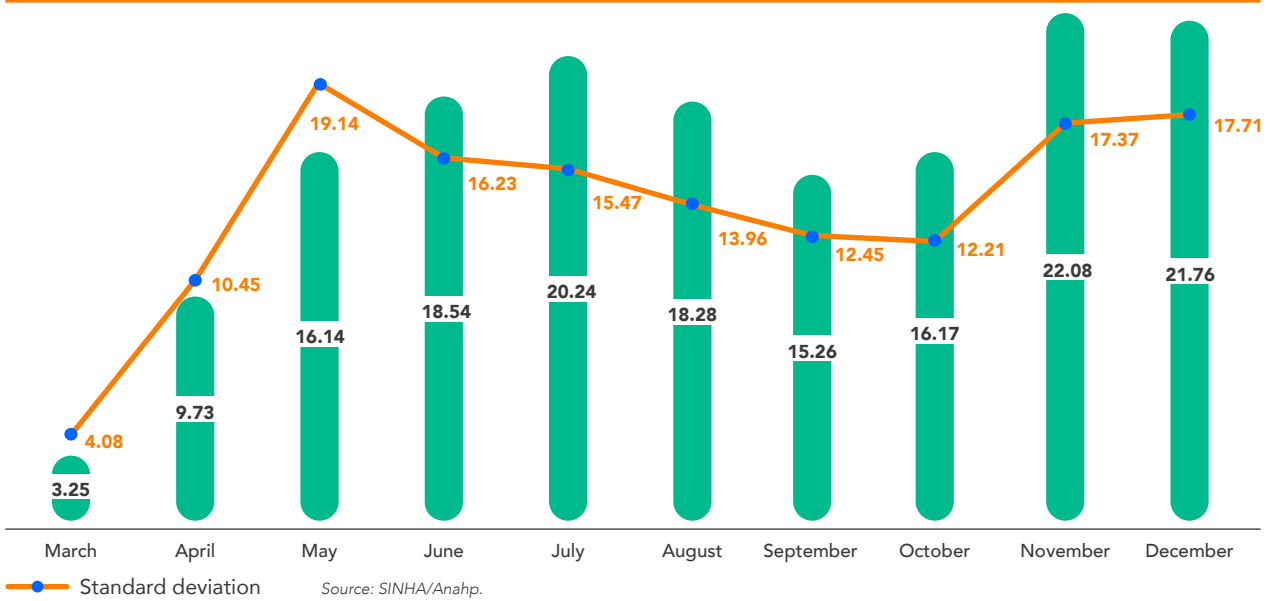
The total number of patients seen in urgency and emergency departments who had confirmed positive diagnosis of the disease, compared to the total number of patients seen in urgency and emergency with suspected pathology (incidence of Covid-19) was the highest in June and December **(Graph 2)**, again indicating the peak moments of the first wave and the beginning of the second pandemic wave in Brazil.

GRAPH 2 | Incidence of Covid-19 in the period (%)

Standard deviation
Source: SINHA/Anahp.
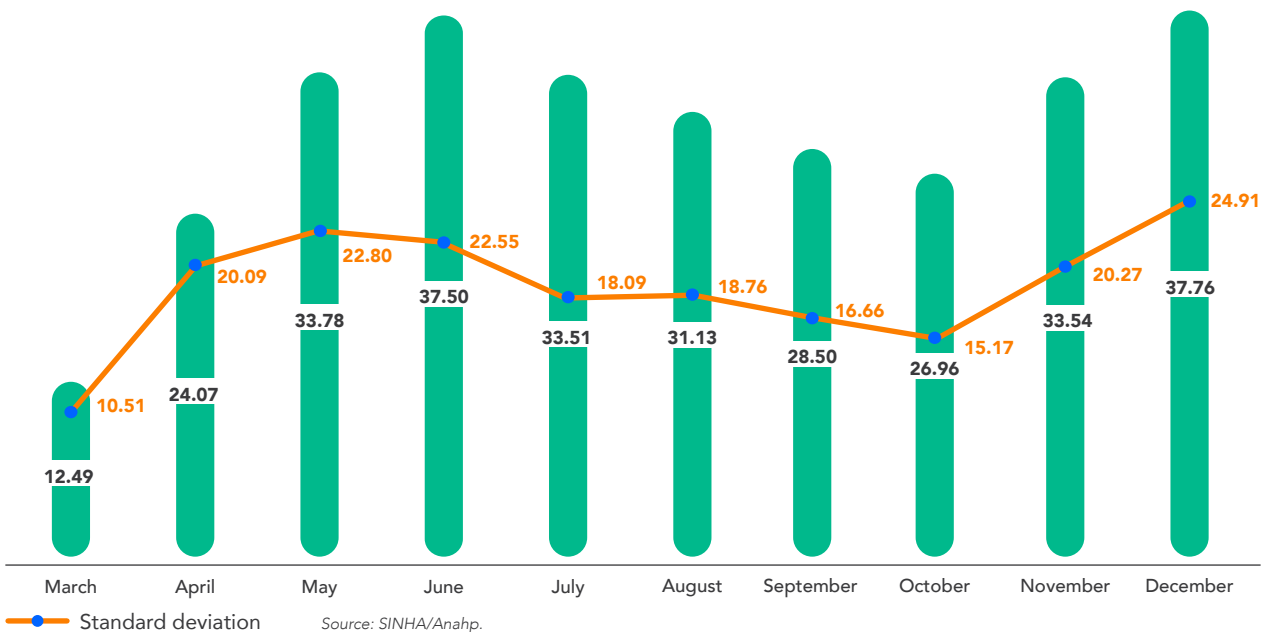
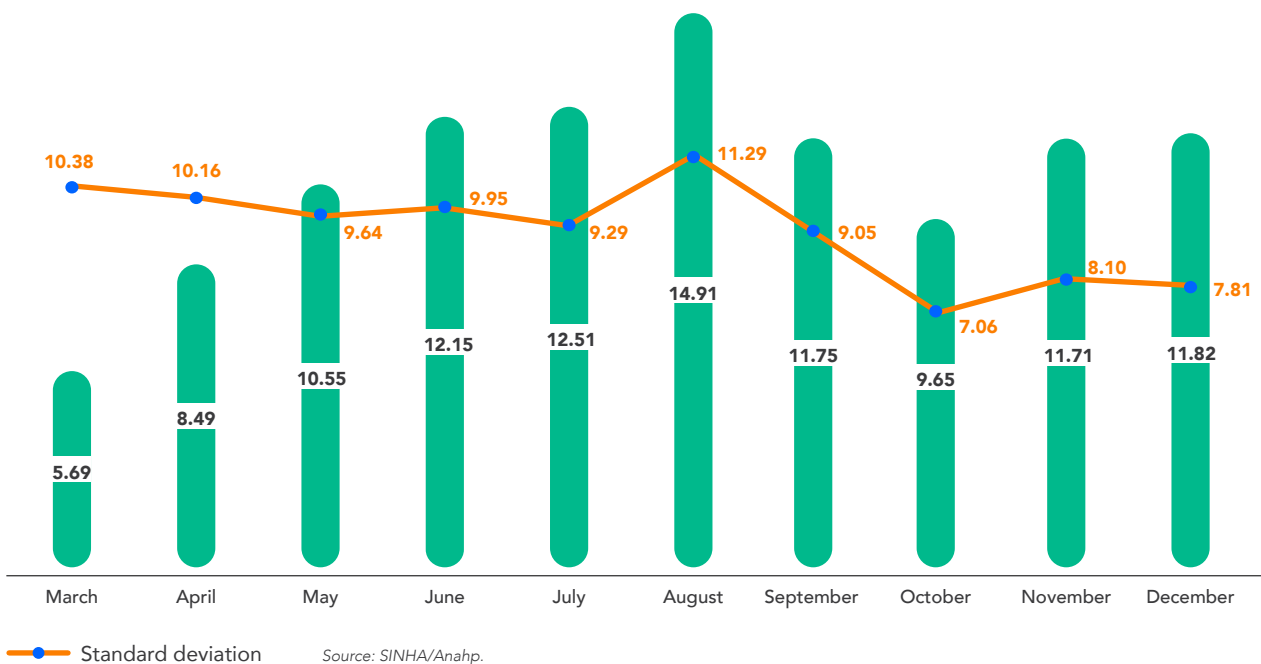Urgency and emergency visits of patients with confirmed diagnosis of Covid-19 that were converted into hospitalizations was 3.01% in July. From then on, there was a drop; however, in the months of November and December, rates went up again **(Graph 3)**, as the result of the movement of the pandemic waves in Brazil.

GRAPH 3 | Rate of urgency and emergency visits converted into hospitalizations due to Covid-19 (%)

	March	April	May	June	July	August	September	October	November	December
Value	0.50	2.59	2.84	2.87	3.01	2.60	1.82	1.69	2.24	2.71
Standard deviation	0.43	2.34	2.46	1.80	1.65	1.42	1.14	1.02	1.55	1.70

Standard deviation

Source: SINHA/Anahp.
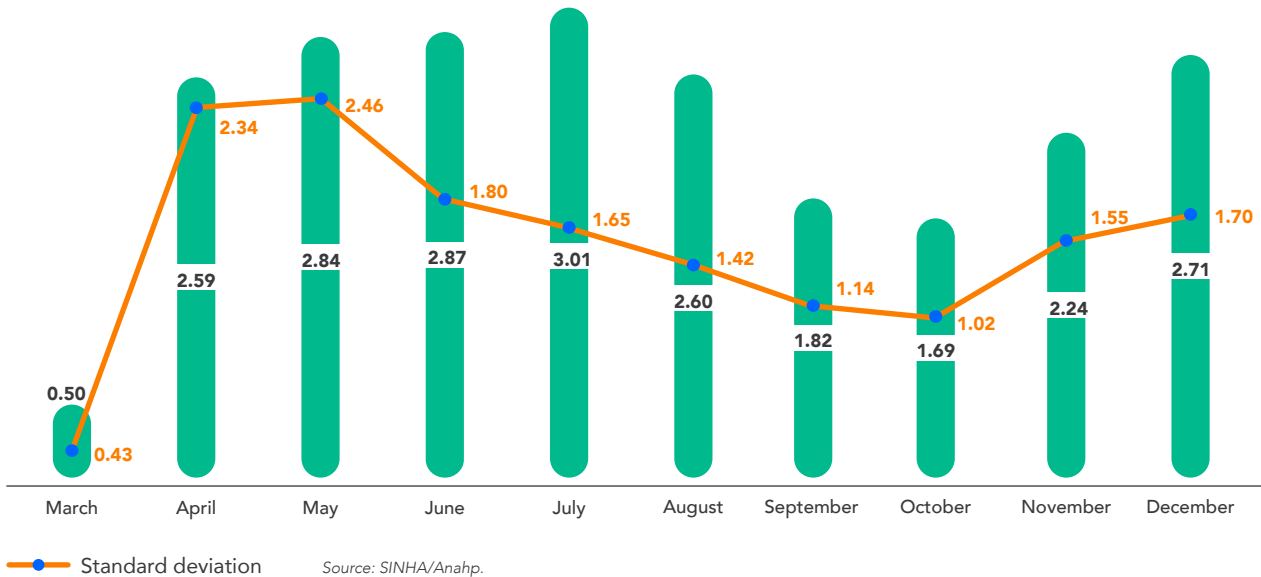
The disease lethality rate in Anahp hospitals, which represents the percentage of deaths with diagnosed Covid-19 compared to the number of people infected by the disease in member hospitals, peaked in August, and went up again in November and December 2020 **(Graph 4)**.

GRAPH 4 | Covid-19 lethality rate (%)

	March	April	May	June	July	August	September	October	November	December
Value	5.69	8.49	10.55	12.15	12.51	14.91	11.75	9.65	11.71	11.82
Standard deviation	10.38	10.16	9.64	9.95	9.29	11.29	9.05	7.06	8.10	7.81

Standard deviation

Source: SINHA/Anahp.

Organizational performance

Analyses of indicators on economic and financial performance, people management, environmental sustainability, and information technology of Anahp member hospitals
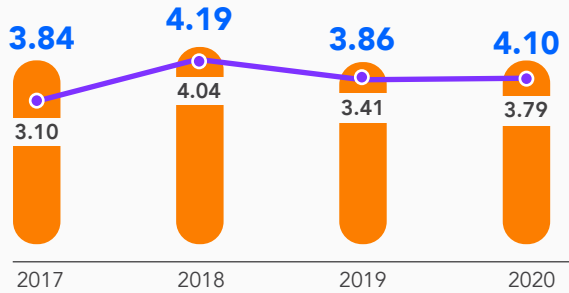
Executive summary

ECONOMIC-FINANCIAL MANAGEMENT
Denial rate and average accounts receivables days increased in 2020
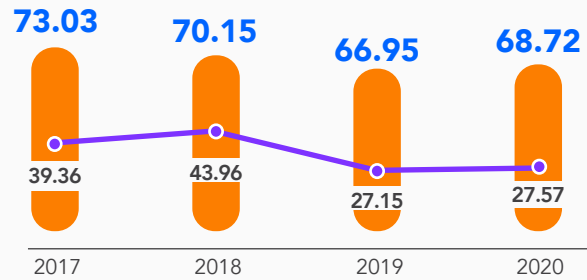
DENIAL RATE
(% OF NET REVENUE)
Average of Anahp hospitals

3.84 **4.19** **3.86** **4.10**

3.10

4.04

3.41

3.79

| 2017 | 2018 | 2019 | 2020 |

•—•— Standard deviation   *Source: SINHA/Anahp.*

AVERAGE ACCOUNTS
RECEIVABLES DAYS (DAYS)
Average of Anahp hospitals

73.03 **70.15** **66.95** **68.72**

39.36

43.96

27.15

27.57

| 2017 | 2018 | 2019 | 2020 |

•—•— Standard deviation   *Source: SINHA/Anahp.*

NET REVENUE
PER HOSPITAL DISCHARGE (R$ in 2020)
ACTUAL VARIATION (DISCOUNTING INFLATION)
Average of Anahp hospitals

24,042.55 **24,307.71** **24,218.57** **25,720.18**

11,924.21

11,957.64

11,720.20

14,093.74

| 2017 | 2018 | 2019 | 2020 |

•—•— Standard deviation   *Source: SINHA/Anahp.*

TOTAL EXPENSE
PER HOSPITAL DISCHARGE (R$ in 2020)
ACTUAL VARIATION (DISCOUNTING INFLATION)
Average of Anahp hospitals

20,714.29 **21,118.65** **20,913.05** **25,041.21**

13,519.80

12,904.28

10,921.47

15,224.85

| 2017 | 2018 | 2019 | 2020 |
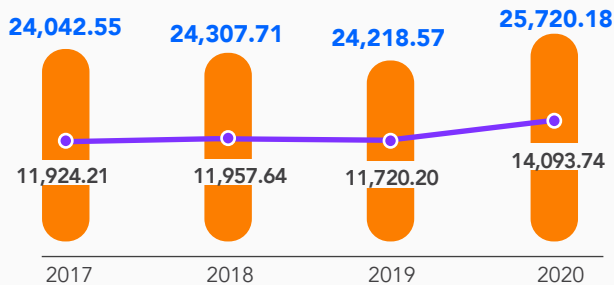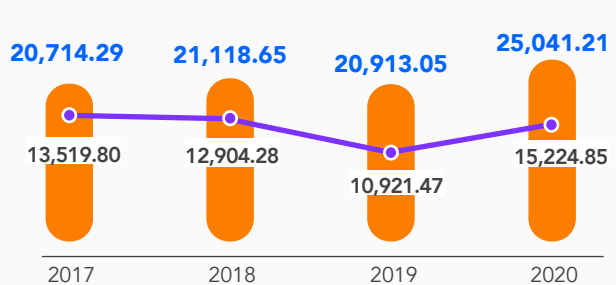
•—•— Standard deviation   *Source: SINHA/Anahp.*

DISTRIBUTION OF GROSS REVENUE PER PAYOR,
PER REGION (%) | 2020

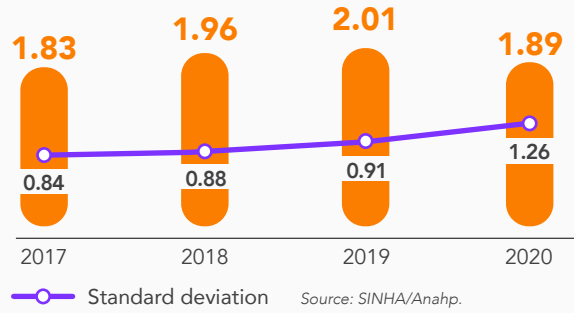| Type of revenue	South	Southeast	North and Center-West	Northeast	Brazil
Healthcare Companies	74.95	90.94	92.00	71.22	82.78
Medical Cooperative Groups	48.22	19.99	30.31	26.23	30.49
Self-Managed Plans	20.01	25.78	38.74	48.46	27.70
Insurance Companies	6.64	30.84	23.94	14.46	23.48
HMOs	8.45	22.42	5.36	10.85	16.30
Philanthropy	16.64	0.49	0.07	-	1.81
International Companies	0.04	0.48	1.57	0.01	0.21
SUS (Universal Health System)	14.13	3.68	0.84	22.55	9.62
Private market/ out-of-pocket	4.57	3.62	4.05	3.49	3.95
Other payors	6.34	1.76	3.10	2.74	3.65

Source: SINHA/Anahp.

PEOPLE MANAGEMENT

The number of hires by headcount (active headcount) fell in 2020, after two consecutive years of growth

This movement is in line with the crisis in job creation, caused mainly by the Covid-19 pandemic
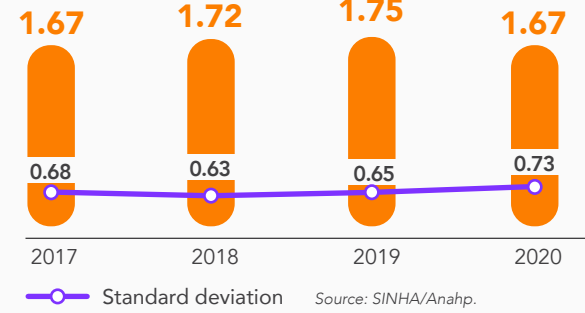
NUMBER OF HIRES BY HEADCOUNT (%)
Average of Anahp hospitals

2017	2018	2019	2020
1.83	1.96	2.01	1.89
0.84	0.88	0.91	1.26

— Standard deviation   *Source: SINHA/Anahp.*

TURNOVER RATE (%)
WITHOUT HEADCOUNT INCREASE
Average of Anahp hospitals

2017	2018	2019	2020
1.67	1.72	1.75	1.67
0.68	0.63	0.65	0.73

— Standard deviation   *Source: SINHA/Anahp.*

ENVIRONMENTAL SUSTAINABILITY

Consumption per patient-day was negatively impacted, mainly because of the reduction in admissions

CONSUMPTION OF ELECTRIC POWER AS KWH PER PATIENT-DAY
Average of Anahp hospitals

2017	2018	2019	2020
141.85			
114.31	94.76	99.92	113.73
	61.14	67.85	82.04

— Standard deviation   *Source: SINHA/Anahp.*
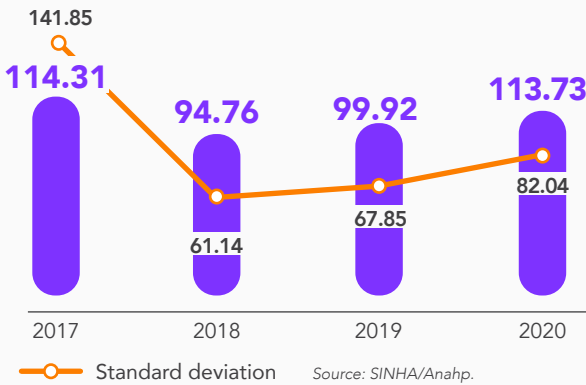
WATER CONSUMPTION AS M³ PER PATIENT-DAY
Average of Anahp hospitals
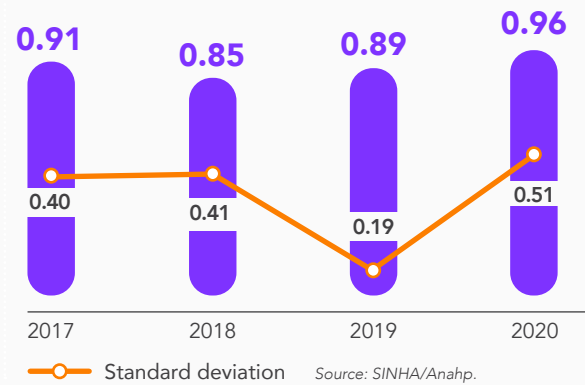
2017	2018	2019	2020
0.91	0.85	0.89	0.96
0.40	0.41	0.19	0.51

— Standard deviation   *Source: SINHA/Anahp.*

GENERATION OF INFECTIOUS WASTE PER PATIENT-DAY (KG)
Average of Anahp hospitals

2017	2018	2019	2020
5.85			
3.49	2.93	2.61	3.65
	2.47	1.67	2.20

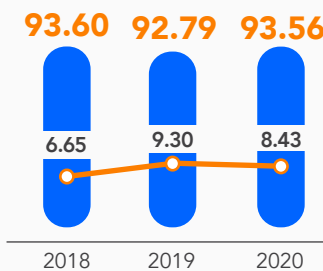— Standard deviation   *Source: SINHA/Anahp.*
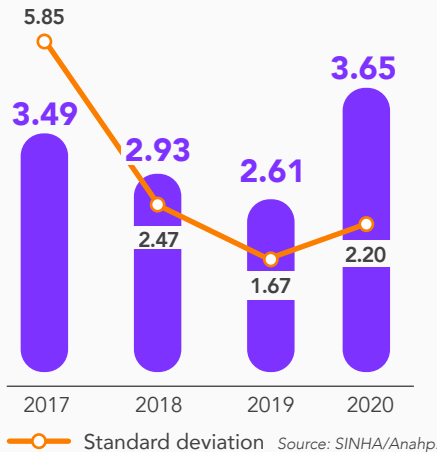
INFORMATION TECHNOLOGY

The satisfaction rate of internal customers was high, as well as the IT problem-solving rate

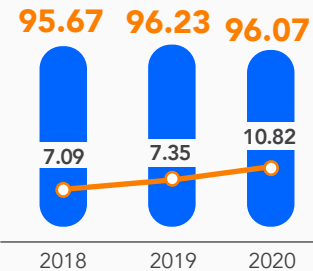### SATISFACTION RATE OF INTERNAL IT CUSTOMERS (%)
Average of Anahp hospitals

2018	2019	2020
93.60	92.79	93.56
6.65	9.30	8.43

— Standard deviation

IT PROBLEM SOLVING RATE
Average of Anahp hospitals

2018	2019	2020
95.67	96.23	96.07
7.09	7.35	10.82

— Standard deviation   *Source: SINHA/Anahp.*

Economic-financial management

The challenge of financial stability in the Covid-19 pandemic scenario

The unbalanced ratio between revenue and expense drove down the EBITDA margin

In 2020, Anahp hospitals were financially impacted by the pandemic. With the postponement of elective procedures, there was fall in revenue and, as most of the costs are fixed, expenses exceeded revenues, thus impacting the EBITDA margin (Earnings Before Interest, Taxes, Depreciation, and Amortization), which was even negative in April. However, there was a recovery in the months that followed, and the indicator was 8.04% for the whole year of 2020. The accounts receivables days for payments from health plan companies and the denial rate (refusal to pay by health plan companies) remained at high levels, with a negative impact on the economic-financial balance of hospitals, especially on cash flow.

Economic-financial performance of Anahp hospitals

The revenues and expenses of hospitals are a combination of the quantity and type of care provided to patients, considering the profile of the customer portfolio, with costs associated to rendering and improvement of these services, as well as to the maintenance and expansion of the hospital infrastructure.

In 2020, net revenue[1] per patient-day had a variation of 8.41%, whereas total expense per patient-day had a variation of 13.34% **(Graph**

1). It should be said that, with the beginning of Covid-19 pandemic, the number of patients-day and hospital discharges was below expected for the year, causing some significant variation when compared to 2019.

When discounting inflation (measured by the Expanded National Consumer Price Index – IPCA), a real fall of 6.90% may be noted in net revenue per patient-day and 2.67% of total expenses per patient-day in 2020 **(Graph 2)**.

GRAPH 1 | Net revenue and total expense per patient-day (R$) – Average of Anahp hospitals

NET REVENUE PER PATIENT-DAY

TOTAL EXPENSE PER PATIENT-DAY

Source: SINHA/Anahp.
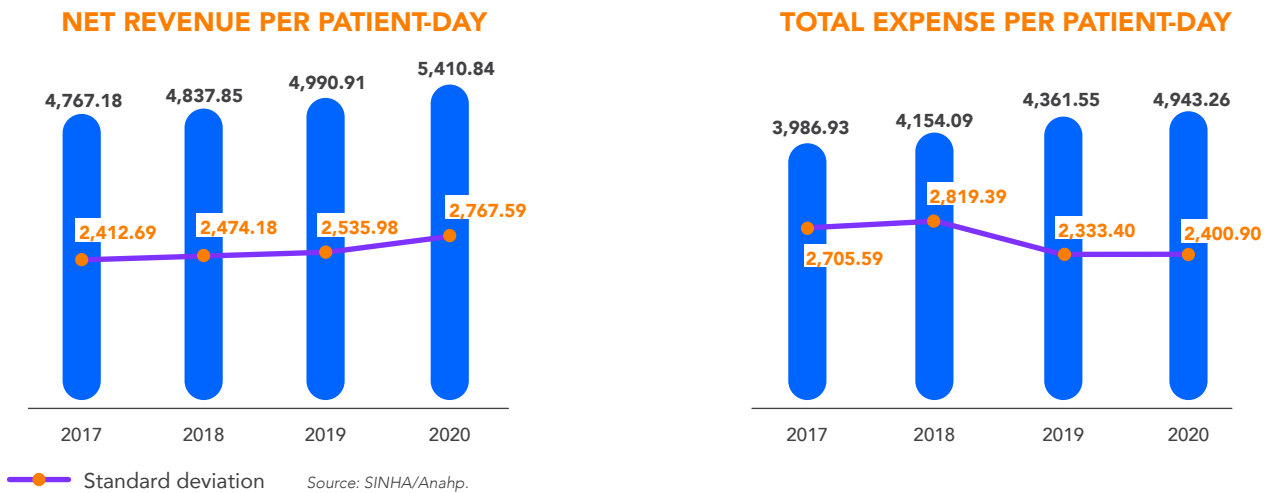
GRAPH 2 | Net revenue and total expense per patient-day (R$ in 2020) – Actual variation (discounting inflation) – Average of Anahp hospitals

NET REVENUE PER PATIENT-DAY

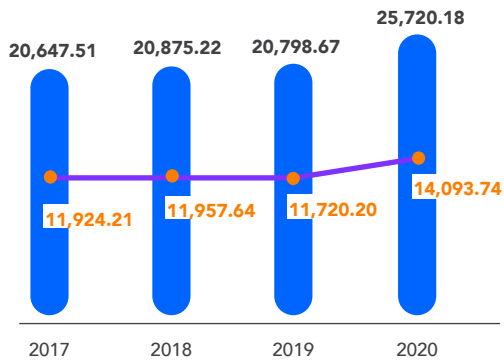**TOTAL EXPENSE PER PATIENT-DAY**

Source: SINHA/Anahp.
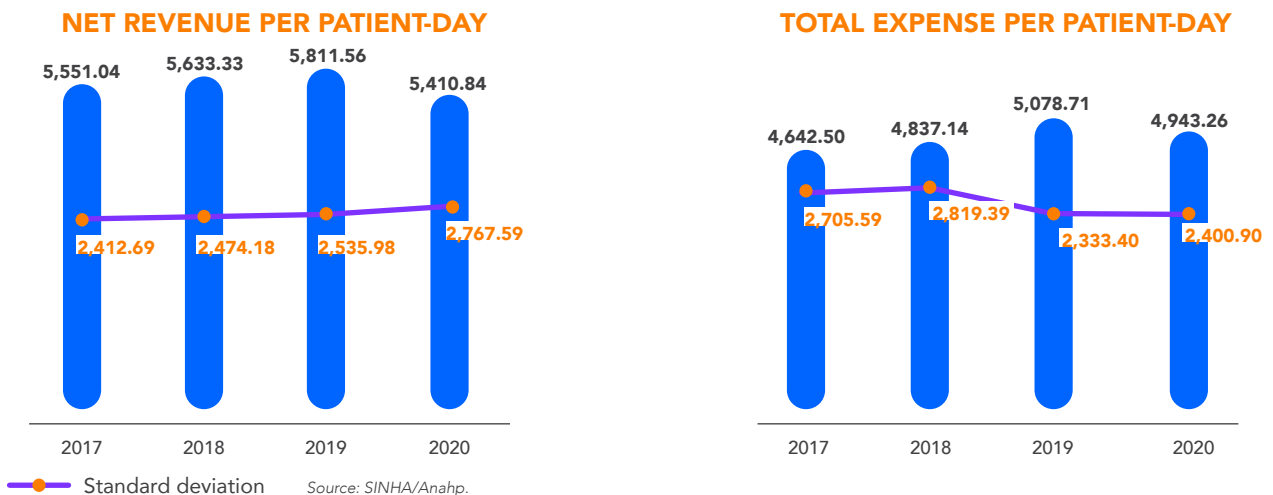
[1] Net revenue is formed by gross revenue minus payments of taxes due on revenue and amounts denied and not received. Total expenses, in turn, include: expenses with personnel; contracts with third parties for support and logistics; technical and operational contractors; medications, materials, OPME (orthoses, prostheses and special materials); medical gas; other hospital supplies; maintenance and technical assistance; utilities (electric power, water and other government-regulated prices); financial expenses (including interest on loans); depreciation; and other operational expenses.
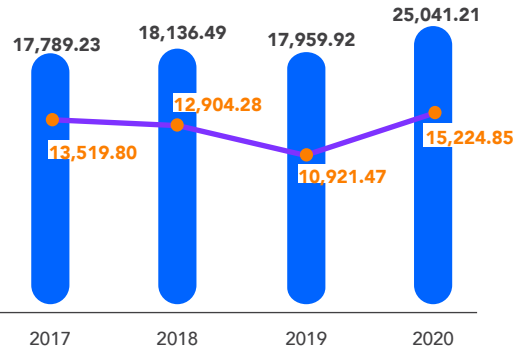
The indicators net revenue and total expense per hospital discharge grew due to the drop in the number of discharges **(Graph 3)**, even after discounting inflation **(Graph 4)**.

GRAPH 3 | Net revenue and total expense per hospital discharge (R$) – Average of Anahp hospitals
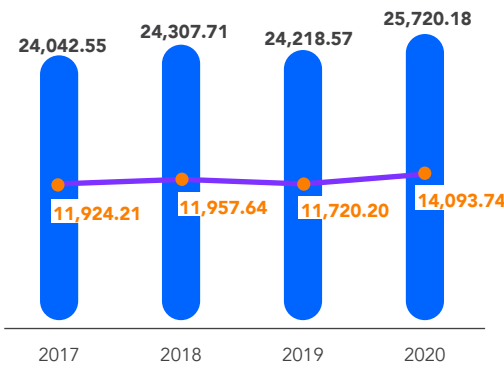
NET REVENUE PER HOSPITAL DISCHARGE

	2017	2018	2019	2020
Value	20,647.51	20,875.22	20,798.67	25,720.18
Standard deviation	11,924.21	11,957.64	11,720.20	14,093.74

TOTAL EXPENSE PER HOSPITAL DISCHARGE

	2017	2018	2019	2020
Value	17,789.23	18,136.49	17,959.92	25,041.21
Standard deviation	13,519.80	12,904.28	10,921.47	15,224.85

—●— Standard deviation   *Source: SINHA/Anahp.*

GRAPH 4 | Net revenue and total expense per hospital discharge (R$ in 2020) – Actual variation (discounting inflation) – Average of Anahp hospitals

NET REVENUE PER HOSPITAL DISCHARGE

	2017	2018	2019	2020
Value	24,042.55	24,307.71	24,218.57	25,720.18
Standard deviation	11,924.21	11,957.64	11,720.20	14,093.74

TOTAL EXPENSE PER HOSPITAL DISCHARGE

|	2017	2018	2019	2020
Value	20,714.29	21,118.65	20,913.05	25,041.21
Standard deviation	13,519.80	12,904.28	10,921.47	15,224.85
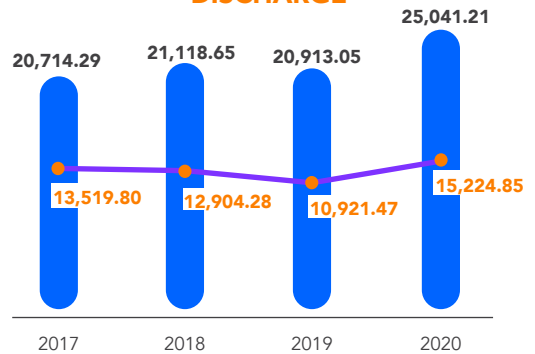
—●— Standard deviation   *Source: SINHA/Anahp.*

In 2020, the indicators net revenue and total expense per hospital discharge grew due to the drop in the number of discharges

The accumulated EBITDA margin in 2020 was 8.04%, a significant fall of 4.36 percentage points when compared to 2019 and even a greater difference when compared to 2017 and 2018 **(Graph 5)**.

GRAPH 5 | EBITDA margin (%) – Average of Anahp hospitals


Standard deviation   *Source: SINHA/Anahp.*
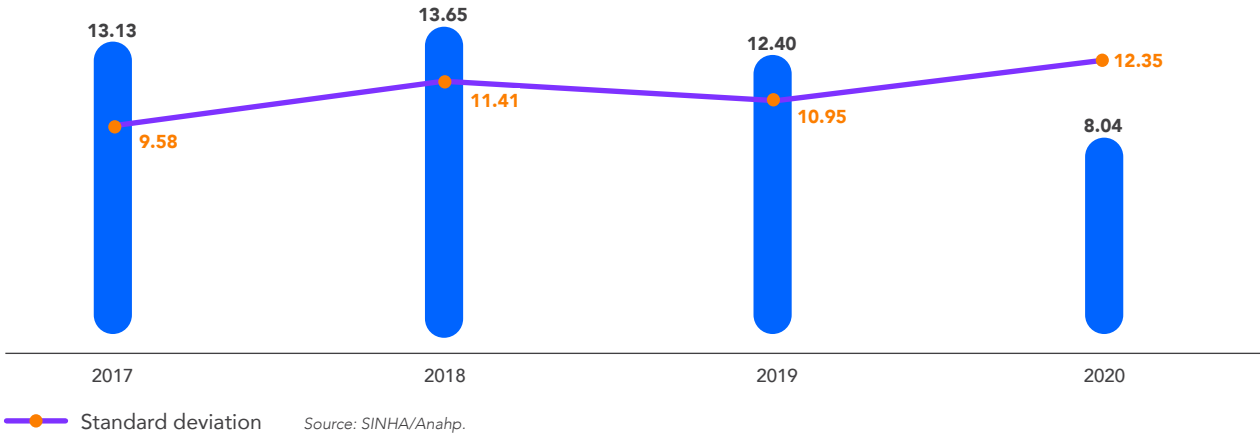
Denials and accounts receivable days

Two very important indicators are accounts receivable days, or the time health plans take to pay hospitals, and the denial rate (health carriers refuse to pay). Additionally, monitoring the ratio between average accounts receivable days and average days payable outstanding indicates the working capital requirements.

The average accounts receivable days was 68.72 days in 2020. This number agreed with the historical average of previous years **(Graph 6)**.

GRAPH 6 | Average accounts receivable days – Average of Anahp hospitals

Standard deviation   *Source: SINHA/Anahp.*
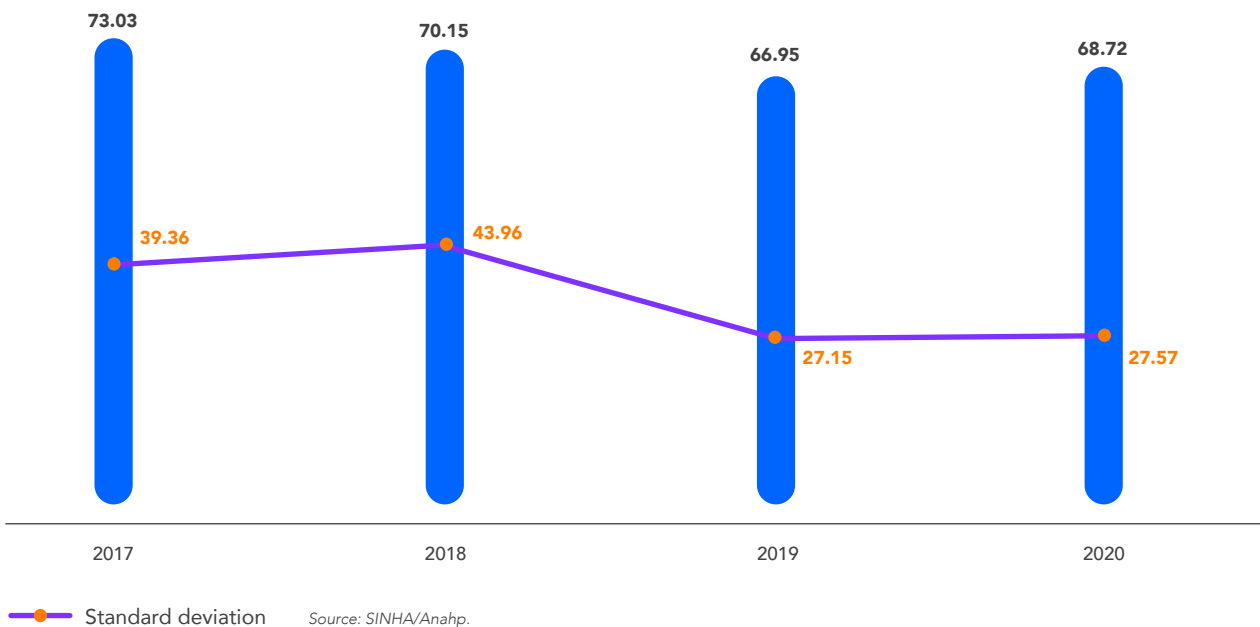
Average days payable outstanding was 45.89 days in 2020, the longest of the last four years, which demonstrates the effort hospitals made to negotiate with their suppliers in face of the adverse scenario imposed by the Covid-19 pandemic **(Graph 7)**.

GRAPH 7 | Average days payable outstanding – Average of Anahp hospitals

39.33   36.83   35.78   45.89

20.86   18.99   17.38   24.01

2017   2018   2019   2020

— Standard deviation   *Source: SINHA/Anahp.*
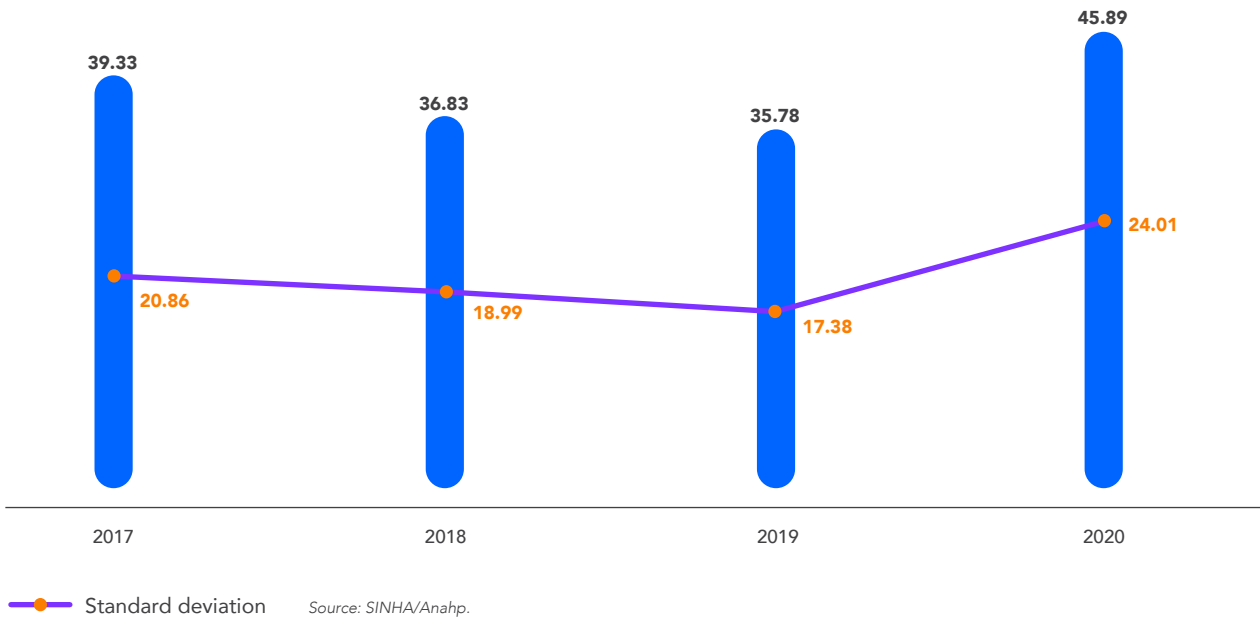
The denial rate, measured as a proportion of the net revenue, was 4.10% in 2020, which represents a growth trend when compared to 2019 **(Graph 8)**.

GRAPH 8 | Denial rate (% of net revenue) – Average of Anahp hospitals

3.84   4.19   3.86   4.10

3.10   4.04   3.41   3.79

2017   2018   2019   2020

— Standard deviation   *Source: SINHA/Anahp.*
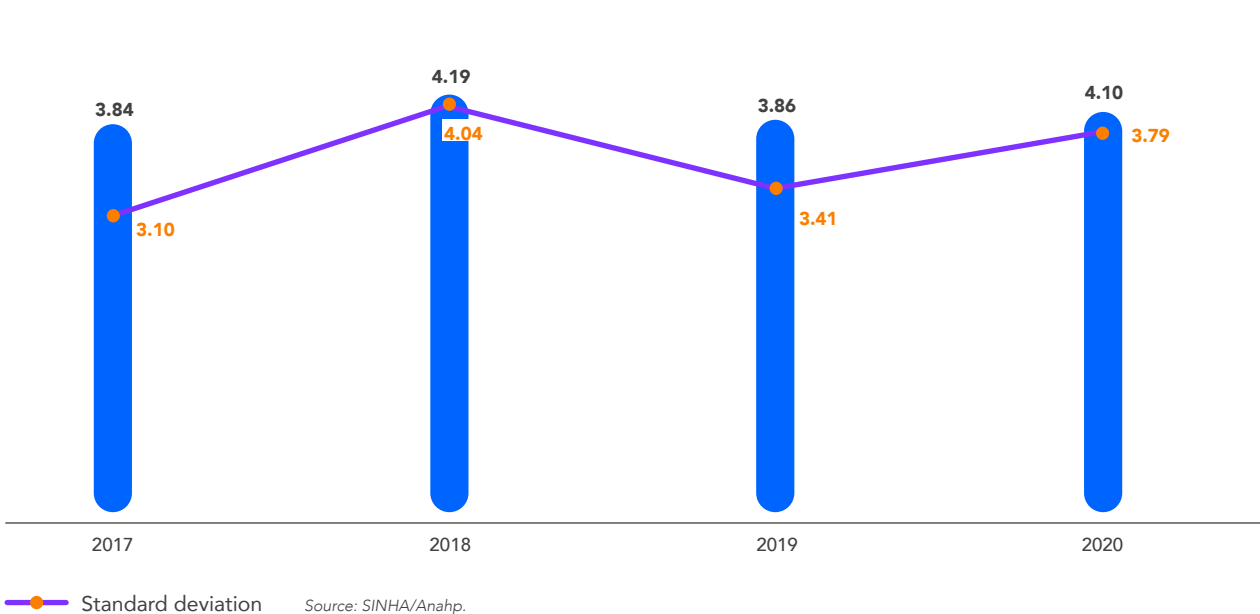
Expense profile

Expenses with labor, which include both formal employees (personnel cost) and technical services (technical and operational contracts), accounted for more than 50% of the expenses of Anahp hospitals in 2020.

Last year, materials and medications accounted for 5.80% and 11.48% of the expenses, respectively. This result may mirror the expressive increase in prices because of the difficulties in supplying medications and materials required for the treatment of Covid-19 patients, as well as of personal protection equipment (PPEs) for frontline workers to provide care to these patients.

The item orthoses, prostheses, and special materials (OPME), whose consumption is variable, was directly impacted by the reduction of patients-day and surgeries; it was 5.91% in 2020, below the 6.56% seen in 2019 **(Table 1)**.

Labor accounted for more than 50% of the expenses of Anahp hospitals in 2020

TABLE 1 | Distribution of total expense per type of expense (%) – Average of Anahp hospitals

Types of expense	2017	2018	2019	2020	2020 Standard deviation
Personnel cost	37.44	37.32	37.03	35.33	10.64
Technical and operational contracts	14.01	13.72	14.33	14.80	8.94
Medications	10.73	10.79	10.63	11.48	5.22
Other expenses	6.61	8.18	9.09	9.77	10.56
OPME	7.83	7.18	6.56	5.91	3.75
Materials	6.57	6.37	5.74	5.80	1.97
Support and logistics contracts	3.98	4.27	4.03	3.73	3.21
Other supplies	3.24	2.77	3.13	3.40	1.91
Depreciation	2.83	2.87	2.82	3.21	1.50
Utilities	2.04	2.24	2.23	2.16	1.42
Financial expenses	2.44	2.06	2.15	2.10	2.21
Maintenance and technical assistance	1.96	1.91	2.02	2.05	1.19
Medical gas	0.31	0.32	0.23	0.26	0.18

Source: SINHA/Anahp.

Revenue profile

Medications accounted for 25.84% of the revenue of Anahp hospitals in 2020; daily fees and rates, 22.90%; other operational revenues, 20.39%; materials, 16.37%; OPME, 7.07%; other service revenues, 5.25%; medical gas, 1.72%; and donations, 0.46% **(Table 2)**.

In 2020, 82.78% of the revenues of Anahp hospitals came from funds managed by health plan companies. Of this total, 30.50% were from medical cooperative groups; 27.70%, from self-managed plans; 23.48%, from insurance companies; 16.30%, from HMOs; 1.81%, from philanthropy; and 0.21%, from international plans.

The revenues from the Universal Healthcare System (SUS) represented 9.62% of the total in 2020; out-of-pocket payments were 3.95%; and other payors, 3.65% **(Table 3)**.
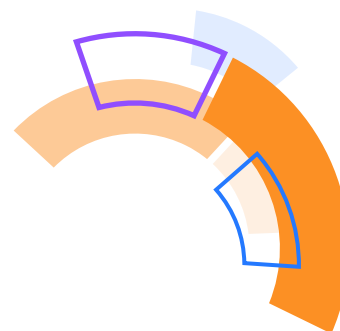
TABLE 2 | Distribution of gross revenue per type (%) – Average of Anahp hospitals

Types of revenue	2017	2018	2019	2020	2020 Standard deviation
Medications	25.13	24.66	25.75	25.84	10.68
Daily fees and rates	20.92	21.65	22.90	22.90	9.00
Other operational revenues	18.10	19.01	19.02	20.39	12.89
Materials	22.16	20.36	18.32	16.37	8.50
OPME	8.66	8.30	8.27	7.07	4.70
Other service revenues	2.11	3.39	3.45	5.25	7.42
Medical gas	2.49	2.30	1.83	1.72	1.07
Donations	0.43	0.34	0.46	0.46	0.86

Source: SINHA/Anahp.

Revenues from SUS accounted for 9.62% of total revenues in 2020

TABLE 3 | Distribution of gross revenue per payor (%) – Average of Anahp hospitals

Types of revenue	2017	2018	2019	2020	2020 Standard deviation
Healthcare Companies	90.27	90.97	89.91	82.78	11.71
Medical Cooperative Group	31.66	31.80	31.82	30.50	25.92
Self-Managed Plan	27.86	27.16	27.86	27.70	16.54
Insurance Companies	26.53	26.91	24.50	23.48	18.40
HMO	13.19	12.49	13.88	16.30	12.68
Philanthropy	0.61	1.52	1.85	1.81	3.76
International plans	0.16	0.12	0.09	0.21	0.56
SUS	5.32	4.65	5.61	9.62	13.39
Private market	3.70	3.45	3.26	3.95	2.85
Other payors	0.72	0.92	1.23	3.65	5.84

Source: SINHA/Anahp.

Regional features
of Anahp hospitals

Since 2017, improvements in Anahp Integrated Hospital Indicator System (SINHA) have made it possible to draw several regional comparisons among member hospitals.

In this analysis, it is possible to see the relationship between the profile of health plan members and the revenue of Anahp hospitals per payor, per region, and the possible impacts of these profiles on the revenue of hospitals. To assure a relevant sample, the hospitals in regions North and Center-West were grouped.

As addressed in the chapter "Economic scenario and the health market", when we consider the different modalities of health plans, we note that, in regions South, North and Center-West, the main modality, in membership are Medical Cooperative Groups **(Graph 9)**.

GRAPH 9 | Distribution of health plan members per modality and region (%) | December 2020

	Southeast	South	Northeast	Center-West	North	Brazil
Insurance Company specialized in health	15.24	5.03	12.01	10.99	9.84	12.81
HMOs	44.64	22.48	45.13	24.54	36.93	39.83
Philanthropy	2.28	3.19	0.31	0.02	1.65	1.96
Medical Cooperative Groups	31.03	58.89	31.39	45.92	41.25	36.52
Self-Managed Plans	6.81	10.42	11.16	18.53	10.33	8.89

● Self-Managed Plans   ● Medical Cooperative Groups   ● Philanthropy   ● HMOs   ● Insurance Company specialized in health

Source: ANS (on 22/Mar/2021). Does not include health plan companies providing dental plans only.

Data of the National Private Health Agency (ANS) on hospitals in the South region show that 58.89% of the health plan members are in medical cooperative groups and 22.48% are in HMOs. Of the revenues of Anahp hospitals, 74.95% come from health plans – of which 48.22% come from plans of medical cooperative groups, followed by 20.01% from self-managed plans.

In the Southeast region, where 44.64% of the members are in HMOs and 31.03% are in medical cooperative groups, the revenues of Anahp hospitals come chiefly from insurance companies – 30.84%.

Is should also be noted that for Anahp hospitals in region Northeast, revenues from SUS (22.55%) are much more relevant than in other regions **(Table 4)**.

For Anahp hospitals in the Northeast region, revenues from SUS are much more relevant than in other regions

TABLE 4 | Distribution of gross revenue per payor, per region (%) – Average of Anahp hospitals | 2020

Types of revenue	South	Southeast	North and Center-West	Northeast	Brazil
Healthcare Companies	74.95	90.94	92.00	71.22	**82.78**
Medical Cooperative Group	48.22	19.99	30.31	26.23	**30.49**
Self-Managed Plan	20.01	25.78	38.74	48.46	**27.70**
Insurance Companies	6.64	30.84	23.94	14.46	**23.48**
HMO	8.45	22.42	5.36	10.85	**16.30**
Philanthropy	16.64	0.49	0.07	-	**1.81**
International plans	0.04	0.48	1.57	0.01	**0.21**
SUS	14.13	3.68	0.84	22.55	**9.62**
Private market	4.57	3.62	4.05	3.49	**3.95**
Other payors	6.34	1.76	3.10	2.74	**3.65**

Source: SINHA/Anahp.

Overall revenue of Anahp hospitals

In 2020, the aggregate gross revenue of member hospitals reached R$ 38.76 billion.

This issue of Observatorio Anahp, as well as others, used data of all members in that year. In the 2020 issue, particularly, the result reported reflects the impact of the Covid-19 pandemic on member hospitals.

People Management

Reflex of the Covid-19 pandemic, absenteeism was the biggest challenge Anahp hospitals faced in 2020

Continuing care delivery and keeping its quality in face of the temporary leave of frontline workers was one of the challenges of 2020
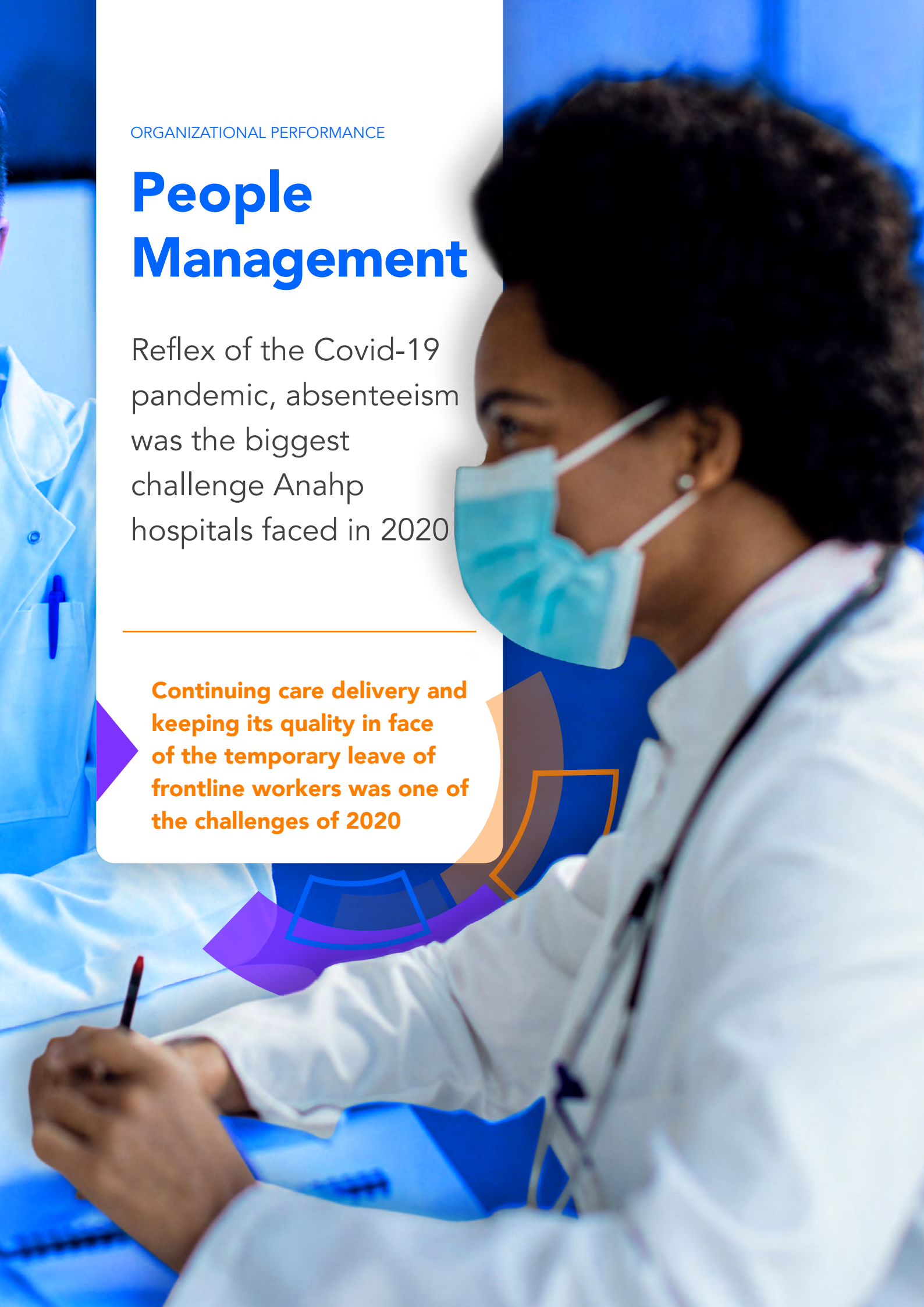
An economic-financial scenario with more limited resources, such as the current one, imposes a challenge to the private market and hospital sector regarding people management, as the need to control expenses must not lead to patient losses or decline in the quality of the care provided.

As mentioned in the first chapter of this publication, "Economic scenario and the health market", the health industry, particularly the hospital segment, has stood out in the creation of jobs in Brazil in the past few years.

However, the Covid-19 pandemic has imposed a challenging scenario in terms of the need to keep jobs with fewer financial resources. As already demonstrated in the chapter "Economic-financial management", expenses with personnel, which account for almost half of a hospital's expenses, stood out last year as one the main cost pressures for hospitals.

There was a sharp increase in absenteeism (from 2.16% in 2019 to 3.56% in 2020), driven mainly by leaves of healthcare workers who got Covid-19.

New hires, terminations, and turnover

The number of new hires by active headcount fell in 2020, after growing for two consecutive years **(Graph 1)**. This movement is in line with the crisis in job creation, caused mainly by the Covid-19 pandemic.

GRAPH 1 | Number of new hires by headcount (%) – Average of Anahp hospitals

1.83   1.96   2.01   1.89

0.84   0.88   0.91   1.26

2017   2018   2019   2020

Standard deviation   *Source: SINHA/Anahp.*
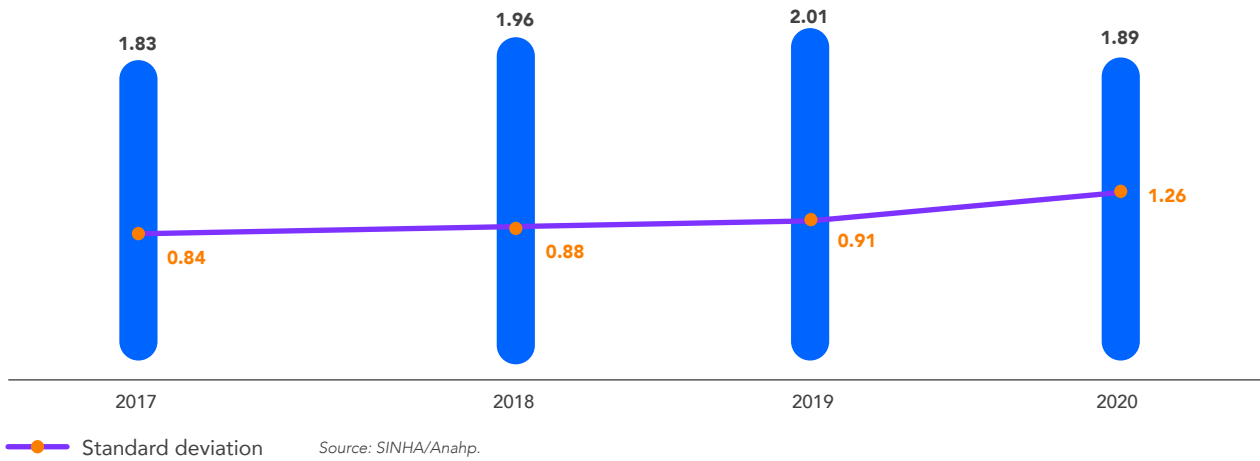
The number of new hires by headcount fell in 2020, after growing for two consecutive years

The indicator of voluntary terminations over headcount has presented a growth trend since 2017, reaching 0.93% in 2020. The rate of involuntary terminations remained on the average of last years, getting to 0.87% in 2020. Therefore, the overall termination rate was 1.80% in the same year under analysis **(Graphs 2 and 3)**.

GRAPH 2 | Rates of voluntary and involuntary terminations over headcount (%) – Average of Anahp hospitals

VOLUNTARY TERMINATIONS OVER HEADCOUNT

	2017	2018	2019	2020
Bar	0.78	0.86	0.90	0.93
Standard deviation	0.40	0.44	0.45	0.49

INVOLUNTARY TERMINATIONS OVER HEADCOUNT

	2017	2018	2019	2020
Bar	0.91	0.88	0.81	0.87
Standard deviation	0.52	0.50	0.42	0.60

●—● Standard deviation   *Source: SINHA/Anahp.*
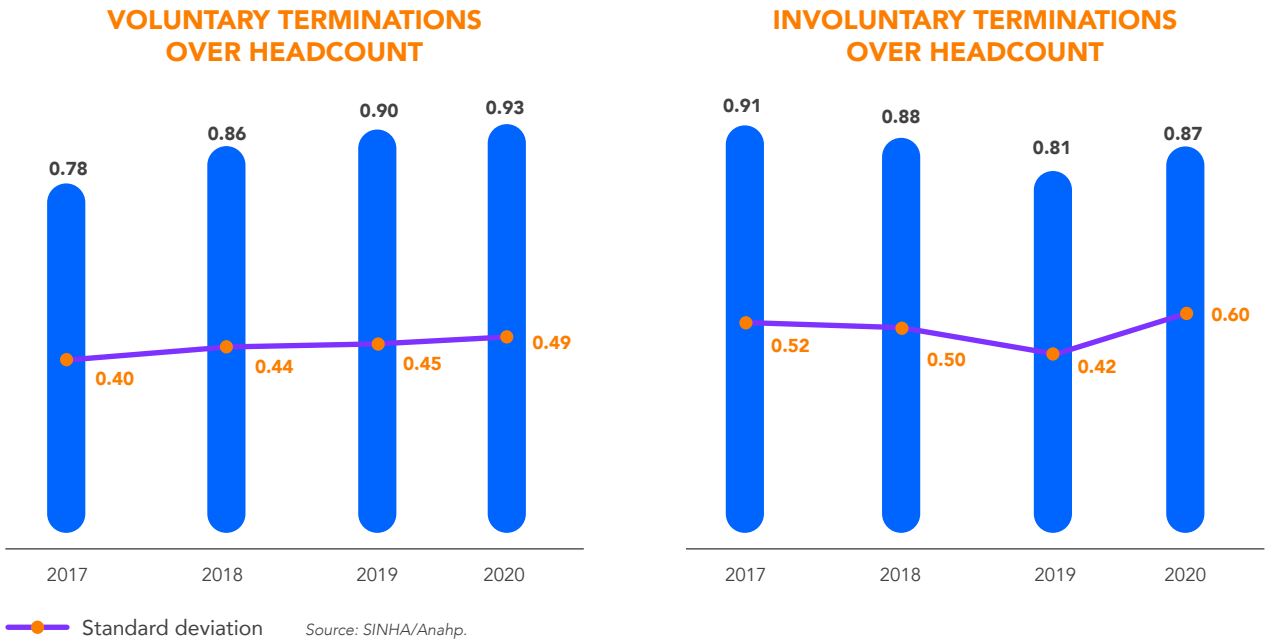
GRAPH 3 | Overall termination rate over headcount (%) – Average of Anahp hospitals

2017	2018	2019	2020
1.69	1.74	1.71	1.80

Source: SINHA/Anahp.
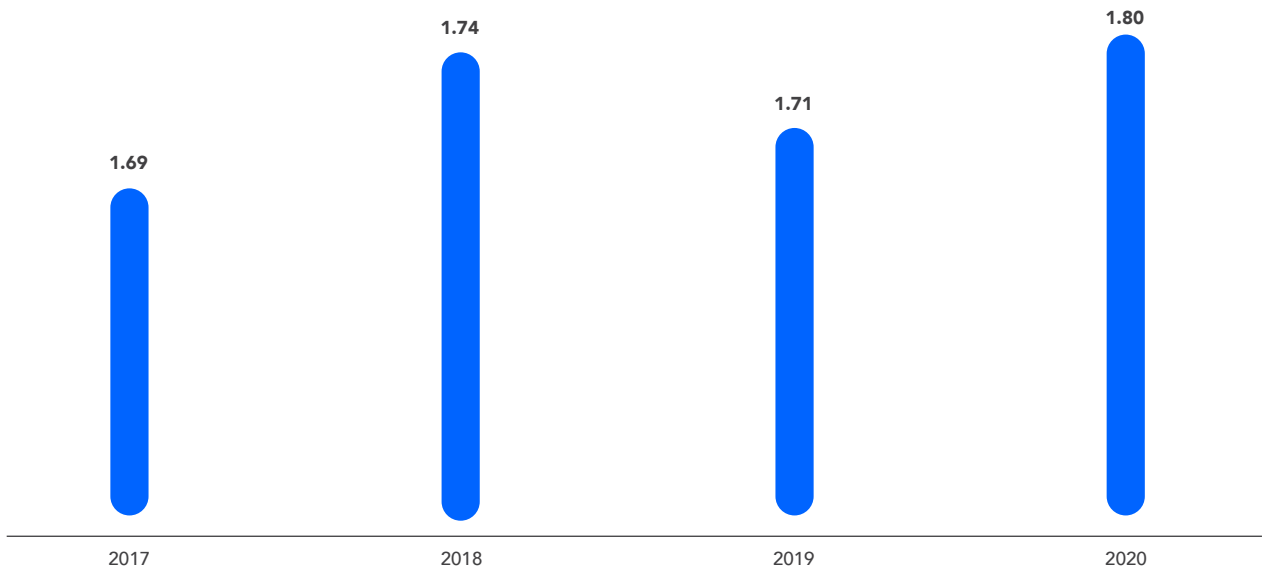
One of the major challenges for the operational management of hospitals is, undoubtedly, staff turnover because it affects the processes of hiring, training, and qualifying new employees. Considering the difficulties, the costs involved, and the improvement of care results for patients, it is fundamental to establish programs for staff retention and internal hires of qualified employees that want to move to a different area.

Staff turnover is the average rate of new hires (due to headcount increase or replacements) and termination in relation to the total headcount at a given period. Therefore, it measures total employee turnover in organizations. In 2020, the staff turnover rate was flat at 1.94%, and the turnover rate without headcount increase was 1.67% **(Graph 4)**.

GRAPH 4 | Turnover rates (%) – Average of Anahp hospitals

STAFF TURNOVER

Year	Value	Standard deviation
2017	1.80	0.71
2018	1.88	0.68
2019	1.93	0.70
2020	1.94	0.89

STAFF TURNOVER (WITHOUT HEADCOUNT INCREASE)

Year	Value	Standard deviation
2017	1.67	0.68
2018	1.72	0.63
2019	1.75	0.65
2020	1.67	0.73
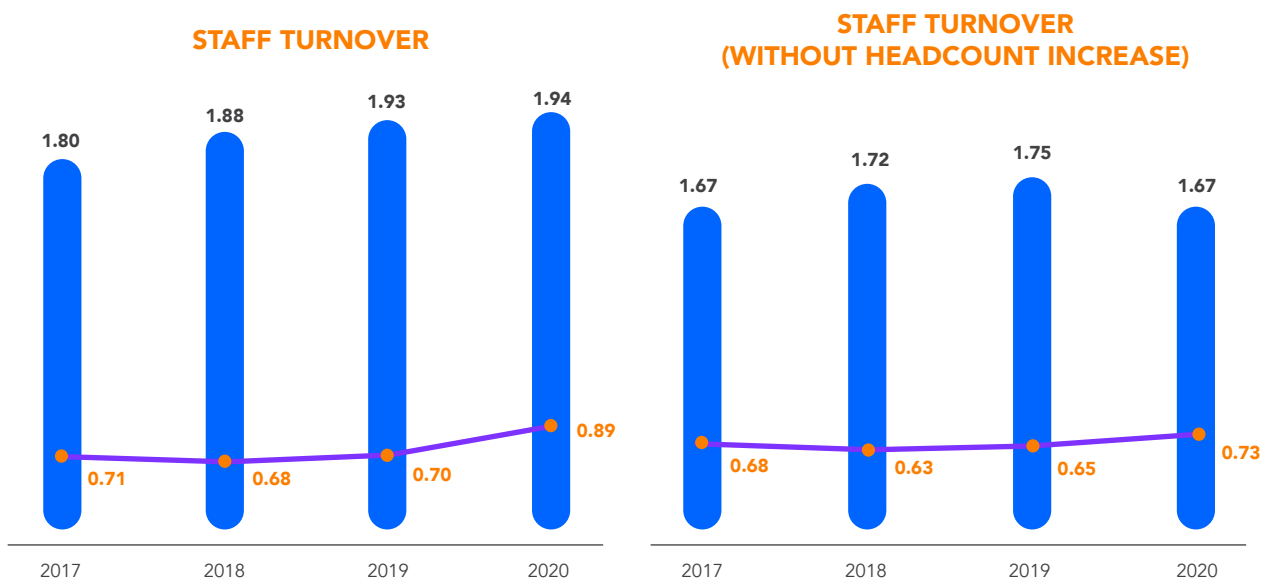
Standard deviation

Source: SINHA/Anahp.

The indicator nursing turnover, directly related to the care provided to patients, grew in 2020

When analyzing nursing turnover – which is directly related to the care provided to patients –, it is possible to identify that it followed a trend opposite to that of other turnover rates, presenting 1.87% growth in 2020, from 1.76% in 2019 **(Graph 5)**.

GRAPH 5 | Nursing Turnover (%) – Average of Anahp hospitals

	2017	2018	2019	2020
	2.04	2.16	1.76	1.87
Standard deviation	1.06	1.08	0.91	1.15
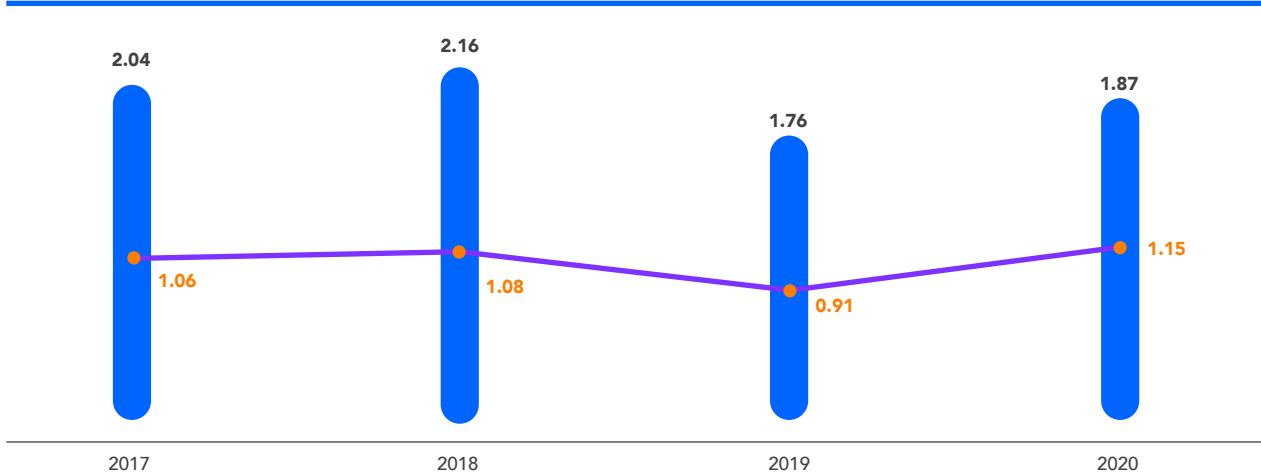
Source: SINHA/Anahp.

Rate of internal hires and average time to fill vacancies

Organizations tend to invest in internal hires, to optimize time to hire and train. In that sense, the indicator internal hire rate was 22.11% in 2020 **(Graph 6)**. With this, the indicator training time fell in 2020, in the comparison with the previous year, from 2.02 to 1.30 hours **(Graph 7)**.

GRAPH 6 | Rate of internal hires (%) – Average of Anahp hospitals

Standard deviation   *Source: SINHA/Anahp.*
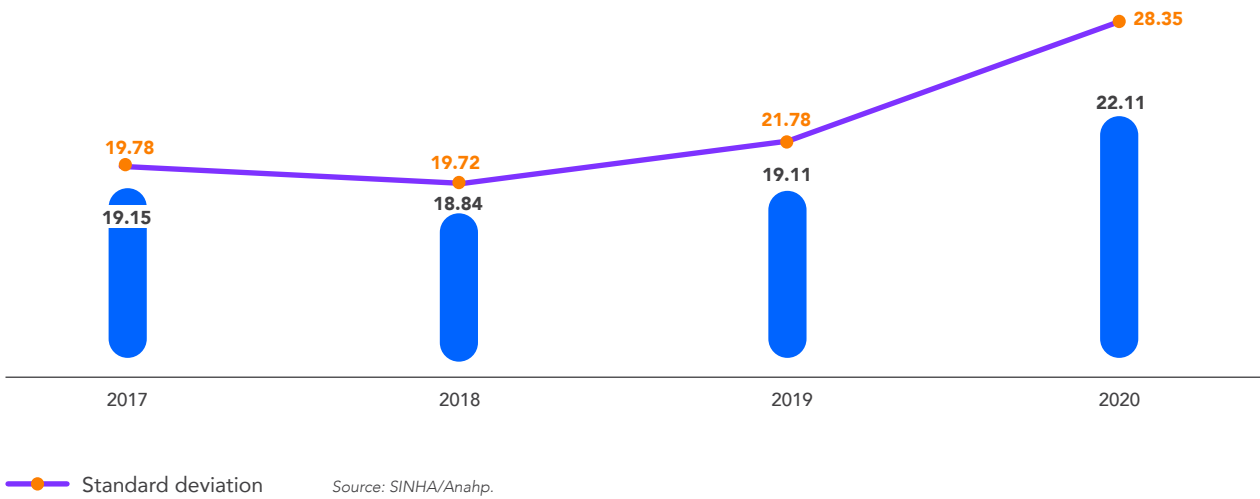
GRAPH 7 | Headcount training time (in hours) – Average of Anahp hospitals

Standard deviation   *Source: SINHA/Anahp.*
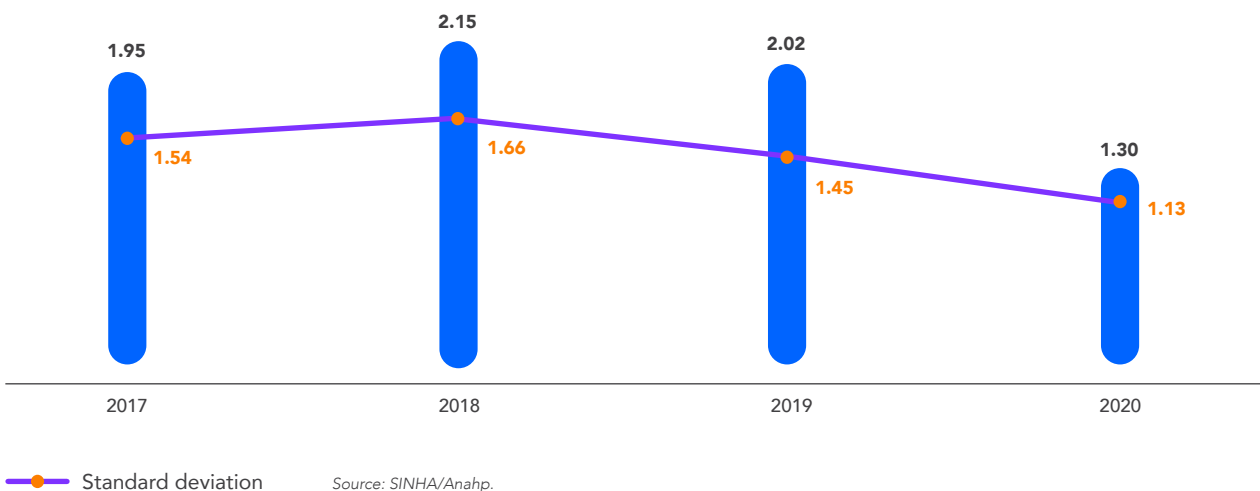
The average time to fill vacancies (period between opening the vacancy and the professional starting to work) was 12.22 days in 2020, remaining stable when compared with the previous year **(Graph 8)**.

GRAPH 8 | Average time to fill vacancies (days) – Average of Anahp hospitals

13.50

12.41

13.56

13.04

12.67

12.10

13.73

12.22

2017   2018   2019   2020

Standard deviation   *Source: SINHA/Anahp.*
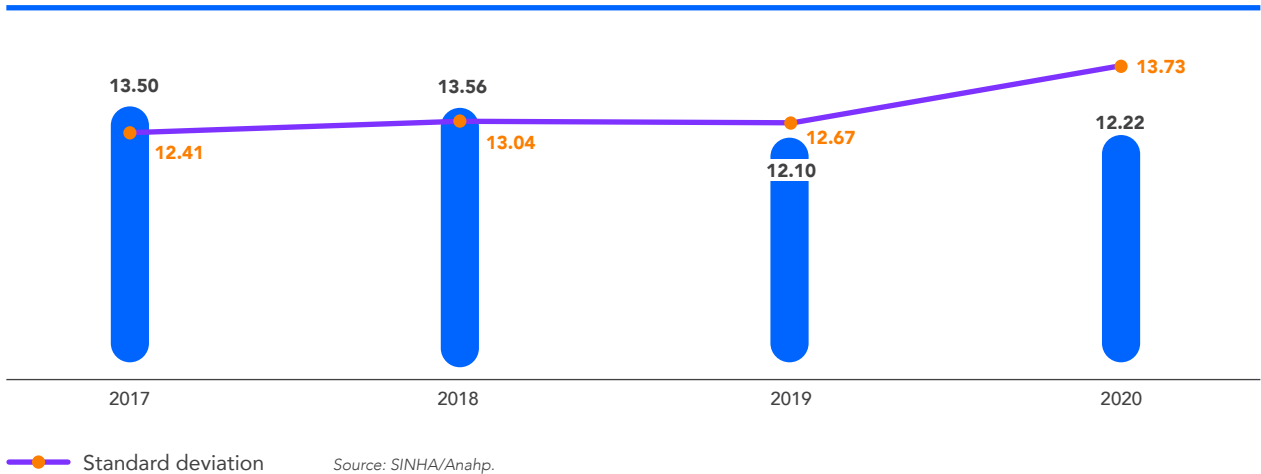
Occupational health and safety

Absenteeism is associated to many factors, such as stress, process changes, and susceptibility to diseases, which may be worsened by the multiple jobs some employees have. The monthly rate of absenteeism[1] was 3.56% in 2020, a much higher percentage than reported in previous years **(Graph 9)**. This result is probably due to leaves of healthcare workers who got Covid-19. Absenteeism due to unjustified absence, however, presented a slight drop and was 0.48% in that same year **(Graph 10)**. It is important to say that, among Anahp members, absenteeism management has received attention, with organizations working for disease prevention and health promotion of the staff.

The indicator total overtime was 3.62% in 2020, driven mainly by the fall in the overtime indicator because of banked hours, which was 2.73% from 2.49% in the same comparation **(Graph 11)**. This shows that the drop of elective care provided drove down work demand in some sectors of organizations.

GRAPH 9 | Rate of absenteeism ≤ 15 days (%) – Average of Anahp hospitals

● Standard deviation   *Source: SINHA/Anahp.*
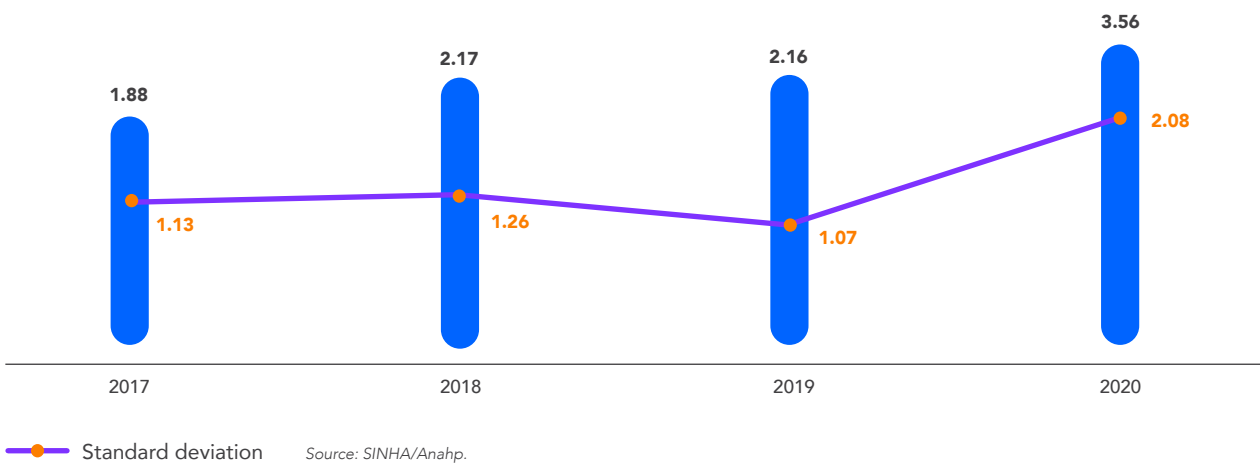
GRAPH 10 | Rate of absenteeism ≤ 15 days (%) due to unjustified absence – Average of Anahp hospitals

● Standard deviation   *Source: SINHA/Anahp.*
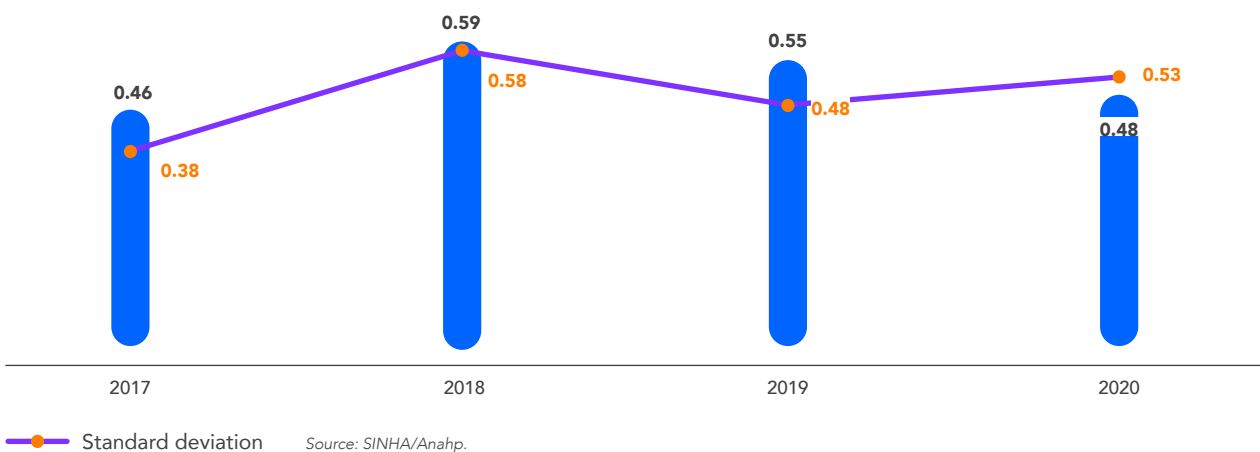
[1] The rate of absenteeism, which considers absences lasting for up to fifteen days, is the ratio between the total number of absent hours because of missed workdays, delays or leaves of absence of hospital employees divided by the total number of expected work hours
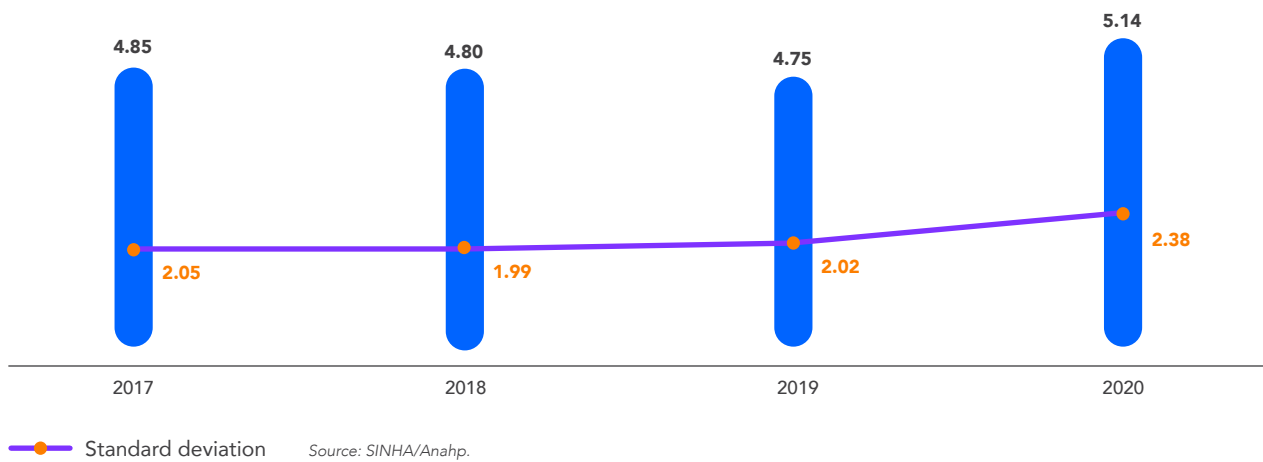
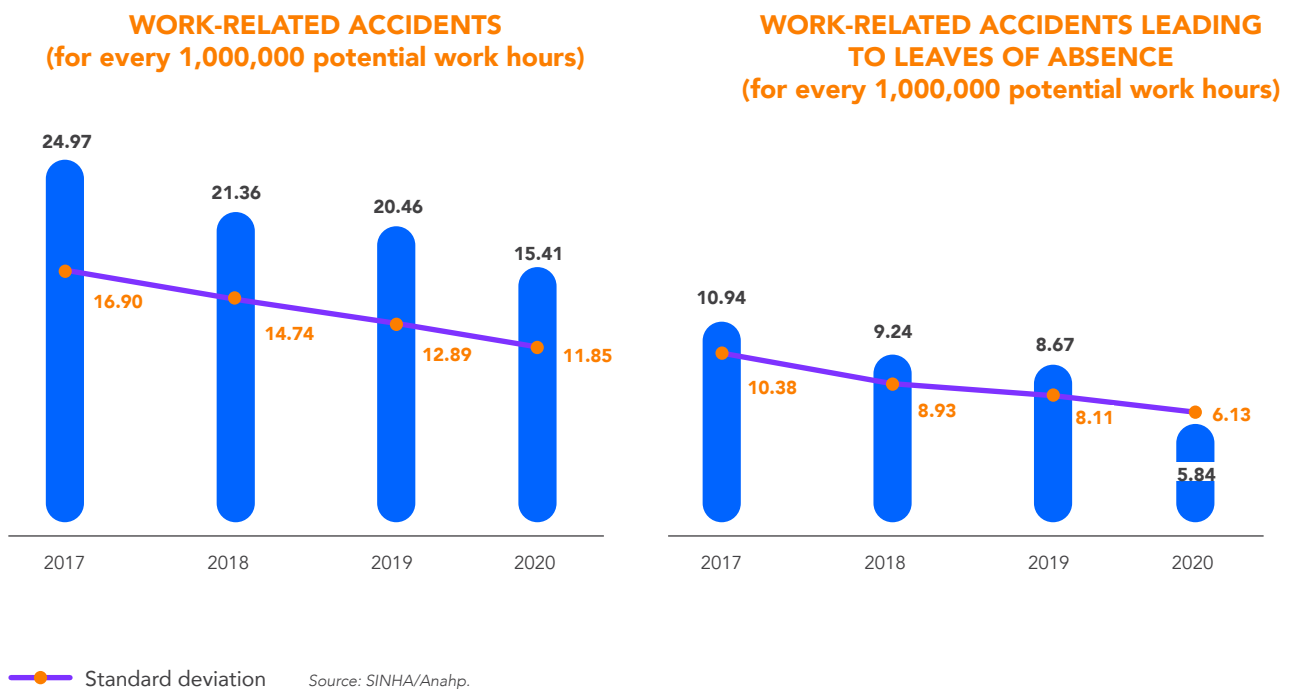**GRAPH 11** | Overtime (%) – Average of Anahp hospitals

TOTAL OVERTIME

Year	2017	2018	2019	2020
Standard deviation	4.51	4.48	3.95	4.70
Value	3.68	3.82	3.50	3.62

OVERTIME (BANK OF HOURS)

Year	2017	2018	2019	2020
Standard deviation	3.32	3.69	3.33	3.92
Value	2.12	2.90	2.73	2.49

OVERTIME (INCLUDED IN PAYROLL)

Year	2017	2018	2019	2020
Standard deviation	1.83	1.91	1.40	1.37
Value	1.56	1.58	1.22	1.11

Standard deviation

Source: SINHA/Anahp.
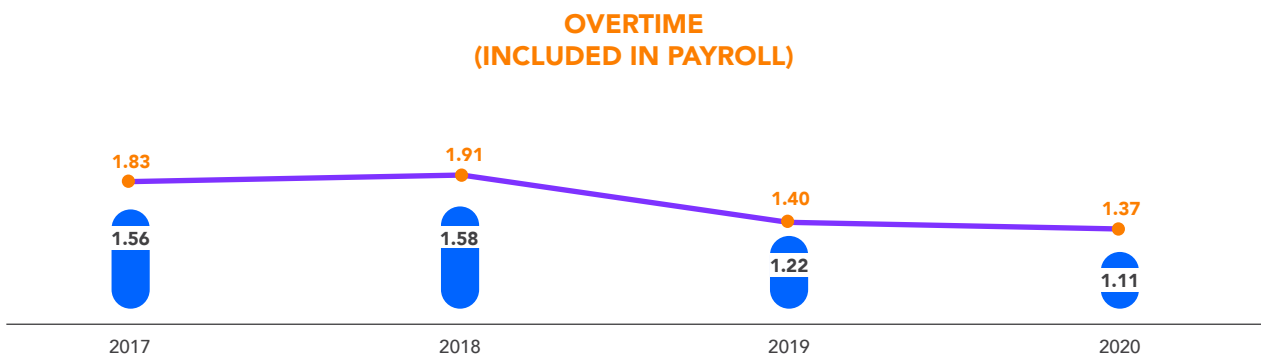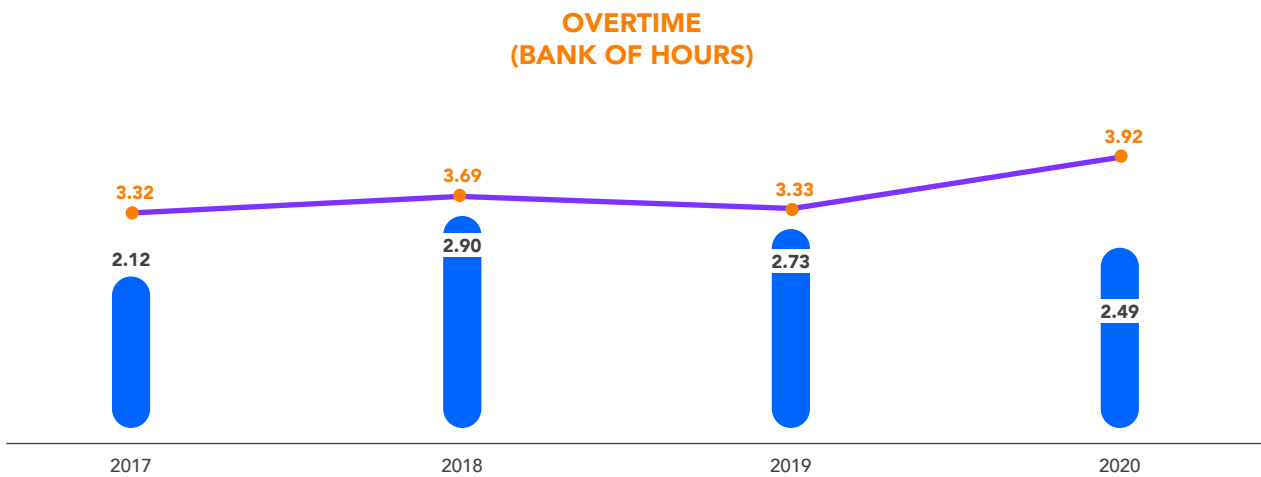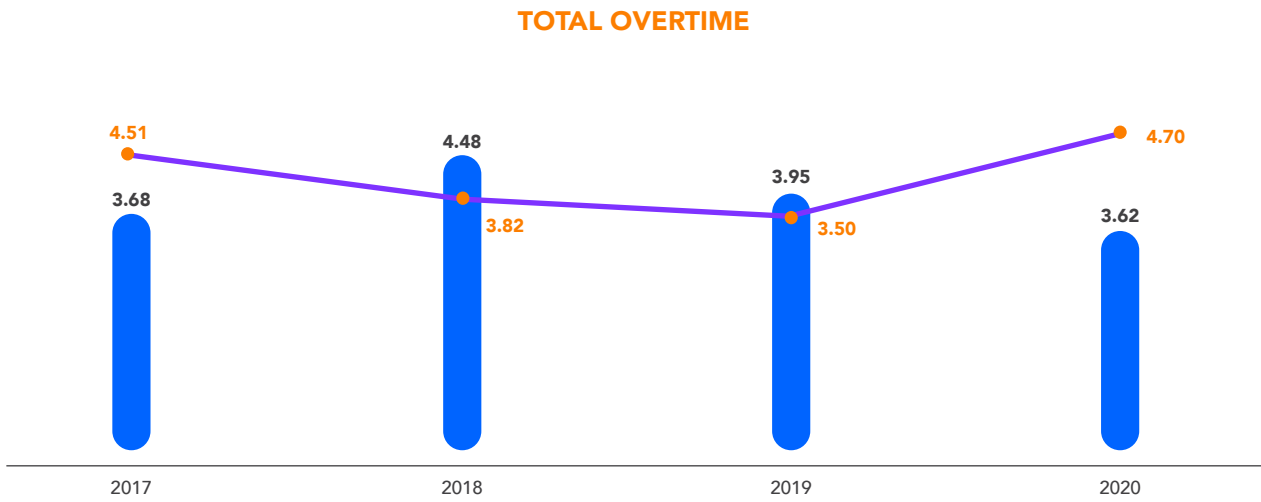
The rate of leaves of absence, which had been falling since 2017, presented a rise in 2020, reaching 5.14% in the year **(Graph 12)**. The number of work-related accidents presented a very positive result in 2020, 15.41 for every 1 million potential work hours. Of these, the work-related accidents that resulted in leaves of absence also followed a downward trend and were 5.84 for every 1 million potential work hours in 2020 **(Graph 13)**. Regarding accidents that occurred inside healthcare organizations, it was also possible to see a fall in 2020, result of the increase in protection barriers provided to employees in the workplace **(Graph 14)**.

GRAPH 12 | Rate of leaves of absence (%) – Average of Anahp hospitals

● Standard deviation   *Source: SINHA/Anahp.*

GRAPH 13 | Work-related accidents – Average of Anahp hospitals

**WORK-RELATED ACCIDENTS
(for every 1,000,000 potential work hours)**

**WORK-RELATED ACCIDENTS LEADING
TO LEAVES OF ABSENCE
(for every 1,000,000 potential work hours)**

● Standard deviation   *Source: SINHA/Anahp.*

GRAPH 14 | Work-related accidents leading to leaves of absence that occurred in organizations (every 1,000,000 potential work hours) – Average of Anahp hospitals

- ● Standard deviation   *Source: SINHA/Anahp.*
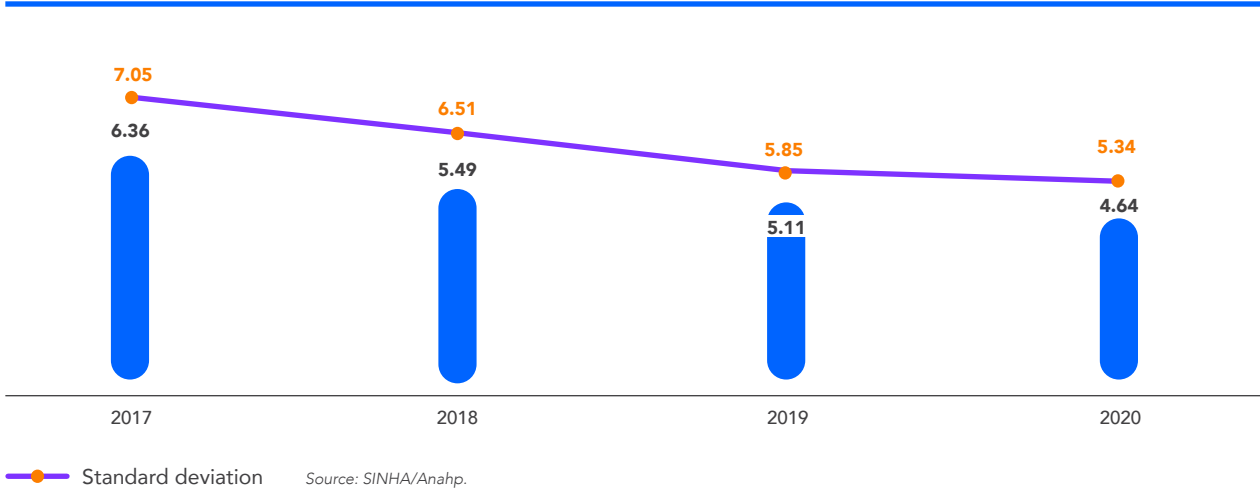
Talent Retention

One of the great difficulties of the health industry is dealing with the growing demand and limited offer of highly qualified professionals. With the aim of comparing efficiency in hiring and retaining employees, to reduce training and development costs and to minimize care-related harms, Anahp started measuring the indicators of talent hiring and retention. These indicators serve, for example,

to identify strategies to reduce turnover and absenteeism in organizations.

The employee hiring rate, which shows the percentage of hired employees who went through the initial trial period (three months), has been increasing since 2017, when the indicator was first measured, and reached 84.73% in 2020. Employee retention rate (twelve months) was 73.84% in 2020 **(Graph 15)**.

GRAPH 15 | Hiring rate and retention rate – Average of Anahp hospitals

EMPLOYEE HIRING RATE – 90 DAYS

EMPLOYEE RETENTION RATE – 12 MONTHS

- ● Standard deviation   *Source: SINHA/Anahp.*
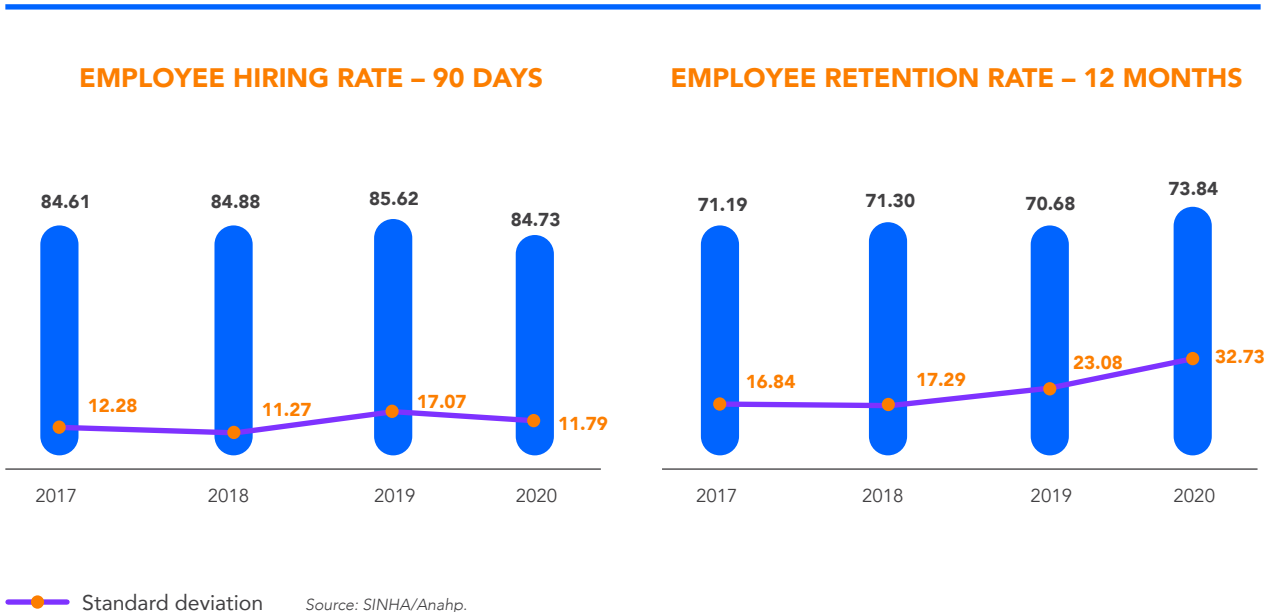
Regional features of Anahp hospitals

With quite heterogeneous features, the unique regional features of Anahp members will be presented separately, according to the main people management indicators **(Graph 16)** and with the number of formally hired individuals **(Graph 17)**.

GRAPH 16 | Anahp hospitals per region | December 2020

North
3

Northeast
19

**BRAZIL
118**

Center-West
10

Southeast
58

South
28

Source: SINHA/Anahp.

GRAPH 17 | Formally hired individuals at Anahp hospitals per region | December 2020

Northeast
30,259

North and
Center-West
15,643

**BRAZIL
191,003**

Southeast
107,485

South
37,616
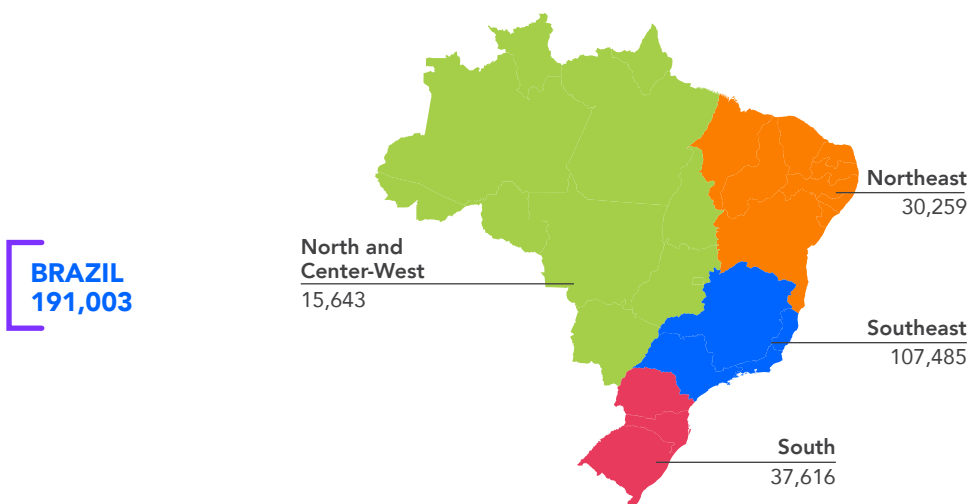
Source: "Organizational Profile" section herein.

In 2020, member hospitals totaled 191,000 employees (active employees in December 2020). With this, Anahp hospitals accounted for 14.33% of the total of formal employees in the healthcare industry.

One of the indicators constantly monitored by members all over Brazil is turnover, which generates higher expenses with hiring and onboarding, in addition to the loss of knowledge and investments already made in employee development, among other impacts.

The regional analysis of this indicator shows that regions North and Center-West are the ones with the highest rates, followed by South region. One of the concerning factors is that, in these three regions, the average nursing turnover, directly related to patient care, is higher than that of other workers **(Graph 18)**.

GRAPH 18 | Turnover indicators (%) – Average of Anahp hospitals per region | 2020

Legend:
- Staff turnover
- Staff turnover – without headcount increase
- Nursing turnover
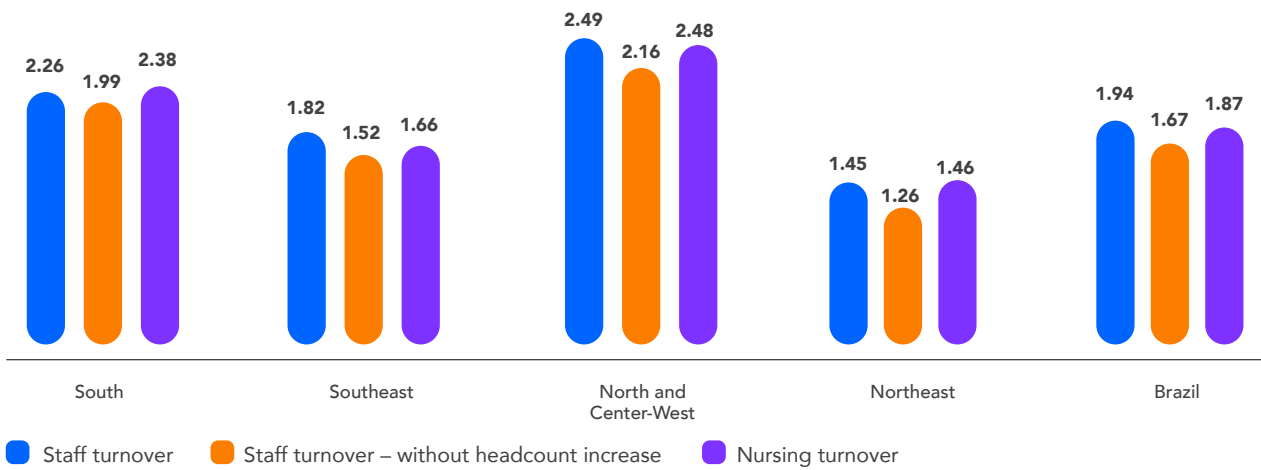
Source: SINHA/Anahp.

Regions North and Center-West also have higher absenteeism in relation to the other regions of the country **(Graph 19)**.

GRAPH 19 | Absenteeism (%) – Average of Anahp hospitals per region | 2020

Source: SINHA/Anahp.

Construindo um mundo mais produtivo

WHITE MARTINS
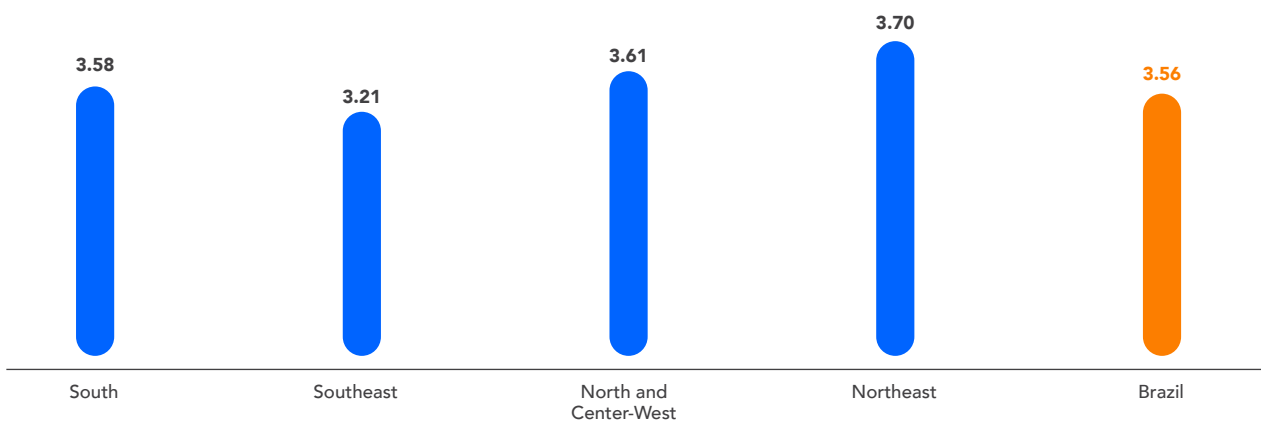
pur O₂
Programa Uso Racional do Oxigênio

ECONOMIZAR OXIGÊNIO SALVA VIDAS

USE DA FORMA CORRETA PARA NÃO FALTAR!

Certifique-se que o regulador de pressão e acessórios são compatíveis com Oxigênio Medicinal
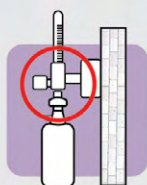
Verifique se há vazamentos no posto, fluxômetro e humidificador
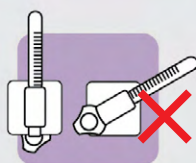
Somente utilize o fluxômetro na posição vertical

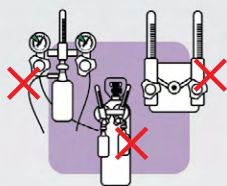Ajuste o fluxo de oxigênio para atender a SaO2 alvo e nunca ultrapasse o limite máximo de **15ℓ/min**

Ventiladores devem receber oxigênio através de regulador de posto

Não conectar a mangueira do ventilador diretamente no posto

A pressão ideal de uso do Oxigênio no posto de consumo é 3,5 kgf/cm² (50 psi)

Não multiplique o uso do ponto de consumo para atender mais de um paciente
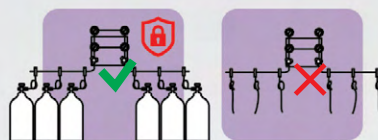
Controle o acesso e manuseio da Central de Oxigênio Medicinal para garantir que todos os cilindros permaneçam conectados

Evite o uso de cilindros nos corredores ou próximo aos leitos. Sempre que possível, utilize oxigênio através do posto de consumo

0800 709 9000   **www.whitemartins.com.br**

Environmental sustainability

The consumption of water and electric power and the generation of waste were directly impacted by changes in care delivery demand

Responsible consumption, regardless of the external scenario, is essential for the sustainability of healthcare organizations

It has been many years since environmental sustainability entered the radar of managers of the entire health chain in Brazil and in the world, mainly with the aim of reducing waste and optimizing resources.

The introduction of the environmental agenda into corporate practices brings new challenges to the management of hospitals. In this manner, Anahp and its members, through Anahp Integrated Hospital Indicator System (SINHA), use environmental sustainability indicators to objectively measure the challenges and advances of the sector in the incorporation of practices that promote sustainable development.

The consumption of water and electric power, and the generation of waste, on the one hand, are directly related to the volume of care provided, as patient-days, that is, the consumption of these resources usually grows along with the demand of the period. On the other hand, there is room to seek greater efficiency on the utilization of resources and to reduce costs. As to costs, expenses with utilities, for example, accounted for 2.16% among Anahp members in 2020.

Consumption of electric power

The consumption of electric power per operating bed had a slight increase when compared with the previous year **(Graph 1)**. Consumption per patient-day had a considerable rise, which may be related to the reduction in the number of admissions, which tends to increase the fixed costs of electric power per patient-day. Between 2019 and 2020, consumption went from 99.92 kWh to 113.73 kWh **(Graph 2)**.

GRAPH 1 | Consumption of electric power in kWh per operational bed – Average of Anahp hospitals

Source: SINHA/Anahp.
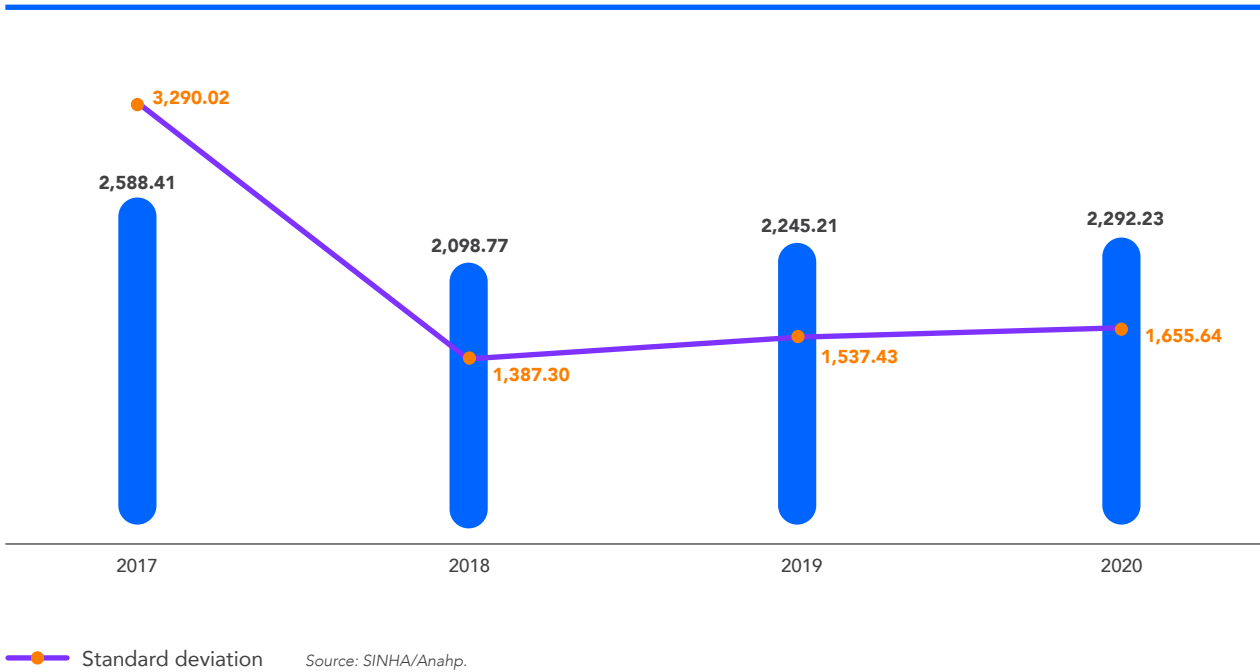
GRAPH 2 | Consumption of electric power in kWh per patient-day – Average of Anahp hospitals

Source: SINHA/Anahp.
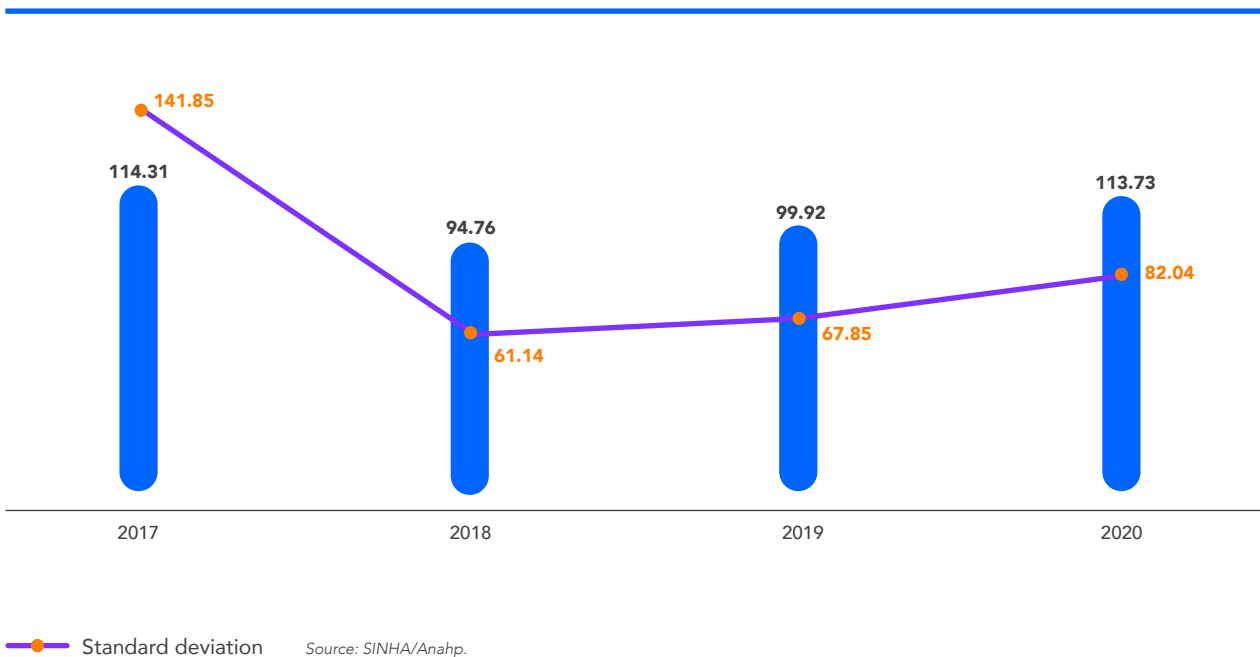
Water consumption

The water shortage of recent years in Brazil has certainly left as its legacy the implementation of initiatives for efficient water consumption. The variation in water consumption indicator has been significantly small throughout the years.

Average water consumption per operating bed went from 20.06 m³ in 2019 to 19.02 m³ in 2020 **(Graph 3)**, while consumption per patient-day, which was 0.91 m³ in 2017, went to 0.96 m³ last year **(Graph 4)**.

GRAPH 3 | Water consumption in m³ per operational bed – Average of Anahp hospitals

	2017	2018	2019	2020
	20.37	19.76	20.06	19.02
Standard deviation	9.57	9.71	10.67	9.78
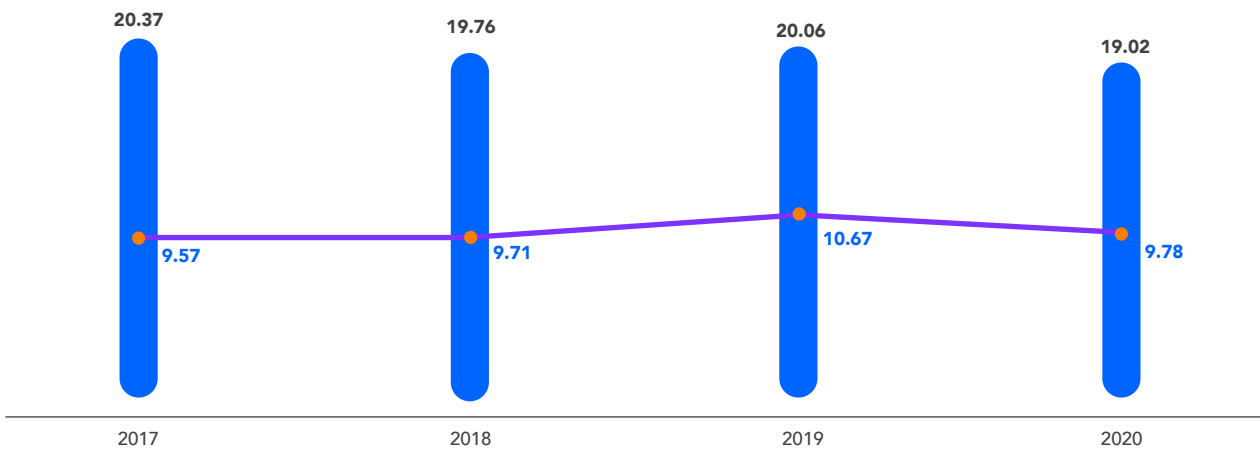
Source: SINHA/Anahp.

GRAPH 4 | Water consumption in m³ per patient-day – Average of Anahp hospitals

	2017	2018	2019	2020
	0.91	0.85	0.89	0.96
Standard deviation	0.40	0.41	0.19	0.51
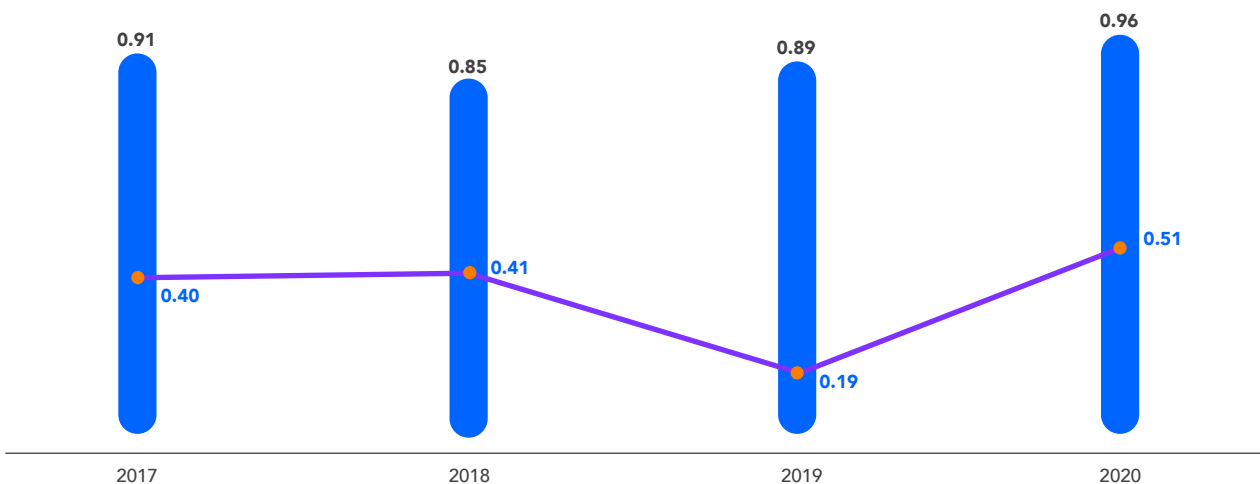
Source: SINHA/Anahp.

Waste

The waste that health services produce comes from the care provided to patients in any healthcare facility. We may mention as example syringes, plastic materials, gauze, and biological materials.

In order to mitigate the damages caused by the disposal of these materials, the National Health Surveillance Agency (Anvisa), through RDC number 33/03, which sets forth the Waste Management Plan for Health Services (PGRSS), established rules for the generation, segregation, packaging, collection, storage, transportation, processing, and final disposal of waste.

The agency classified hospital waste in groups with common features, namely: group A, potentially infectious waste; group B, chemical waste; group C, radioactive waste; group D, regular waste; group E, sharps and needles. Anahp, with aim of incentivizing good practices, has been monitoring, since 2014, the indicators related to hospital-generated infectious, nonrecyclable, and recyclable waste.

In addition, in March this year, Anahp launched the manual Waste Management in Healthcare Services (RSS), with the aim of addressing the main themes and procedures related to environmentally appropriate management of the waste generated by operational and administrative activities of healthcare facilities (click here to access this publication).

The variation of waste indicators, as well as water and electric power consumption indicators, are directly related to the number of medical and surgical patients who receive care.

When analyzing 2020 data, it is possible to see that the total waste generation of Anahp hospitals was directly impacted by the reduction in the number of hospital admissions and, in contrast, by the increase of Covid-19 patients, who require higher consumption of disposable materials (personal protection equipment) than other types of patients **(Graph 5)**.

GRAPH 5 | Waste generation (infectious, nonrecyclable, and recyclable) per patient-day (kg) – Average of Anahp hospitals

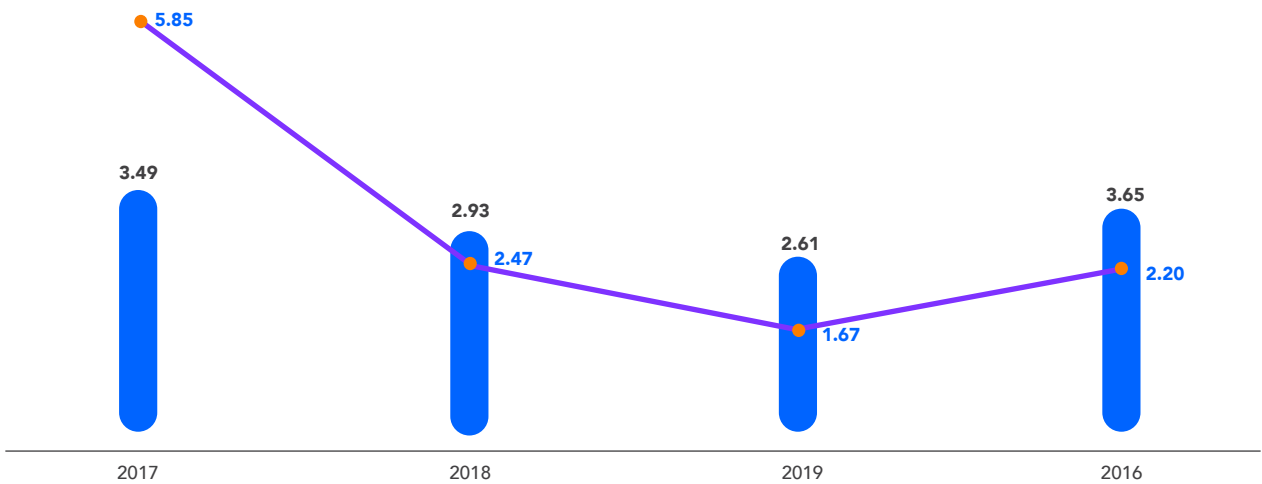Standard deviation   *Source: SINHA/Anahp.*
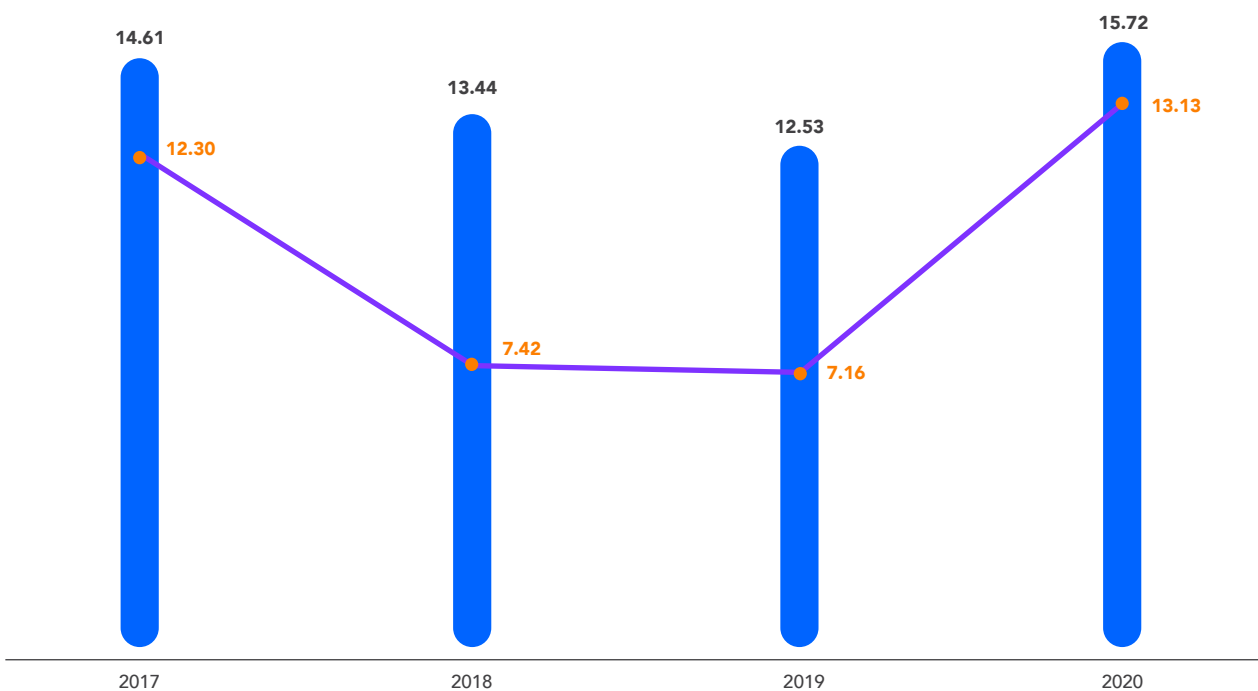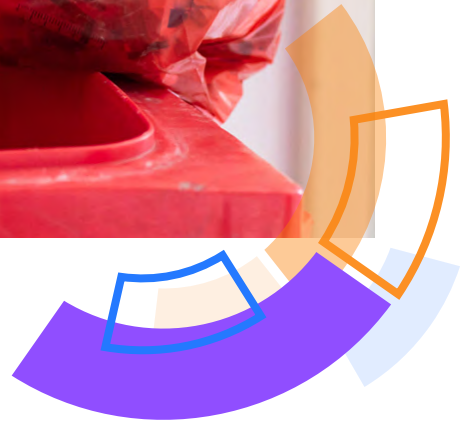
The generation of infectious waste (blood, culture media, tissues, organs, waste from isolation areas and clinicals analyses laboratories, sharps and needles, and others) also increased **(Graph 6)**.

GRAPH 6 | Generation of infectious waste per patient-day (kg) – Average of Anahp hospitals

	2017	2018	2019	2016
Bars	3.49	2.93	2.61	3.65
Standard deviation	5.85	2.47	1.67	2.20

Standard deviation   *Source: SINHA/Anahp.*

Information Technology

In a year marked by Covid-19, the consolidation of up-to-date data is one of the main tools to assess the impacts of the pandemic

Integrated IT enables faster and more efficient decision making

Information technology (IT) is present in all links of the world's production chain, and it has been many years since it was about machines and software only; now it is about its role as an information system.

Optimizing human resources is undoubtedly one of the major drivers of any technology department in organizations. In hospitals, the concern is even greater: making available to the staff and managers tools that will provide patients with the best experience they can have with the highest data safety possible.

Understanding the relevance of the matter, in 2015, Anahp and its members created the Information Technology Work Group, with aim of sharing best practices and finding solutions for similar problems.

In 2019, members started, through the tools of the Anahp Integrated Hospital Indicator System (SINHA), to measure and benchmark service management indicators.
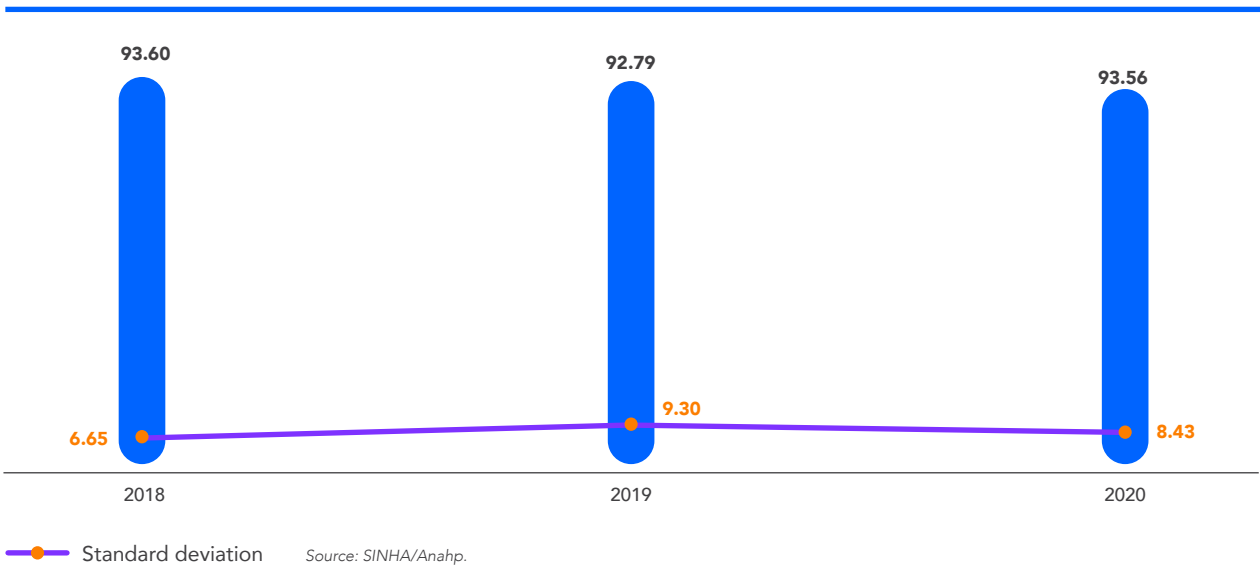
IT in Anahp hospitals

Controlling the main technology services in hospitals permits the effective management of processes, as well as adapting physical and financial resources. In addition, a particularly important role of information technology in organizations is to know and meet the demands of their internal customers.

Among the indicators selected for service management, Anahp members decided to start by those related to the qualification and interface with internal IT customers, that is, the employees of organizations.
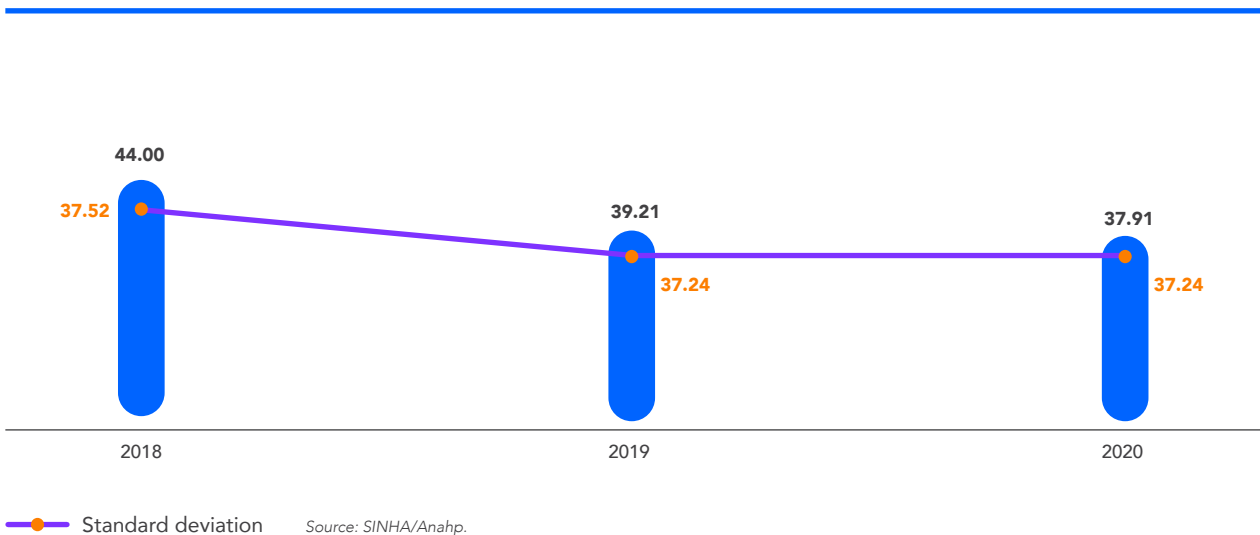
It is possible to see that the internal customer satisfaction rate, whose aim is to assess their opinion about the service desk, has been high – above 90% – in the last three years **(Graph 1)**.

GRAPH 1 | Satisfaction rate of internal IT customers (%) – Average of Anahp hospitals

93.60   92.79   93.56

6.65   9.30   8.43

2018   2019   2020

—●— Standard deviation   *Source: SINHA/Anahp.*

It is worth mentioning that, among Anahp members, only 37.91% of the total calls answered by IT were evaluated in 2020 **(Graph 2)**.

GRAPH 2 | Effectiveness of the satisfaction survey with internal IT customers (%) – Average of Anahp hospitals

44.00   39.21   37.91
37.52
                  37.24   37.24

2018   2019   2020

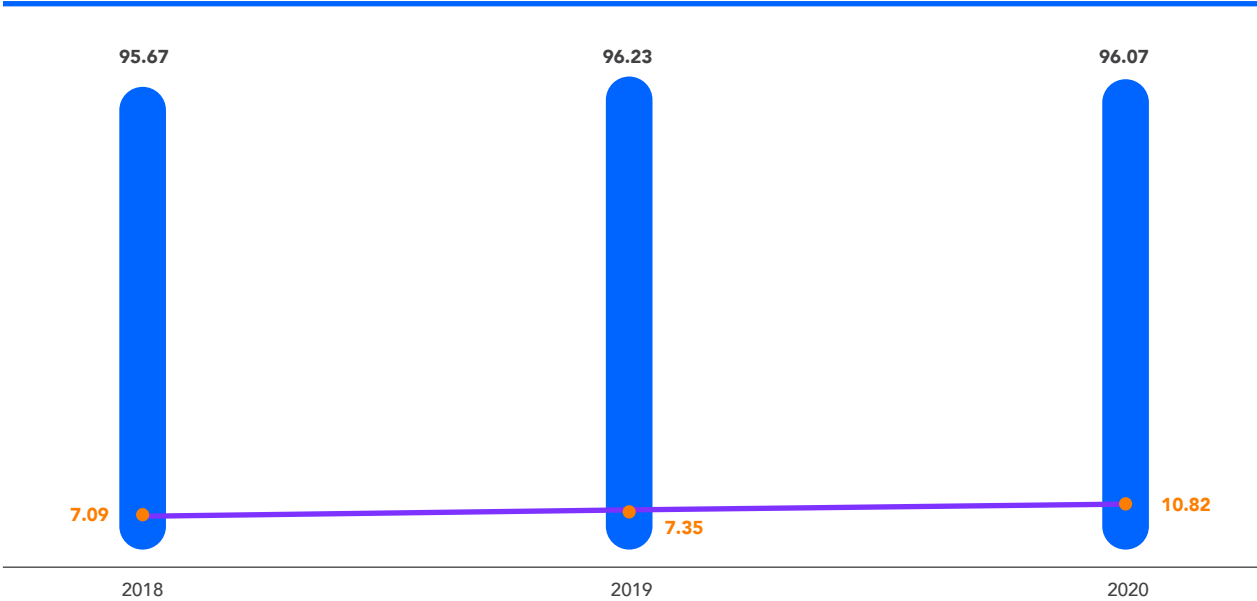—●— Standard deviation   *Source: SINHA/Anahp.*

In 2020, in Anahp hospitals, more than 95% of the service orders were solved in the same month as they were placed

Another concern of technology departments in hospitals is problem solving, that is, if they manage to answer all demands of service orders placed by other departments. In 2020, in Anahp hospitals, 96.07% of the service orders were solved in the same month as they were placed **(Graph 3)**.

GRAPH 3 | IT problem solving rate (%) – Average of Anahp hospitals

	2018	2019	2020
Rate	95.67	96.23	96.07
Standard deviation	7.09	7.35	10.82

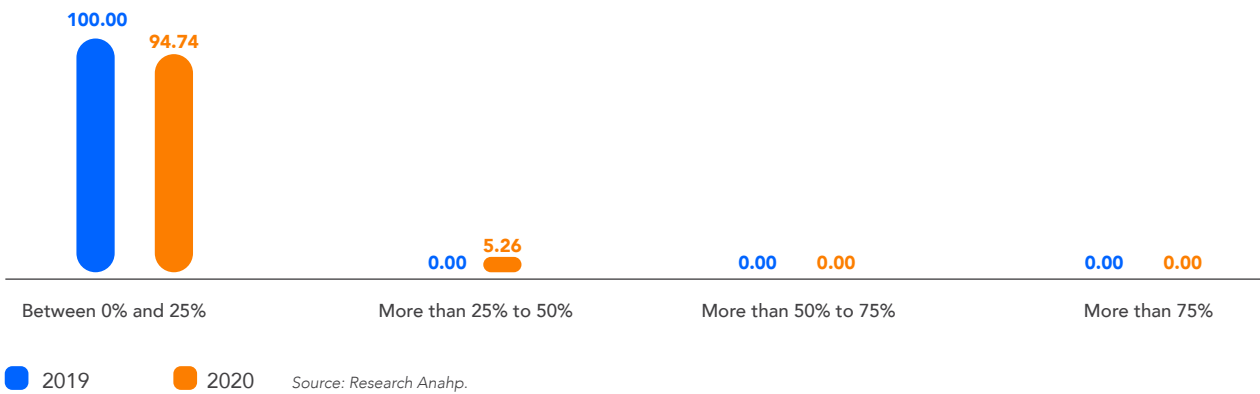Standard deviation   *Source: SINHA/Anahp.*

Technology as an ally during the pandemic

Like other sectors, information technology departments (IT) of Anahp hospitals, due to the scenario of the Covid-19 pandemic, needed to adapt its operation model to offer more safety to employees and customers. One example are the changes related to a more intense use of information technology, to enable the flexibilization of the work environment and the monitoring of metrics to better guide decisions and the new models of care delivery for consumers.

A survey conducted with Anahp member hospitals, in the period from April 23 to 30, 2021, tried to identify changes related to information technology.

As to home-based work, 100% of the organizations said that between 0% and 25% of the employees were already working on that model in 2019; in 2020, 5.26% hospitals had a rise in the number of employees working from home, going from 25% up to 50% **(Graph 1)**.

GRAPH 1 | Employees that adopted the work from home model (%) | 2019 and 2020

	Between 0% and 25%	More than 25% to 50%	More than 50% to 75%	More than 75%
2019	100.00	0.00	0.00	0.00
2020	94.74	5.26	0.00	0.00

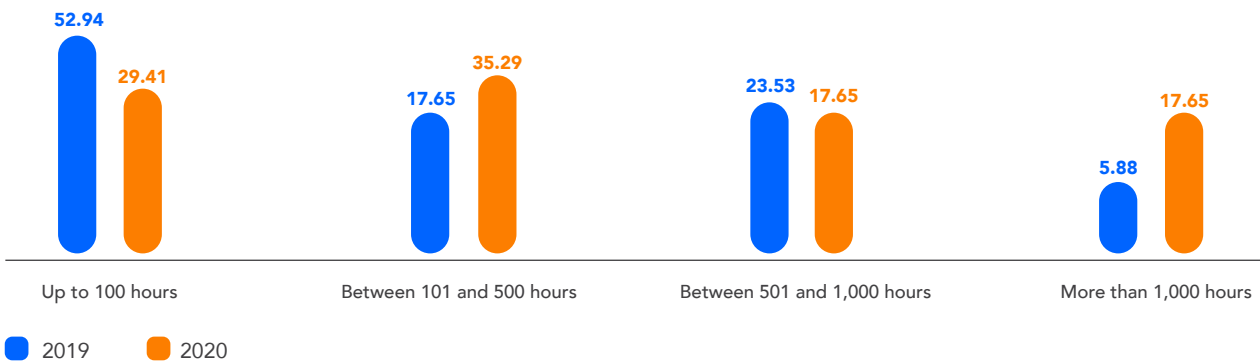● 2019   ● 2020   *Source: Research Anahp.*

In 2020, there was a rise in the percentage of employees working from home

Overall, organizations had a rise in the number of hours dedicated to digital training, in comparison to before the pandemic. The organizations that allocated up to 100 hours to training started to offer up to 500 hours, and some organizations that already offered between 501 and 1,000 hours started to offer more than 1,000 training hours.

Hospitals offering between 101 and 500 training hours, which were 17.65% in 2019, went up to 35.29% in 2020. Hospitals offering more than 1,000 training hours, which were 5.88% of the organizations in 2019, increased their share to 17.65% of the organizations in 2020 **(Graph 2)**.

GRAPH 2 | Digital training hours in the organization (%) | 2019 and 2020

- Up to 100 hours: 2019 — 52.94, 2020 — 29.41
- Between 101 and 500 hours: 2019 — 17.65, 2020 — 35.29
- Between 501 and 1,000 hours: 2019 — 23.53, 2020 — 17.65
- More than 1,000 hours: 2019 — 5.88, 2020 — 17.65

● 2019   ● 2020

Source: Research Anahp.

An increase in the use of information technology tools (analytics, artificial intelligence, electronic medical records) was also reported by 68.42% of the organizations **(Graph 3)**.

As to telemedicine or telehealth, 35.71% of the organizations offered this mode of care

(Graph 4). Of those, some provided information about partnerships with operators or their own telemedicine service, percentage of appointments in this format in the second half of 2020 and forecast of telemedicine appointments that will be held in the first half of 2021.

GRAPH 3 | Increase in the use of information technology tools because of the pandemic (%)

- Yes: 68.42
- No: 31.58
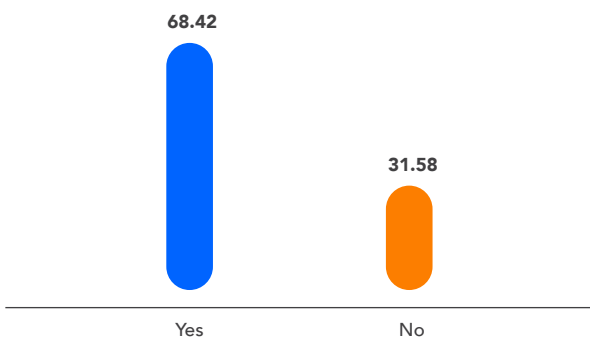
Source: Research Anahp.

GRAPH 4 | Use of "telemedicine" or "telehealth" services (%)


- Yes: 35.71
- No: 64.29
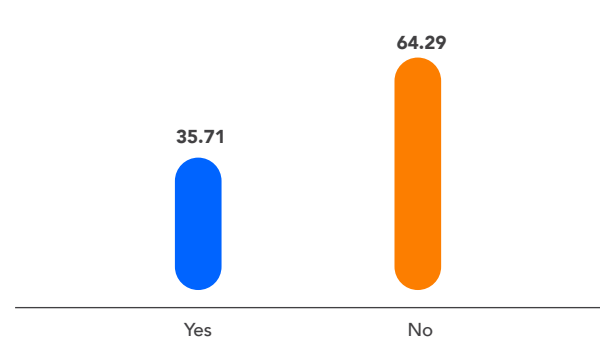
Source: Research Anahp.

As to partnerships with operators or having their own telemedicine service, answers indicate that 20% of the organizations only have partnerships with operators, 20% only have their own service, and 60% use both service modalities (partnership with operator and own service) **(Graph 5)**.

60% of the organizations estimate that, in the first half of 2021, telemedicine appointments will account for 0% to 25%

GRAPH 5 | Telemedicine services through partnership with operator or own service (%)
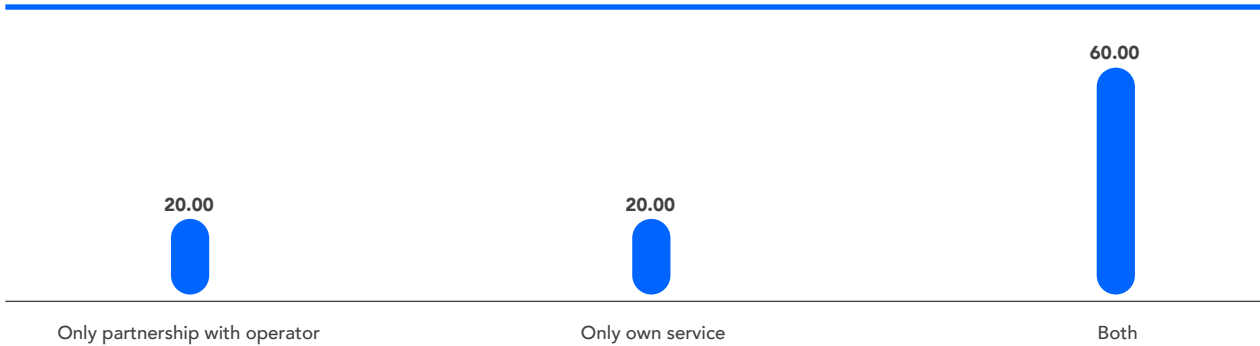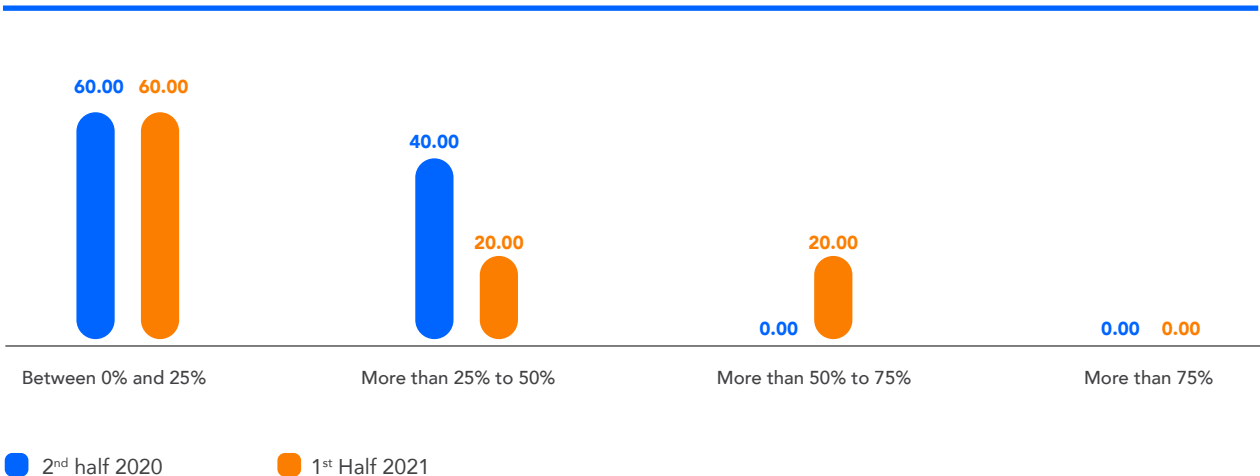

Source: Research Anahp.

The percentage of telemedicine appointments compared to the total number of outpatient visits is expected to change between the second half of 2020 and the first half of 2021, according to estimates of responding organizations. In the second half of 2020, 60% of the organizations had between 0% and 25% of their appointments through telemedicine, and 40% had from 25% to 50%.

In the first half of 2021, 60% of the organizations estimate that the share of appointments in this format will remain between 0% and 25%, 20% estimate that between 25% to 50% of the appointments will be by telemedicine, and 20% estimate that the share of this type of appointment will be more than 50% up to 75% of the total number of outpatient appointments **(Graph 6)**.

GRAPH 6 | Share of telemedicine appointments of the total number of outpatient appointments (%) | 2H 2020 and 1H 2021


Source: Research Anahp.

The average of the estimates of organizations indicates that most of the patients (80%) who seek care through telemedicine are already registered and followed by the hospital's services, other 17% are new patients who seek service in the hospital by themselves, and only 3% of the patients are referred by health plans or other services **(Graph 7)**.

GRAPH 7 | Distribution of patients who request care through telemedicine in the organization (%)

80.00

17.00

3.00

Patients already registered and followed by the hospital's services

New patients, not registered in the hospital, who seek services by themselves

Patients referred by health plans or other services
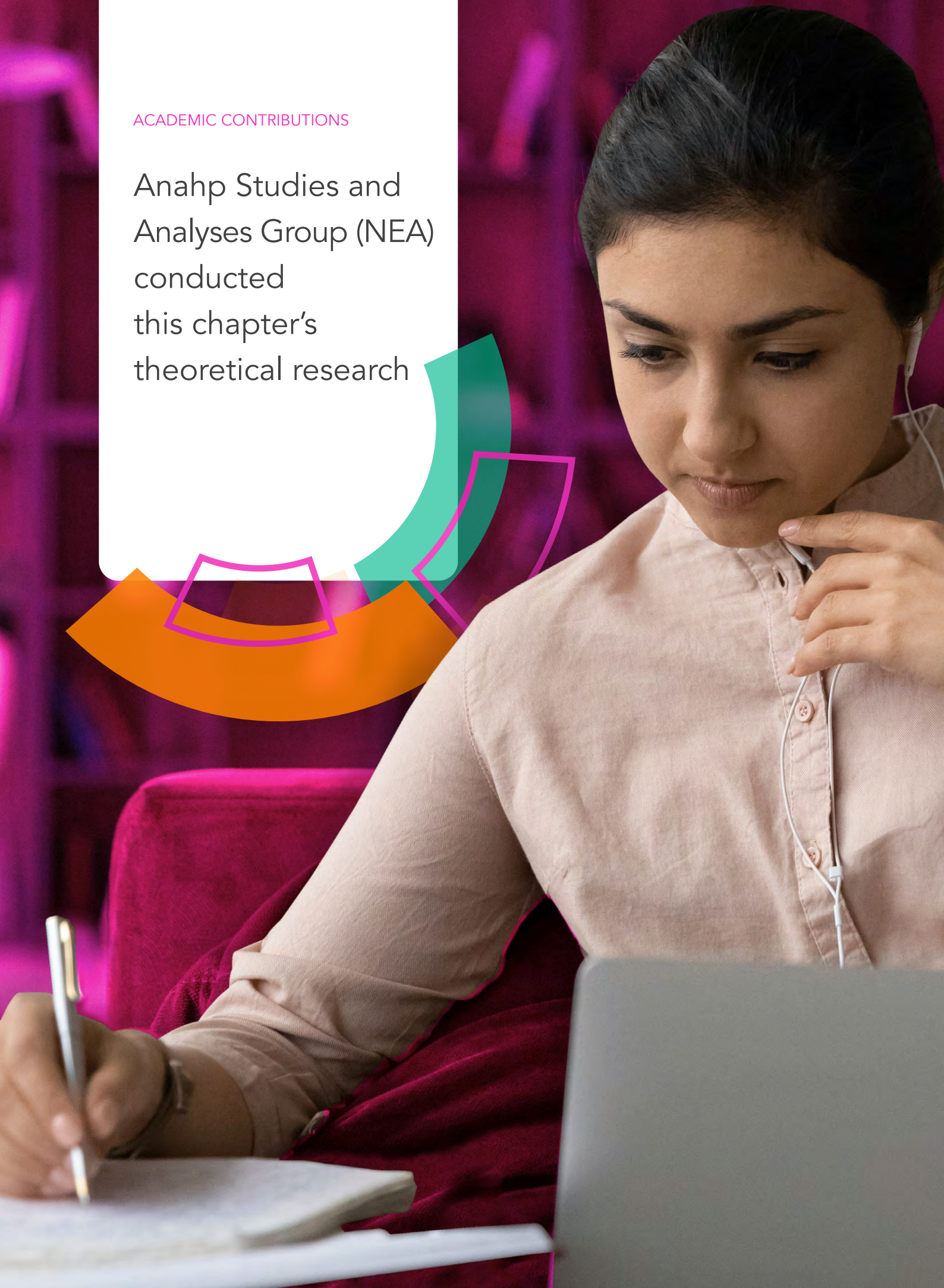
Source: Research Anahp.
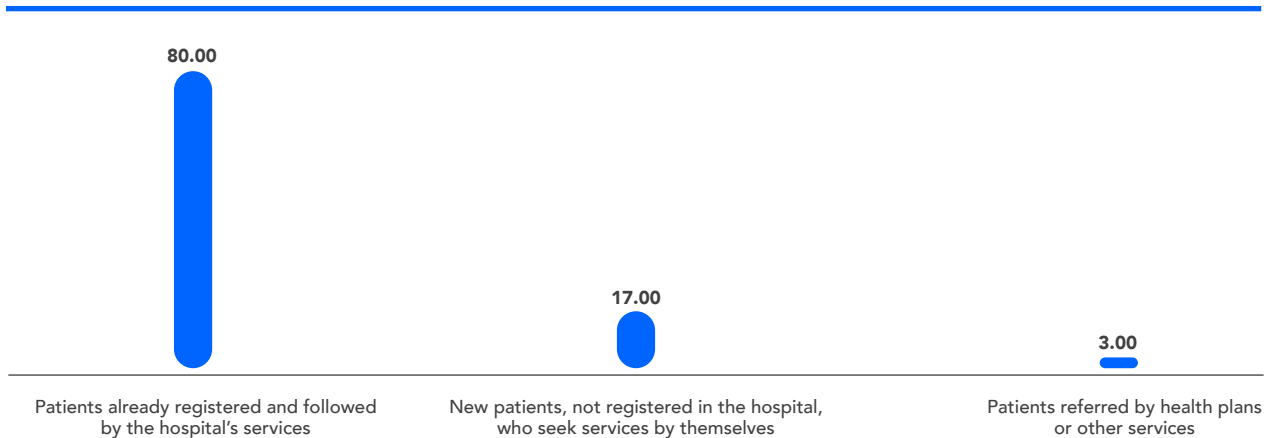
Academic Contributions

Analyses of the
efficiency and
productivity of member
organizations –
correlations between
SINHA data, based
on Brazilian and
international literature

5

Anahp Studies and
Analyses Group (NEA)
conducted
this chapter's
theoretical research

This chapter draws correlations between the indicators collected by Anahp Integrated Hospital Indicator System (SINHA). The analyses were based on the academic literature and refer to data on the quality and safety of care delivery, people management, operational management, and economic-financial management. The goal is to explore the relationship between the indicators of member hospitals to better understand them and to support more focused analyses that may contribute for improvements and decision making.

For calculation purposes, we used Spearman's correlation coefficient, which ranges from -1 to +1. Values close to -1 indicate a strong negative correlation, whereas values close to +1 indicate strong positive correlation. The closer to zero, the weaker the correlation. It is worth mentioning that the correlation does not necessarily indicate causality, but it only shows how much the variations of certain variables are associated to variations in others.

PEOPLE MANAGEMENT

Staff turnover

✔ POSITIVE CORRELATION WITH:

Nursing turnover (0.79)

Voluntary terminations over total headcount (0.54)

Nursing turnover

✔ POSITIVE CORRELATION WITH:

Involuntary terminations over total headcount (0.51)

Staff turnover without headcount increase (0.71)

The study by Silva, Nora and Oliveira[1] investigated the relationship between burnout syndrome and turnover (staff turnover) in nursing teams, in a systematic review that included studies published in Japan, China, Canada, Holland, Australia, United States, Spain, and South Korea. The authors identified the absence of scientific production on this theme in Brazil and Latin-American countries.

The main results show that there are individual, context, and organizational aspects related to the predictive role of burnout syndrome on nursing. Among individual aspects, authors mention emotional work as a factor that may cause fatigue and stress, mainly in intensive care units. Compared to organizational aspects, they noted that the variables that explain satisfaction and/or dissatisfaction in the workplace are the main predictors for burnout and for the consequent continuity or voluntary termination by employees. Last, among the context aspects, authors identified understaffing, globally. As the main causes of this phenomenon, are high stress, wage dissatisfaction, high workload, interpersonal difficulties with the medical and nursing teams, and other factors that discourage them from continuing in the career.

It considers that investments in scientific production on the theme could contribute to a better understanding of these relations in Brazil, especially the current aspects, in addition to making it possible to compare with results from other countries.

[1] SILVA, A. A.; NORA, M.; OLIVEIRA, M. Z. "A função preditora da síndrome de burnout para o turnover nos profissionais de enfermagem".
In: Avances en Psicología Latinoamericana. Bogotá, v. 35, n. 3, p. 433-445, 2017. Available at: <https://www.redalyc.org/articulo.oa?id=79952834002>; accessed on 31/Mar/2021.
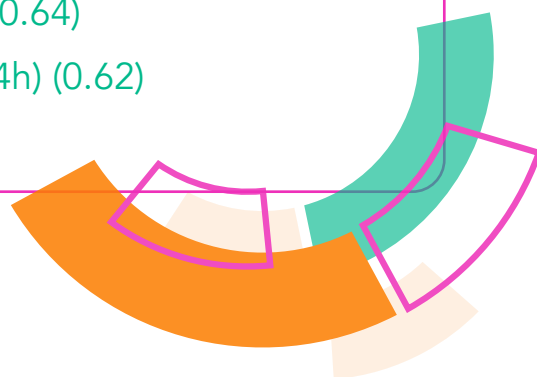
OPERATIONAL MANAGEMENT

Average length of stay (days)

✓ POSITIVE CORRELATION WITH:

Institutional mortality rate (0.64)

Institutional mortality rate (≥ 24h) (0.62)

Although mortality rate is an indicator used, in many cases, as a measure of performance, Machado, Martins and Martins[2] have drawn our attention to methodological failures in its design, mainly related to the level of aggregation and lack of standardization among organizations, which may have negative impacts on issues such as comparability, ranking of institutions, payment systems, and others.

Travassos, Noronha and Martins[3] discuss the complexity of using mortality rate as a measure of quality assessment, highlighting that its validity depends on some factors, like study time, disaggregation according to diagnostic group, the quality of the data and the need to adjust according to patient characteristics. They also mention, adjustment models for the mortality rate that are based on occupancy rate, average length of stay, disease severity, type of admission (like emergency admissions, readmissions, admissions from other hospitals), among other clinical and demographic characteristics of patients. They also address the discrepancies among studies, related to the association between length of stay and mortality rate, because length of stay may be related, in some cases, with the severity of the disease, and in other cases, to low quality in care delivery.

Some authors draw our attention to the complexity of using mortality rate as a measure of quality assessment, highlighting that its validity depends on some factors

[2] MACHADO, J. P.; MARTINS, A. C. M.; MARTINS, M. S. "Avaliação da qualidade do cuidado hospitalar no Brasil: uma revisão sistemática".
In: Cadernos de Saúde Pública. Rio de Janeiro, v. 29, n. 6, p. 1063-1082, 2013. Available at: <https://doi.org/10.1590/S0102-311X2013000600004>; accessed on 31/Mar/2021.
[3] TRAVASSOS, C.; NORONHA, J. C.; MARTINS, M. "Mortalidade hospitalar como indicador de qualidade: uma revisão". In: Ciência & Saúde Coletiva. Rio de Janeiro, v. 4, n. 2, pp. 367-381, 1999. Available at: <https://doi.org/10.1590/S1413-81231999000200011>; accessed on 31/Mar/2021

CARE DELIVERY QUALITY AND SAFETY

Covid-19 lethality rate

✓ POSITIVE CORRELATION WITH:

Institutional mortality rate (0.54)

Institutional mortality rate (≥ 24h) (0.55)

Moreira[5] analyzed the correlation between mortality rate, severe Covid-19[4], and care delivery coverage, considering the availability of ICU beds (SUS and private), and the number of lung ventilators in January 2020 in Brazil.

The results of the space distribution of high and very high mortality profiles related to higher lethality of Covid-19 is concentrated in the Southeast, especially in Sao Paulo and Minas Gerais, and in the South, in the Center-North of the state of Rio Grande do Sul.

[4] Deaths per household and the population estimate for that year were used, according to the Federal Accounts Court (TCU). In this manner, mortality rates of the groups were calculated: cancers (Chapter 2, ICD-10) and respiratory tract diseases (Chapter 10, ICD-10), diabetes (Chapter 4, E10-E14, ICD-10), hypertension, and heart diseases (Chapter 9, I10-I15, I20-I52, CID -10).
[5] MOREIRA, R. S. "COVID-19: unidades de terapia intensiva, ventiladores mecânicos e perfis latentes de mortalidade associados à letalidade no Brasil".
In: Cadernos de Saúde Pública. Rio de Janeiro, v. 36, n. 5, 2020, p. 3. Available at: <https://doi.org/10.1590/0102-311X00080020>; accessed on 31/Mar/2021.

ECONOMIC-FINANCIAL MANAGEMENT

Total expense per patient-day

✓ POSITIVE CORRELATION WITH:

Waste generation (infectious + recyclable + non-recyclable) per patient-day (kg) (0.67)

Generation of infectious waste per operational bed (kg) (0.55)

Generation of infectious waste per patient-day (kg) (0.59)

Generation of non-recyclable waste per patient-day (kg) (0.50)

Nogueira and Castilho[6] talk about waste management difficulties in health services, given its level of complexity for implementation and high financial cost. To do so, they conducted an exploratory descriptive research in the operating center of *Hospital Universitário* of the University of Sao Paulo (HU-USP), where they mapped and validated the waste management subprocesses so as to measure the costs involved for every group of waste.

The main results show that chemical waste had the highest cost, while recyclable waste had the lowest cost per kilo. The authors also discuss the fact that infectious and chemical waste, and sharps and needles presented the highest costs in all phases of the process, due to the processing and destination options, and they emphasize the importance of correctly classifying the waste to avoid cost increase. Last, they suggest that results could help defining the prices of the surgery rooms or packages.

[6] NOGUEIRA, D. N. G.; CASTILHO, V. "Resíduos de serviços de saúde: mapeamento de processo e gestão de custos como estratégias para sustentabilidade em um centro cirúrgico". In: REGE – Revista de Gestão. São Paulo, v. 23, n. 4, p. 362-374, 2016. Available at: <https://doi.org/10.1016/j.rege.2016.09.007>; accessed on 01/04/2021

bionexo

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A Bionexo é uma healthtech de origem brasileira, com atuação em quatro países da América Latina. A companhia é líder em soluções tecnológicas para a gestão e otimização das operações de negócios das mais diversas empresas e instituições do segmento da saúde.

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Bionexo

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Opmenexo

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Biotracker

Rastreamento de medicamentos e materiais especiais:
uso de tecnologia IoT para rastreabilidade e acompanhamento de itens estratégicos

Avatar

Gestão de receitas hospitalares:
soluções para todo o ciclo da gestão de receitas financeiras de instituições

Bioanalytics

Inteligência de mercado:
indicadores estratégicos com análise de dados para acompanhamento de performance e consumo

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