Public and private healthcare sectors during COVID-19: the main challenges in Lithuania

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Abstract
The coronavirus (COVID-19) pandemic has overwhelmed the Lithuanian healthcare system. In an attempt to meet its emergency situation and mitigate the new challenges, the Government reached out to the private sector, aiming to develop a sustainable cooperation approach in healthcare service provision. The article examines the potential implications for the healthcare system in Lithuania and adaptation paths. The preliminary overview refers to the assumption that the efforts to deliver sustainable service in the healthcare sector were uncoordinated and showed institutional vulnerability in both private and public sectors.

Keywords  Adaptation · Cooperation · Coronavirus (COVID-19) · Healthcare · Lithuania

Introduction
The coronavirus (COVID-19) outbreak has taken different paths in the development of a sustainable cooperation approach in and between public and private healthcare sectors through mobilising private investments into health infrastructure, contractual provisions of healthcare services, etc. For the last 20 years, different cooperation measures among stakeholders have been developed with a track record of potential and non-potential experiences in Lithuania. However, in the health sector, where this experience especially in critical situations was recent, there was not much knowledge of best inner practices. The expenditure on healthcare in Lithuania has slightly increased during the last years by 0.5% of GDP (7% of GDP in 2019). However, the number of health personnel per 10 K of the population decreased by 0.7 (48.3 p/10,000 of the population in 2019). Though the number of hospital beds per capita
decreased from 2015 till 2019, the expenditure on medical technology has significantly increased (StatGov, 2021).

Private health expenditure increased by approximately 10% in the private healthcare system during the COVID-19 pandemic outbreak in more than 140 countries around the world (Assa et al., 2020). Lithuania is not an exception: the national policy responses during COVID-19 in Lithuania were delayed by the Government’s expectations of the healthcare capacity (Bel et al., 2021). This article aims to explain how the Lithuanian healthcare system proved its structural resilience to COVID-19. The healthcare services in Lithuania are provided by private and public institutions, therefore it is essential to explore the adaptation of both public and private healthcare institutions during the pandemic period in Lithuania referring to the cooperation approach. To analyse the resilience to pandemics in the healthcare sector, this article covers two major healthcare institutions that covered a large part of healthcare service provisions during COVID-19: the public hospital (Vilnius University Hospital) and private network of clinics (InMedica). This paper tests empirically the effects of institutional resilience in the health sector during the COVID-19 pandemic. Two institutions were selected due to their active participation in the COVID-19 pandemic processes.

In approaching the task of measuring the comparative effectiveness of the Lithuanian public and private health institutions’ handling of the COVID-19 pandemic, several relevant traits are identified: agility, preparedness, and robustness. Agility covers the speed of reaction to the crisis context; preparedness is defined as pre-crisis capabilities of an organisation and robustness-after-crisis. An extensive conceptual and methodological explanation of the indicators is outlined in the introduction to this Symposium (Gherghina et al., 2022).

The COVID-19 pandemic has overwhelmed the Lithuanian healthcare system, however, cooperation between different levels was key in the fight against COVID-19. In an attempt to meet its emergency and mitigate the new challenges, the Government was reaching out to the private sector aiming to develop sustainable service provisions by adapting different using cooperation measures. The purpose of this article is to examine the resilience of the healthcare sector in the COVID-19 sector and discuss adaptation paths of both public and private healthcare sectors. We develop a systematic assessment of the institutional resilience of the healthcare system in Lithuania using survey data before and after the COVID outbreak, public records, institutional audits, and annual reports of healthcare institutions. The article assesses the impact of the COVID-19 pandemic on private and public cooperation in the health sector and adaptation in Lithuania through the three resilience indicators proposed by this Symposium.

We divide the public–private cooperation in health into two broader categories which allows the elaboration of the analysis by referring to the cooperation approach in the healthcare sector in Lithuania [UNECE, 2012]. The article refers to healthcare-based cooperation, such as facility management, non-clinical services mostly based on long-term contracts and project finances where the private sector may run certain functions. The second category refers to health programs, such as research and development, access to health products, an increase of awareness, education, etc.
The first section of this article explores the situation of the healthcare sector in Lithuania during the pandemic in the context of cooperation and the second section assesses the institutional resilience during COVID-19 through the following indicators: preparedness, agility, and robustness. The final section summarizes the major finding and covers the principal implications of this analysis for further research.

**Adaptation paths in the healthcare sector during COVID-19**

Since the beginning of 2020, the Lithuanian Government has been leading the national response to COVID-19. A National Emergency Situation Centre and Government Emergency Commission were formed, and the Minister of Health was assigned as the Head of the National Emergency Operations. A special government committee to coordinate emergency management was set up (Slapšinskaitė 2021). Laboratory capacities were gradually expanded from one laboratory in Vilnius to five and then to 12 across the country, including the collaboration with the private sector. The system saw the increase of the additional purchases that started through national and community initiatives.

Both public and private sectors have set the stage for a variety of interpretations of market instruments and the practical adaptation of so-called new trade theory (Gilpin, 2001), which impacted the scale and efficiency of public administration (Parsons, 2001) and demanded an integration of the competition approach between both public and private sectors (Valys et al., 2012), including healthcare at different levels of implementation: national, municipal, and interstate. Though a variety of cooperation instruments made the decision-making process for the Government during the pandemic more complicated, the cooperation measures remain dominant and after the second wave of the pandemic.

Cooperation in the healthcare sector is crucial at all levels and when it lacks risk management, funding sources, or implementation capacities like it has been during the pandemic, it usually does not reach a final goal (Queyranne, 2014). For example, in Lithuania until July 2021, only half of the population was vaccinated, and the primary goal was to reach more than 70% until that moment. The analysis refers to the assumption that the key drivers behind the public and private cooperation in the healthcare sector during COVID-19 are the following: using the expertise and skills of the private sector to improve the quality and accessibility of public healthcare systems; value for money (Abuzaine et al., 2018) while using private funding without increasing the public sector borrowing and reducing the pressure on public finance constraints (Somnathan, 2011); and increased GDP spent on healthcare. The Government applied different cooperation measures in Lithuania, especially in research and development, as well as in the procurement of medical devices. Examples of this are: Thermo Fisher Lithuania accelerates the production of coronavirus vaccines, Vilnius University Life Sciences Centre has volunteered for testing SARS-CoV-2 and provides daily expertise to the Government, as well as other Lithuanian businesses who bought additional medical devices for high flow therapy.

The Ministry of Health (MoH) has been in partnership with the private sector companies to maintain some of the supplies, for example, the production of
disinfectant solutions, medical masks, and similar medical materials, equipment, and protective aprons. Mobile lung ultrasound machines were donated to two major COVID-19 designated hospitals, and disposable overshoes made in Lithuania have been produced and delivered to medical institutions in Lithuania by a cluster of 8 private companies. In December 2020, all regions in Lithuania had hospitals where all COVID-19-designated beds were in use, treating more patients than planned previously, for example in the Vilnius region 85%-99% of all active beds were occupied. As hospitals came under increased pressure from COVID-19 patient flows, some healthcare providers have begun collaborating in terms of the workforce by introducing citizen volunteers’ programs, re-deploying university, and college students. The National Volunteer Assistance Coordination Centre “Strong Together” program, in cooperation with the MOH and the hospitals, has developed a list of vital medical equipment which can be bought and donated, and charity forces mobilized by NGOs have provided support to older people and people with disabilities.

Though private and NGO sectors have been volunteering resources and supplies for the healthcare sector, most of the forms of cooperation during the COVID-19 period have been ad hoc, regionally limited, and uncoordinated. It is assumed that philanthropic efforts are an efficient way to serve immediate COVID-19 needs and should be further encouraged, but a need for coordinated and strategic initiatives remains and requires a new policy approach for public–private cooperation in crises periods. The authors of this article concluded that Lithuania is entering a COVID-19 after-epoch or third wave of COVID-19, and this will bring new adaptation paths to mitigate the pandemic, which infected more than 233 K and caused over 7 K deaths.

Healthcare institutional resilience during COVID-19

This section presents the three indicators of institutional resilience and assesses the status of chosen healthcare institutions in Lithuania during the COVID-19 outbreak. For the case analysis, we focus on two benchmarking institutional examples to compare both private and public institutional resilience. For the public sector, we selected the Vilnius University Hospital (VUH) as an actual case since it had been dealing with a huge impact of the COVID-19 pandemic situation. For the private sector, we selected “InMedica” Ltd. (InMedica) because it is the largest private clinic in Lithuania that also has been caring for COVID-19 outpatients in its clinic and testing at the same time.

VUH has provided the highest level of surgical services to the entire population of Lithuania for 30 years. Combining many years of experience and a wide variety of competencies, enhancing scientific and technological innovations, VUH specializes in acute conditions, severe trauma, and a wide range of clinical surgery. VUH treats more than 30,000 patients annually, as well as more than 20,000 surgeries per year and over 305,000 consultations. In April 2021, VUH had about 1,885 employees (The State Social Insurance Fund Board, 2021) which is 5% more than it was in August 2020, however, the general 12-month growth of employees is around 1%. The VUH Emergency Medicine Centre has one of the largest flows of emergency seekers in the country flows. The activities
of this emergency unit cover more than 50% of the volume of necessary care in Vilnius—it receives almost 103,000 patients per year, and it doubled during COVID-19.

A lack of standardised information, paired with limited alignment between health institutions, contributes to uncertainty in decision-making. There is a need to compare context-specific indicators where the impact on health outcomes can be modelled using targeted data and contextual information. In this paper, equally weighted key questions across the traits were normalised for private and public health institutions to produce a score from low (1) to high (5) (Gherghina et al., 2022). The score was generated by variation in healthcare services provision across individual socio-economic status, health infrastructure, public finances, etc., and used for comparison of two healthcare institutions, and also further, might be used for comparisons across countries in this Symposium.

Thus, the private sector could offer a variety of health services when COVID-19 had started, but the ones related exclusively to COVID-19, were provided only by the public health sector. InMedica was the first private health institution allowed to perform PCR or antigen testing and, according to data on InMedica’s financial revenue, was the most effective in-service provision because the mentioned parameters increased by 38% when in other institutions of the private healthcare sector—from 9 to 31%.

InMedica is a network of medical clinics, which provides diagnostics, ambulant treatment, surgery, dentistry, and other medical services. Its healthcare professionals provide services in 16 family medical centres, three broad profile clinics, and one specialized cardio clinic in Lithuania (Nasdaq, 2011). The largest shareholder of InMedica is the INVL Baltic Sea Growth Fund, whose main investor is the European Investment Fund—a part of the European Investment Bank (EIF/EIB). INVL Baltic Sea Growth Fund, the largest private equity investment fund for the Baltic region, is of a total €165 mn size. In April 2021, InMedica had 802 employees which were over 25% more than in April 2020 (The State Social Insurance Fund Board, 2021).

The analysis shows that the COVID 19 period was rather successful for InMedica—consolidated sales revenue of the InMedica network of medical clinics in the first half of 2020, compared to 2019, increased by 17% to 6.9 million €, although this was 12% less than planned. Sales were adjusted during the pandemic period, but at the end of the period, InMedica quickly returned to normal service levels, for example, the consolidated sales revenue of the audited activity in 2019 increased by 38% to 12.7 million €. The growth of sales was stimulated by the growing number of divisions, and the expansion of the range of services provided (Nasdaq, 2011).

Thus, no single health system in the world has, at this point, stood out as being significantly effective at managing COVID-19 measures, the performance measures with the average score (3), which in further research, defines the share of health institutions’ performance in achieving adequate proficiency and also where sufficient efforts were defined that conveys important information. This paper goes beyond the average score and reflects on a strong commitment of institutions to focus on improving health sector performance in private and public health institutions that fail to reach higher standards.
Preparedness

Lithuania had a good chance of responding adequately to the COVID-19 outbreak due to the country’s health professionals and adequate infrastructure: compared to the average performance of other OECD countries, Lithuania has more doctors, and is fourth among OECD countries in the number of intensive care beds available per 1000 population. While analysing both institutions (Table 1), it can be determined that it was a little easier for the VUH than it was for the public sector organization to get prepared for such a situation since it had a stable process-oriented budget and full governmental support pre and during COVID-19. This allowed VUH management to be flexible and efficiently manage the related risks with less tension in terms of financing and backup. COVID-19 made a huge impact in terms of institutional resource allocation and mainly HR-based stress in overall areas. For InMedica, more challenges are determined since it received many restrictions and less financial support. Additionally, most of the introduced limitations caused the need to allocate more resources to various risk management processes which made an impact on potential company profitability in the short-term and mid-term period. It must be noted that its initial risk management plan was prepared for a potential crisis.

Agility

Before the COVID-19 pandemic, 57% of all outpatient consultations were with family physicians, and 98% were through direct consultations. During the pandemic, Lithuania made primary healthcare services less available with regard to face-to-face consultations. In response, the service delivery modell from direct to remote consultations and mobile services provided in people’s homes, in both public and private healthcare institutions, was introduced.

In this paper, the response capacity referring to agility is defined through institutional efforts referring to human resources, infrastructure, coverage of services, etc. The reaction of the VUH was quite sufficient and timely. Its structure and organization were designed to adapt quickly to unexpected circumstances. It reacted effectively to evolving situations in the COVID-19 context, and it was sufficiently responsive to the surrounding challenges. The financial support and highest priorities from

| Indicator    | Vilnius University hospital |       | InMedica |       |
|--------------|-----------------------------|-------|----------|-------|
|              | Score Reasons for Score     |       | Score Reasons for Score |       |
| Preparedness | 3 Flexible management       |       | 3 Limited financial support |       |
|              | Allocation of resources     |       | Activity restrictions   |       |
|              | Lack of facilities          |       | Initial risk management |       |
| Agility      | 3 Responsive surrounding    |       | 4 Quick adaptation      |       |
|              | Municipal support           |       | Designed organisation  |       |
| Robustness   | 2 Intensity of workload     |       | 3 Overload of restrictions |       |
|              | Lack of staff, equipment, experience |       | Expansion of services |       |
the municipal level backup were the core for such success and efficiency. As a successfully performing public sector company, it was very flexible and efficient in terms of the necessary changes.

In the case of InMedica, the structure and organization were also well designed to adapt quickly to unexpected circumstances and, it must be noted, its management reacted to evolving situations in the COVID-19 context rapidly. It was responsive to the emerging challenges, especially to restrictions in service provision. Also, it should be noted that InMedica’s core shareholder is EIF/EIB (majority of co-founders are public sector actors)—it is considered a beneficial parameter because it shows that EIF or even EIB could support the initiatives to attract various private know-how and innovations to enhance the healthcare infrastructure which would allow providing better services for its consumers.

Moreover, even though the economic stimulus package was announced relatively instantly, the absorption of aid in the healthcare sector was complex and, therefore, slow.

**Robustness**

Since this is a unique situation in its scale, unprotectedness and intensity were and still are the biggest challenges for the national healthcare system during the last 100 years. Initially, it was a huge challenge to keep VUH as invulnerable as it is possible because most of the staff had no experience with this particular virus. The hospital had a huge lack of necessary equipment, and it was a big threat to have this process without proper coordination. Due to the drastically increased workload, this situation hit it more in comparison to other companies, and it suffered crucially. At the final stage, VUH managed to stabilize the situation. After analysing the situation of InMedica, it could be stated that general robustness in terms of such a crisis was average. However, this situation due to the overload of limitations caused huge stress to all elements of activities and made a huge impact on overall functioning. InMedica successfully managed to recover and convert these temporary limitations into limitless opportunities by expanding its scale of services, enhancing its corporate image, and increasing the potential of its profit growth.

The institutional actions show that the handling of the COVID-19 crisis was aimed at controlling the current situation and dealing with the challenges that arose at the time, without systemic change and without establishing strategic principles that could help to overcome this type of threat in the future.

The resilience analysis which is based on audit reports and annual reports of both institutions before and during the COVID outbreak demonstrates failures in both institutions. However, in both cases, professional management and efficient cooperation is determined, for example, VUH received donations from almost 50 private companies for more than 0,5 billion EUR (The Financial Annual Report, SANTA, 2021) and InMedica started to provide more services in first aid because such healthcare services were limited in the public sector. The evaluation of cases shows a need for more comprehensive services, larger investments, and development of skills to make the assets more productive; for example, VUH opened an
Infectious Disease Centre in 2019, however, its efficient performance in such activities as clinical research or cooperative networking is not determined so far. The comparative analysis suggests that intensive public–private cooperation might be a valuable tool in delivering healthcare services during the after-pandemic or third wave of COVID-19.

**The social impact of healthcare institutions and the cooperation approach**

This section assesses the impact on society generated by the three resilience indicators. In addition, the analysis of the chosen cases shows changes referring to infrastructure-based service, clinical services, and integrated cooperation. In general, both VUH and InMedica are positively evaluated in referring to their impact on society. It is determined that the overall support for all types of medical staff was huge and for the majority of the healthcare institutions and not only the VUH received positive feedback from society. However, as recent research also showed, the healthcare service provision decreased in 2020 (number of appointments by 39% and number of people asking for healthcare service by 22%) (Vilnius University Evaluation of COVID-19, 2021) and during the same period, the general need for psychological support in Lithuania increased by 10% comparing to 2019 (The Parliament of the Republic of Lithuania, Survey, 2020).

The numbers of volunteers at VUH have beaten the records during the virus outbreak as more than 70 volunteers worked together with medical staff. Most of the introduced community measures in VUH helped and still help to overcome the COVID-19 crisis. Initially, most of the private institutions lost their priority status since the largest part of the support went to public healthcare institutions, and it helped temporally to decrease the socio-economic disadvantages in the society. However, while public service providers became overwhelmed and less efficient, such companies like InMedica took over the leadership. Thus, it was a good opportunity for InMedica to benefit from this situation and gain additional social sympathy, and also to test new measures which helped to counter the COVID-19 crisis.

The analysis shows that public–private cooperation could be beneficial in terms of the social impact in society, however, potential initiatives are quite conservative, and the analysis has defined the possible assumptions. Firstly, the election period in 2020 saw the manipulation of voters’ opinions about various infrastructure-based cooperation as potential frauds by the society, and it is also seen as one of the reasons why VUH and InMedica haven’t been involved in any type of infrastructure-based cooperation during the pandemic, which limited the efficiency of service provisions to the society. Secondly, in the current pandemic situation, it remains difficult to persuade the decision-makers to take new risks with public finance initiatives because most of the resources continue to be allocated for the emergency needs after the COVID-19 first and second outbreaks, therefore in other areas of healthcare, the provision of service remains slow.

Considering the potential of clinical services by adding or expanding discrete clinical service delivery capacity, is no less complicated nor sufficiently tangible. According to the last three annual reports, VUH has increased the intensity of
various outsourcing activities and InMedica, also, became more proactive in increasing its market share in overall healthcare services—this had also a positive impact on society. Moreover, the analysis shows that in both cases the institutions have been gradually increasing their cooperation portfolio which allows defining possible positive long-term assumptions of the sustainable healthcare provision. Though the annual reports show the lack of integrated cooperation activities in both institutions in 2020, it didn’t have any defined impact on society at present, because a longer period is required for such an evaluation.

The analysis showed that public–private cooperation and flexibility in healthcare service provisions addressed the needs during the first and second COVID-19 outbreak, however, the needs in other healthcare areas were less covered. The primary insufficient reaction from the Government, which influenced the performance of the healthcare sector in Lithuania, was gradually covered by private companies, NGOs, and even volunteers, therefore showing the dedicated engagement of societal members.

**Conclusion**

This is a preliminary analysis of potential developments of public–private cooperation in Lithuania in the healthcare sector. Though it is necessary to follow-up the defined best practices in the context of cooperation, especially referring to COVID-19, it is difficult to define the “excellence” in this analysis because health services, especially the ones related to the COVID-19, have been majorly delivered in Lithuania by the public health care sector.

The analysis showed that despite the lack of knowledge, the preparedness and robustness of healthcare institutions were average, while the agility was a little above average in the private healthcare sector. The mobilization of public and private sectors’ efforts to mitigate challenges was possible in Lithuania when clear objectives and long-term strategies had been established by the Government from the beginning, and private healthcare sector providers had been not limited in service provision related to COVID-19.

Overall, the assessment of selected cases showed that the Lithuanian healthcare sector should not ignore the need for public–private cooperation growth, because the COVID-19 required larger healthcare facilities and capabilities, more coordinated actions. The analysis of both infrastructure and clinical services showed that either of the benchmarking institutions has development and investment potential, however, due to the Government’s decisions, the scales of engagement were completely different.

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