MANAGEMENT OF HEALTHCARE INSTITUTIONS IN THE CONTEXT OF CHANGES AND REFORMS

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Abstract: The weakness of healthcare system management in Spain and the Czech Republic was revealed, despite the National universal health coverage policy or strategy adopted in both countries, in particular those referring to the use of ICT or eHealth to support universal health coverage. The absence of a National eHealth policy or strategy in both countries was found to be responsible for the low level of digitalization and the emphasis on hospital-based home care activities. Digitalization in Spain and the Czech Republic has only led to the introduction of an electronic prescription system and the creation of hotlines and online consultation platforms. The implementation of legislation, which has limited the development of telemedicine, has been introduced.

Keywords: healthcare institutions, changes in medical administration, healthcare digitalization, healthcare institution's management, the strategy.

1 Introduction

The spread of the COVID-19 pandemic has been a driver for change, transforming the management of healthcare institutions since the economic crisis of 2008 lost substantial amounts of funding due to budgetary constraints. The new common policy framework "Health 2020: a European policy framework supporting action across government and society for health and well-being", approved in 2012 (World Health Organization, 2021d), referred to the main challenges in healthcare management common to EU member states: high share of public budget to spending in the field, lack of cost effects in the context of a positive impact on health outcomes, lack of cost containment in many countries due to the need for social protection, increasing supply of healthcare providers

These problems determine the necessity of using a multisectoral approach to healthcare management, the need to establish cooperation between countries, to improve leadership and collective management, in particular, through the introduction of technology in the field of social marketing, information, and communication networks between the parties involved.

At the same time, current spending on the healthcare system remained stable in the EU countries (the average for 2008-2018 was 7.3% of GDP in the Czech Republic, 11.1% of GDP in Germany, 11.4% of GDP in France, 7.1% of GDP in Hungary, 8.8% of GDP in Italy, 6.3% of GDP in Poland, 7.2% of GDP in Ukraine) (World Bank, 2021b). The domestic private spending on healthcare in selected countries increased between 2008 and 2018 compared with the 2000-2007 period (e.g., the average difference was 3.95% in the Czech Republic, 1.93% in Hungary, 3.25% in the Netherlands, 1.29% in Poland, and 3.7% in Ukraine) (World Bank, 2021c). Such trends may be associated with the transfer to the private sector of medical financing, in particular, through the development of the health insurance sector, the approach of new EU member states to the policy of medical institutions management of the most developed countries. For example, the number of EU member states on comprehensive health policies has grown from 12 in 2010 to 27 in 2016. The number of countries that have introduced strategic management plans rose from 7 in 2010 to 13 in 2016 (World Health Organization, 2021a). "Health 2020, the new European health policy, aims to improve the health and well-being of populations, reduce health inequities and ensure people-centered health systems" (World Health Organization, 2021b).

The spread of the pandemic revealed weaknesses in the management of healthcare institutions, the main of which are decentralized management, lack of funding (primarily due to the introduction of technology to improve the quality of medical services), reduction of beds, reduced capital expenditures, low level of digitalization and development of telemedicine.
This article aims to assess the impact of changes and transformations on the state of management of healthcare institutions, in particular, the evaluation of management transformations during the pandemic in the following areas: digitalization, financing, management strategies.

2 Literature review

The two most important topics of change and transformation of the management system of healthcare institutions are discussed in the literature: 1) digitalization and integration of IT solutions in healthcare facilities, pharmaceutical industry, supply chain, development of eHealth; 2) the spread of the COVID-19 pandemic and the challenges in healthcare. In addition, these two topics are considered to be interrelated. Therefore, there is a lack of development of telemedicine to the pandemic, even in the U.S., EU countries, and China, which has forced the government and healthcare providers to respond quickly by introducing monitoring technologies and innovative staff practices through information and communication media (Fasano et al., 2020).

Digitalization has posed managerial challenges to the health system, related to the need for changes in system development strategies, the potential for remote management of health facilities, the need for digitization roadmaps, and the structure of health system digitalization, (Gjellebæk et al., 2020; Zhao et al., 2021; Beaulieu et al., 2021; Odone et al., 2019). Despite the significant potential of digitalization, the introduction of technology also poses several challenges related to medical staff training, attitudinal changes, communication, sharing of experiences, documentation, and funding. As stated in the Joint Declaration of the European Commission and WHO/Europe "Partnerships for health in the WHO European Region" (2010), the main challenges for European countries are the increasing costs of the health system due to an aging population, the need to increase the protection of the population from various diseases, increasing costs for innovation and medical technology. The current economic crisis of 2008-2009 intensified these problems, harmed public finances and the financing capacity of healthcare institutions.

Due to these problems, researchers suggest experimental approaches to the implementation of technology, big data, artificial intelligence (Glauner, et al., 2021), which offers both development opportunities (potential to solve communication, communication, exchange problems of medical institutions through IT -solutions) and leads to significant risks due to the digitization of healthcare (Lapão, 2019). And yet, it is digitalization that is seen as a driver of the transformation of the paradigm of healthcare delivery, changing the mechanisms of patient involvement and participation in the system, increasing the level of resilience of health facilities to external negative action factors (such as the spread of a pandemic). It is digital technologies that form the value and added value of medical services (Kokshagina, 2021), simplifying many business processes and transferring routine functions to robotic technology, significantly reducing the burden on medical staff in the context of a shortage of medical staff. The development of eHealth is the formation of innovative work processes, the transition of managers, staff, patients from routine processes to more global issues related to the health of the population. Development involves building the digital skills of medical personnel, patients during the practice of technology use by stakeholders (Gjellebæk et al., 2020). Digital platforms are fundamentally transforming the processes of experience sharing,

knowledge sharing between staff, communication, and workflow (Moro Visconti et al., 2020).

Despite an increase in publications related to discussions about technology integration, there is still a low level of digitalization of the health field with a high potential to integrate digital solutions at different managerial levels (Gjellebæk et al., 2020; Beaulieu et al., 2021). This is due to the lack of knowledge, skills of medical staff in the use of technology, holding back the development of eHealth (Zhao et al., 2021). Therefore, one of the future transformational changes is to train the medical workforce, facilitate, encourage the government to collaborate with stakeholders when integrating technology (Gjellebæk et al., 2020). Staff training is slowed by the lack of financial resources needed on a long-term basis to implement diagnostic, infrastructure technologies (Moro Visconti & Morea, 2020). Establishing collaboration is important for the synergy of knowledge about the potential of technology based on problem-oriented thinking: only medical personnel must understand the internal problems of medical institutions. For example, Gjellebæk et al. (2020) note the need for a middle management strategy to effectively transform medicine. Middle management personnel have the most decisive role in digitalization, as they are responsible for stimulating, engaging medical personnel in collaborative technology development processes, vertical and horizontal use (Garmann-Johnsen et al., 2020). Therefore, it is relevant to involve workers, patients in the development of digital solutions, also involve spending money and time for patients and staff to test technologies (Garmann-Johnsen et al., 2020).

Scholarly publications, discussing the transformation of management in the face of a pandemic, highlight crisis management strategies (Hick et al., 2020) and response plans, preparedness, resource allocation (Economou et al. 2015), strategic crisis management and crisis management policies, innovative coping mechanisms, health facility management tools (Correia, et al., 2015), regional crisis management models (Wheeler et al., 2015).

The traditional approach to understanding the healthcare crisis involves interpreting it as a state in which it is impossible to achieve effective problem solving and the negative effects of the crisis state on the level of public health (Small et al., 2017). The crisis has also been viewed as ineffective management due to a lack of funds and limited healthcare reforms (Economou et al., 2015). This study proposes a problem-oriented approach to treating the crisis as an opportunity to introduce managerial change and transformation through active implementation of interventions in various subsystems (primarily digital) that, in the absence of a crisis, could only be implemented in the long term. The most illustrative examples are the problem of financing, cooperation on a centralized management basis, and the integration of technology. During the pandemic, the transformative measures were implemented in these areas at a rapid pace and the limitations in the development of telemedicine not only in the infectious disease's subsystem but also in cardiology, diabetology, neurology, oncology, and psychology were lifted. Through the establishment of collaborations with scientific organizations, international institutions, and online crowdfunding platforms, resources have been raised to fund the crisis. This research looks at the health crisis as a potential for transformation, identifying weaknesses in governance, an opportunity for transformation, a digitalization engine despite legislative and financial limitations.

3 Materials and research methods

This article uses a qualitative research methodology using content analysis and the World Health Organization's Health Systems Response Monitoring (HSRM) database to collect and systematize information on Spanish and Czech governance policies in the face of a pandemic. To assess the effectiveness of governance, the following key aspects of the health system in a pandemic are examined:

1) digitalization and development of telemedicine;
2) financing;
3) strategic management.

To assess the effectiveness of management changes, we used indicators of health system financing in Spain and the Czech Republic for 2000-2019 to trace the dynamics of compliance with the defined objectives of optimization of costs for the medical sector, defined in the new common policy framework "Health 2020", and the actual level of financing of the systems.

4 Results

Digitalization

Spain

The Spanish healthcare system was practically absent during the spread of the pandemic, which led to an increase in the workload of medical personnel, a lack of logistical support. As a consequence, patients with other diseases were affected. In March 2020, routine surgery and non-urgent medical consultations were discontinued as a response to the increase in new cases. In primary care facilities, non-urgent consultations were also delayed, and emergency care was suspended (except for patients with respiratory symptoms). In the direction of digitalization, only an electronic prescription system was introduced to provide patients with chronic diseases with automatic renewal of their prescriptions without visiting the doctor. Hotlines and online consultation platforms were created to assist patients with treatment plans (non-urgent).

Czech Republic

In the Czech Republic, there were also no significant numerical changes during the pandemic. Consequently, general practitioners (the main primary care providers working with a single assistant not responsible for monitoring the number of people seeking care) were advised to counsel patients by telephone and to make appointments using protective equipment only. Preventive care and other types of care were postponed until March and April 2020. The Czech Republic has seen an expansion in the use of electronic prescriptions, other electronic patient interaction tools (e.g., a new system of medical certificates that allow admission to work, electronic sick leave).

Health insurance funds expanded funding schemes for providers to include reimbursements for remote medical consultations (telemedicine, e-mail, telephone) in the practice of most outpatient specialists. General practitioners reported an increase in telephone contact with patients, with the average daily number of contacts in those physicians who did not close or significantly limit their practices declining by 15%. New financial reimbursement rules also granted dentists the right to conduct telemedicine consultations with their patients. However, most of the statutory financial reimbursement rules were temporary and remained in effect until June 30, 2020. Primary care providers and/or regional health authorities were the first point of contact. Telephone hotlines have been set up to provide information to the public, including chatbots to answer frequently asked questions.

Financing

Spain

Since May 8, 2020, according to the new decree, a funding mechanism has been formed for emergency healthcare costs from the European Regional Development Fund 2014-2020. In the amount of up to €3.2 million. These funds were used for the purchase of medical equipment, tests, personal protective equipment, payment of additional workforce, research, development and innovation programs or the development of epidemiological surveillance applications.

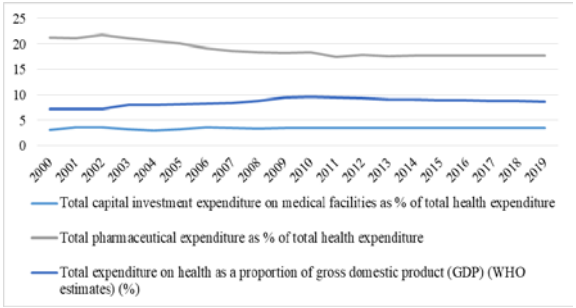

Figure 1 – Main indicators of healthcare financing in Spain, 2000-2019
Source: World Health Organization (2021c; d; g).

On June 16, 2020, the Spanish government approved €16 billion in earmarked funding for autonomous communities responding to the effects of the COVID-19 pandemic. The bulk of the fund, €9 billion, is dedicated to healthcare, €2 billion for education programs, and €5 billion to compensate for losses from reduced economic activity. These funds were not accounted for as regional public debt. The autonomous communities allocated the financial resources within their territories on their own.

To relieve the burden on the budget due to rising healthcare costs through COVID-19 on March 12, 2020, the government has adopted several special measures. In particular, a reserve fund of €100 million was replenished to finance the needs of the Ministry of Health, which provides the mechanism of the National Budget for the financing of urgent needs. In addition, according to the mechanisms of the financial system, the government allocated a total of €557.4 million to cover the urgent needs in the context of the response to the crisis. Private hospitals during the crisis and their services have been paid at public rates under the standard procurement mechanism. To date, however, the amount and schedule of the corresponding payments have not been determined. On March 31, 2020, the government approved an additional tranche of €300 million as part of an emergency economic action plan aimed at mitigating the effects of COVID-19. The distribution of this amount is based on the following criteria: population (80%), number of cases (15%), number of patients in the ICU (5%).

Czech Republic

The Czech healthcare system is built on compulsory health insurance and includes a wide package of benefits. COVID-19 healthcare costs are paid by health insurance funds through direct contracting with healthcare providers without additional co-payments. At the end of April 2020, the parliament approved the government's proposal to increase funds from the state budget to finance social health insurance for certain categories of economically inactive populations (children, students, the unemployed, the elderly, etc.). Consequently, in 2020 there has been an additional CZK 21 billion (€778 million) to the budget, and in 2021, an additional CZK 50 billion (€1.85 billion) to the budget. Consequently, there is a loss of revenue to the social health insurance system of about CZK 8.5 billion (€313 million) compared to the social health insurance system's spending plan.

Czech healthcare providers are financed by monthly payments from the health insurance funds, and all payments are calculated annually based on the actual health services provided and the conditions set out in the contracts. The social insurance funds have not stopped paying in advance, even though the volume of services provided has decreased due to the postponement of routine care, treatment, and preventive care. Thus, most providers received prepayments based on 2018 data and therefore did not feel a temporary decrease in cash income, even though their activities were temporarily reduced. For providers not covered by prepayment funding (typically dentists), the Social Security funds also temporarily imposed prepayments; most of these temporary measures were eliminated by June 30, 2020.

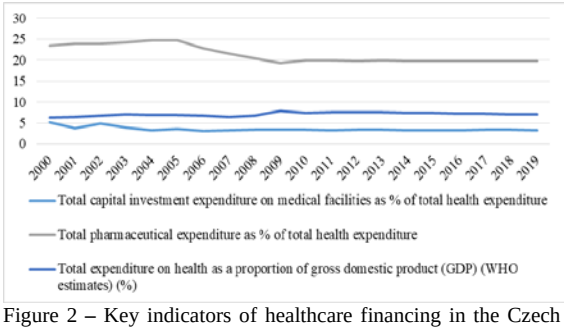

Figure 2 – Key indicators of healthcare financing in the Czech Republic, 2000-2019
Source: World Health Organization (2021c; d; g)

At the same time, there were concerns in the Czech Republic about the implementation of the 2020 annual payment settlement. Providers were concerned that health insurance funds would only pay for the volume of contracted services rendered. The Ministry of Health instructed providers to postpone routine care and surgeries to allow for the admission of expected COVID-19 patients. In June, the Czech Parliament passed legislative changes that allowed the Ministry of Health to publish an amendment to the 2020 Reimbursement Directive, the so-called Reimbursement Directive, which compensates providers for financial losses incurred by them due to a reduction in the volume of health services provided because of the COVID-19 pandemic.

The Ministry of Health estimated that providers' losses amounted to CZK 30.8 billion. The Ministry of Health proposed a rather generous compensation scheme for healthcare providers of all segments. The loss reimbursement directive was issued on July 1, 2020. To fully settle payments for 2020 contracts, which are indexed at about 12% over 2019 payments, a minimum level of hospital activity in 2020 was set at 79-82% of provider activity in 2018 (depending on the number of patients treated from COVID-19). For long-term care facilities, bed-day reimbursement increased by an average of 5% (plus another 1% to offset the cost of protective equipment). For outpatient facilities, reimbursement for services provided throughout 2020 increased by an average of 10%. The reimbursement directive also incentivized providers to expand activities to compensate for losses associated with the March-April 2020 reduction in the volume of healthcare services provided. In 2020, CZK 3 billion was allocated to compensate for volumes of activity that exceeded 79-82% of activity in 2018.

The Czech Republic was centrally administrated during the pandemic. Therefore, during the state of emergency in the spring, protective equipment and medical equipment (e.g., artificial lung ventilation apparats) were purchased centrally by the Ministry of Health and the Ministry of the Interior from the state budget. The Ministry of Health was also responsible for resource allocation, distributing protective equipment to health authorities, COVID19 testing laboratories, and all healthcare facilities directly administered by the Ministry of Health. The Department of the Interior distributed protections to all other public and private entities, including senior citizens, people with disabilities, mostly, with the help of regional officials. At the same time, healthcare providers themselves are responsible for ensuring the necessary amount of protective equipment and its financing. As of July 1, 2020, the reimbursement amount for services provided for the outpatient sector, the reimbursement of bed days for providers of long-term care services was increased as per the Reimbursement Directive, and the planned budget reimbursement to hospitals was indexed to account for their expenses related to the purchase of protective equipment.

The budget reserve was increased by CZK 59.3 billion (€2,19 billion) as part of an amendment to the "State Budget Act," which was adopted to prevent the spread of the epidemic and respond to its consequences. This made possible to apply flexible solutions to channel funds to ministries, if necessary.

Management strategies

Spain: planning for aid delivery

Since March 14, 2020, following the introduction of a high alert regime, the Minister of Health has been given temporary authority to decide on the optimal allocation of technical resources, including those of the armed forces, the private health sector, and the business sector (hotels and, if necessary, resources from mutual insurance and accident and occupational disease assistance systems). Private hospitals treating patients with COVID-19 under the private insurance scheme also accepted patients from overcrowded public hospitals or arranged treatment for patients without COVID-19 to relieve hospital beds and facilitate physical distance.

In addition, health departments had the authority to convert public or private buildings (such as sports stadiums) into outpatient and inpatient care facilities. Specifically, as of March 31, 16 field hospitals had been deployed. For example, a temporary military hospital with 1,300 beds was deployed at the IFEMA exhibition center in Madrid. Also, in several regions, to relieve overcrowded hospitals were converted into hospitals for patients in recovery. It should be noted that the Spanish government has approved legal provisions to simplify subcontracting procedures for public sector institutions to ensure a rapid administrative response to the spread of the virus. The need to retrofit public or private buildings in Spain is primarily due to the steady reduction in bed capacity in the country's public hospitals for a limited budget (Figure 3).

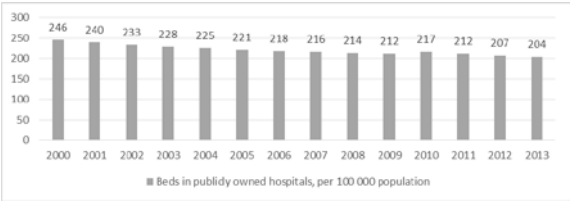

Figure 3 – Beds in publicly owned hospitals, per 100 000 population in Spain

Source: World Health Organization (2021h).

The rapid growth of new cases in a short period has meant that the healthcare system in some areas has struggled to respond to the needs of patients. In several areas, especially in Madrid, long queues of patients were formed, waiting for places in emergency departments, hospitals, and ICU, as well as for access to the necessary machines. Medical triage and further provision of care were delayed. No measures to rationalize medical care were introduced; instead, field hospitals were equipped to free up beds in hospitals, perform medical triage, and provide first aid to patients with moderate symptoms.

Czech Republic: planning for aid delivery

In the Czech Republic, a plan has been prepared to transfer standard beds to ICU beds, as well as to reassign staff in case of a worsening epidemiological situation (as of early May, there were about 300 COVID-positive patients hospitalized in the Czech Republic). On April 29, the Ministry of Health announced plans to place COVID-19 patients who require hospitalization in selected large hospitals at the regional level to free up smaller hospitals, allowing them to handle only patients without COVID.

Spain: national strategic management

As of January 7, 2020, the Spanish Ministry of Health, through the Center for Coordination of Health Emergencies (CCAES), activated the COVID-19 response protocol in collaboration with the regional Spanish Health Departments. On February 4, the Interregional Council of the National Health System (the highest governing body of health) defined a framework for collaboration between the national and regional health departments, strengthening coordination and surveillance mechanisms in the context of responding to the epidemic.

In the following weeks, the Prime Minister held a meeting with regional representatives to decide jointly on areas and methods of work as the situation evolved. The Royal Decree of March 14, declaring a state of high alert, assigned full responsibility for the implementation of the response to COVID-19 to the Government of Spain. The Prime Minister delegated several powers to the Ministers of Defense, Interior, Transportation, Mobility and Urban Development, and the Minister of Health, according to their areas of responsibility; these activities were coordinated by the Minister of Health. Activities outside the areas of responsibility of these ministries were also coordinated by the Minister of Health. Furthermore, according to the Royal Decree, all health departments that received private funding (as well as their managers and employees) were under the direct authority of the Minister of Health. The regional and local public administrations, however, retain the functions of managing the organization of health services. The royal decree also obliged the Minister of Health to guarantee territorial interaction and equality in the provision of health services. To improve coordination of epidemiological data collection, since March 15, each regional health department send reports to CCAES on the following set of indicators: epidemiological indicators (new cases confirmed, number of cured deaths), facility load indicators (the number and workload of beds, intensive care units, the number of medical workers in the service, especially ICU doctors, anesthesiologists, and resuscitators, including residents of the fourth and fifth years of study, as well as any other health workers who, if necessary, can be called to the service, including retirees and doctors/nursing staff of the first years of study).

The data on the availability of personal protective equipment and the need for diagnostic kits are also collected.

Czech Republic: national strategic management

The implementation of the response to the COVID-19 epidemic in the Czech Republic is led by the Ministry of Health (including the Chief Medical Officer, who is the Deputy Minister of Health), the Central Management Group for COVID-19 (led by another Deputy Minister of Health) and the Central Crisis Headquarters. Each of these bodies has a specific range of responsibilities. The Central Committee for Epidemiology (Ústřední epidemiologická komise), established in 2006, is a permanent working body of the government. It is responsible for the control, coordination, and management of public health, including the preparedness of other ministries in case of serious infectious diseases. The Committee is responsible for developing and updating the Czech "Pandemic Action Plan" (last updated in 2011), which mainly focuses on influenza.

In connection with the COVID-19 outbreak, the committee was convened by the Minister of Health for an extraordinary meeting on February 27, 2020. The state of emergency is the basis for combining the resources of the Central Committee for Epidemiology and the Central Crisis Staff.

The state of emergency imposed by the Czech government on March 12, 2020, allowed the government to purchase goods and services without using standard public procurement procedures, to approve legislative proposals on an expedited basis.

The Central Management Group for COVID-19 (Centrální řídící tým COVID-19) was established as an advisory body to the government on March 30, 2020, and as of June 30, 2020, the group became part of the Ministry of Health as an advisory body. The group is empowered, among other things, to introduce measures developed by the government to combat COVID-19, including monitoring and regulation of laboratory capacity, ICU and artificial lung ventilation apparat's capacity, and the so-called "Smart Quarantine" system, which includes some measures to facilitate the tracking of potential cases.

5 Discussion

This study reveals weaknesses in the management of the healthcare system in Spain and the Czech Republic, despite the National universal health coverage policies or strategies adopted in both countries, in particular, those that refer to the use of ICT or eHealth to support universal health coverage. At the same

time, in both countries, no National eHealth policy or strategy exists. In comparison, in Germany and Italy, both financing and digitalization of health have been intensified with the adoption of a National eHealth policy or strategy exists (World Health Organization, 2021f). In particular, Germany during the pandemic saw an increase in tele- and video consultations, the lifting of restrictions on telemedicine, the launch of the virtual hospital, and the launch of the "CovApp" online resource for patient assessment (a new online telemedicine tool to help patients assess symptoms and address COVID-19 issues). With the pandemic in Germany, the level of digitalization of healthcare management has increased. The German government has approved a draft "Hospital Futures Act" to develop the digital infrastructure of hospitals over the coming years. These measures show how premeditated digitalization strategies improve the quality of health facility management in times of crisis. In Italy, during the pandemic, the technological component of governance was also strengthened. In Italy, for example, COVID-19, the technological solution for tracking health conditions in the context of prevention and treatment, providing care, and responding to other medical problems, has been introduced. Technological solutions have been implemented not only to deal with the spread of COVID-19 but also in the fields of diabetology, cardiology, oncology, neurology, and psychology. The Italian government decides to integrate Artificial Intelligence to connect research institutes and local health institutions. In Italy, digitalization has expanded services such as phone calls (20%) or video calls (29%), with the ability to exchange documentation using email or instant messaging platforms. Some of the applications are specifically designed for teleconsultation and monitoring (13%), and many Web-based platforms have enabled collaboration among healthcare market operators (38%).

The Czech Republic and Spain have achieved a high level of automation in certain areas of medicine thanks to their implemented National health information system policies or strategies: 1) Spain has introduced an electronic prescription system, hotlines, and online consultation platforms; 2) the Czech Republic has expanded the use of electronic prescriptions and other electronic tools for patient interaction (e.g., a new system of medical certificates that allow patients to start work, electronic sick leave).

Spain and the Czech Republic also have no national telehealth policy or strategy in place. For example, a similar strategy has been approved in Italy, which allowed both the expansion of funding and the digitalization of medicine during the pandemic. At the same time, public funding for eHealth programs was available in Spain, the Czech Republic.

6 Conclusion

This research found a lack of practical digital changes in the health systems of Spain and the Czech Republic during the spread of the pandemic, which led to an increase in the burden on the medical staff, lack of logistical support. One of the revealed managerial problems is the reduction of hospital beds in the countries due to the lack of funding, which led to an increase in costs during the crisis for the organization and equipment of hospitals that do not specialize in infectious diseases. The weakness of healthcare system management in Spain and the Czech Republic was revealed, despite the National universal health coverage policy or strategy adopted in both countries, in particular, those referring to the use of ICT or eHealth to support universal health coverage. The lack of a National eHealth policy or strategy in both countries was found to be responsible for the low level of digitalization and the emphasis on hospital-based patient care activities. Digitalization in Spain and the Czech Republic has only been accompanied by the introduction of an electronic prescription system and the creation of hotlines and online consultation platforms. Legislative acts, which have limited the development of telemedicine, have been implemented. Thus, digitalization as a way of change and transformation is limited by the lack of strategies and funding.

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