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Evaluating the impact of national hospital plan on healthcare service performance in Albania: evidence from the regional Memorial Hospital in Fier

Martina Giusti^{1*} , Rudina Degjoni² and Niccolò Persiani¹

Abstract

The establishment of a solid and well-organized hospital network represents a key step toward achieving universal health coverage and effectively addressing local health needs in transition countries of the Balkan region. In this context, the Albanian government enacted Law No. 55/2022, which introduced the reform of national hospital network with the aim of decentralizing and redistributing complex medical care from the capital city, Tirana, to peripheral areas and to promoting hospital autonomy. This study aimed to assess the impact of National Hospital Plan for autonomy in terms of healthcare service performance's improvement. A case study methodology was adopted, as the regional Memorial hospital in Fier. This hospital represented the first regional hospital already implemented in Albania that satisfied all criteria stipulated in the National Hospital Plan to achieve hospital autonomy. Higher volume of activity, better indices of resources management, and greater attractiveness of regional Memorial hospital from the South region of the country demonstrated the effectiveness of adopted managerial strategies, highlighting their positive impact on hospital's performance. This approach could be replicated within all the other Albanian regional hospitals involved by the reform contributing as well as in the other regional and university hospitals nationwide to improve widely the performance of the Albanian healthcare system. This reformative approach may also be of example to similar healthcare systems in the Balkan region and other low- and middle-income countries that have to manage the same issues, especially in terms of access to and performance of healthcare services.

Keywords Hospital network, Reform, Performance, Healthcare services, Access, Albania

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Introduction

Hospital network

The relationship between access to health services and socio-economic determinants is very close and bidirectional. Factors such as incomes, educational levels and living environment can create inequalities in access to services that are reflected in reduced or inappropriate access to care for those who have fewer resources (economic, cultural, logistical) with related implications in terms of health outcomes [1, 2]. Disparities in access to health services risk aggravating the social inequalities of health of population groups already in a condition of vulnerability, for whom functions of protection should be exercised [3]. Another issue about health services' access often underestimated is the distance of health services from the users' homes [4]. Primary health care (PHC) centres are especially deputed to bring assistance as close as possible to users, intercepting their real and potential health needs. In this way PHC centres effectively contribute to ensure equal access to health services with the proactive taking charge of population and working in synergy with the hospital networks responsible for acute care [5]. But data show that there is still much to be done, especially in low- and middle-income countries (LMICs), where health care is still predominantly provided in hospital mainly located in the main urban centres. Moreover, in these countries, health travelling is difficult due to the few infrastructures and public transport's lines even to health facilities, which hinders mobility, especially of those who are not autonomous. This is also associated with the difficulty in finding private medical transport, increasing difficulties in access to health services even more [6]. The capillarity of health care is therefore a variable that significantly impacts the effective ability of a health system to respond to population's needs [7]. The enhancement of hospital networks is a central theme in global healthcare policies, aiming to improve accessibility, efficiency, and the quality of healthcare services [8].

Existing literature explored various approaches to optimizing hospital network's performance, including costs management [9], service digitalization [10, 11], infrastructure improvements [12], and collaboration among healthcare entities [13–15]. However, significant challenges remained, especially in LMICs and transitioning countries [16], such as those in the Balkan region, where healthcare reforms, financial constraints, and workforce shortages create barriers to effective hospital network for strengthening national health system [17, 18].

One of the most studied aspects concerned the integration of healthcare services and coordination among different hospital facilities. A well-connected hospital system enables efficient resource management, reducing services' duplication and improving continuity of care [19, 20]. Network models based on reference centres

and peripheral hospitals according with a hub and spoke model [21] have been successfully implemented in various high-income countries, contributing to optimize the appropriate use of available services [22] and to ensure a widespread offer of health services at local level [23, 24].

In LMICs, fragmented healthcare systems often resulted in inefficient patient referrals, delays in emergency care, and disparities in access to specialized treatments [2, 25]. Fragmentation typically manifests as weak coordination between primary, secondary, and tertiary levels of care, limited interoperability of health information systems, and the absence of clear referral pathways [26]. These structural weaknesses not only undermine continuity of care but also generate avoidable costs, as patients bypass primary care and directly access higher-level facilities, further overloading an already strained hospital sector [27].

In Serbia, for example, the uneven distribution of healthcare facilities has led to overburdened tertiary hospitals in Belgrade, while rural and peripheral areas struggle with few accesses due to the shortage of specialized services [28]. In contrast, the implementation of regional hospital networks in Croatia is ongoing with the aim of improving services' delivery and efficiency and effectiveness of national health system [29]. This reformative process involves redefining catchment areas, concentrating highly specialized services in a limited number of centres of excellence, and reinforcing the role of general hospitals in providing acute and basic specialist care at local level [27]. This network-based approach seeks to reduce duplication of services, optimize the use of expensive medical equipment, and strengthen coordination with primary care and emergency medical services in line with broader European recommendations on hospital networking. Other countries, such as Romania or Moldova, are still looking for a tailored models of hospital network organization that fits their demographic, geographic, and fiscal realities [29, 30]. In these contexts, historical legacies of oversized hospital sectors, coupled with underdeveloped primary care and preventive services, posed challenges.

Reform efforts have usually to address politically sensitive issues, including hospital downsizing or repurposing, reallocation of resources from inpatient to outpatient care, and the introduction of performance-based financing mechanisms, as noted in comparative analyses of hospital reform in Central and Eastern Europe. The design of context-specific hospital networks must balance efficiency objectives with considerations of equity, accessibility, and social acceptability [31].

Strengthening hospital networks also involves investments in new facilities, especially in settings facing transitioning economies [7]. Modern hospital infrastructure enables the introduction of advanced diagnostic and

therapeutic technologies, supports better infection prevention and control, and facilitates the reorganization of care pathways, for instance through day surgery units or integrated oncology centres [32, 33]. At the same time, human resource strategies must align with these infrastructural changes, ensuring adequate staffing levels, multidisciplinary teams, and opportunities for professional development [34]. In the Balkan region, outdated hospital infrastructure remains a major challenge, with many facilities dating back to the socialist era and often not meeting current standards for patient safety, energy efficiency, and clinical functionality. The European Investment Bank (EIB) has funded modernization projects, such as the renovation and expansion of university hospitals and clinical centres in Serbia, Albania, and Kosovo, which have contributed to improved intensive care unit capacity, enhanced diagnostic capabilities, and better working conditions for staff [35]. More recent initiatives also support the extension of health services in Belgrade, framed within a broader EU growth and investment agenda for the Balkan region countries. These investments are particularly relevant to be prepared in managing upcoming issues related to noncommunicable diseases and aging, or eventual health emergencies, as highlighted by recent analyses on health system resilience in the region [36]. Additionally, workforce shortage remains a critical barrier [37] because of the emigration of healthcare professionals, with thousands of doctors and nurses leaving in different countries. This outward migration disproportionately affects smaller hospitals and rural facilities, where recruitment and retention are already difficult for Balkan countries [38]. In response, some countries have introduced incentive programs for medical professionals to work in rural and underserved areas, such as financial bonuses, housing benefits, career advancement opportunities, or scholarships tied to service obligations. Results have been mixed: while they can temporarily alleviate shortages, their long-term effectiveness is often limited when not accompanied by broader measures to improve working environments, governance, and professional recognition, as shown by retention studies in Central and Eastern Europe [39].

Sustainable strategies to strengthen hospital networks in LMICs and in the Balkan area countries require an integrated approach that simultaneously addresses infrastructure, service organization, financing, and human resources, with particular attention to retention of skilled healthcare workers [2, 31, 36].

Hospital network in Albania

In Albania, economic and financial growth has led to increased well-being in the population, prompting the government to implement a series of reforms aimed at strengthening the public healthcare sector [40]. Albanian

government's commitment to achieving universal health coverage has led to the identification of strategic priorities outlined in the National Health Strategy 2016–2020 [41] and the National Health Strategy 2021–2030 [42]. The 2016–2020 strategy was largely oriented around modernizing the health system, improving infrastructure, and aligning with EU standards in areas like hospital quality, medicines safety, and integrated care. The National Health Strategy 2021–2030 in Albania is built on the earlier 2016–2020 framework but shifts emphasis toward universal health coverage, primary care strengthening, digital health, and preparedness for emergencies, while also placing a stronger focus on health promotion and intersectoral action across the life course. The 2021–2030 strategy emphasizes a more holistic, people-centred vision, explicitly aiming for universal health and improved health throughout the life course. The missions of these strategic plans – in continuity – has been to protect, improve and promote health in Albania by the identification of concrete solutions to address long-standing challenges including economic sustainability [43, 44], staff shortage [34], limited access to primary healthcare services [45], critical emergency medical services [46, 47] and quality of care [48].

A key innovation in the last Strategy is the introduction of performance indicators, which has established a rigorous evaluation system to assess its impact, implementation, and overall effectiveness [43]. The goal “Ensuring service efficiency for the hospital system through the development of the four Regional Specialised Reference Poles”, under the priority “Strengthening the Integrated Health System” aims to enhance efficiency, cost-effectiveness and the overall performance of Albania's hospital system through the implementation and expansion of hospital autonomy. To support this initiative, Law No. 55/2022 “On Hospital Services in the Republic of Albania” was enacted, establishing the organization and functioning of hospital services in the country [49], with the help also of Turkish government [50]. Articles no. 7 and 8 focused on the plan to strengthen the national hospital network investing in the collaboration between regional hospitals taking into account the geomorphological, demographic and socio-economic-cultural components and the related specific health needs of each region¹. In

¹ Article 7, point 3: “The National Hospital Plan stipulates: a) coefficients to be applied at national and regional level, based on the situation of health, geomorphological and socio-economic-cultural components, to draw the ratio between the number and distribution of beds, human resource allocation and population; b) planning for new beds, distribution of them including existing beds, among different sectors of hospital activity and at different organizational-functional levels of the national hospital network; c) distribution in the territory of hospitals, as well as the need for scientific research; d) organizational and functional criteria through which active coordination is achieved between different structures contributing to the establishment of the national hospital system; e) State funding tools and ways for the con-

fact, “A regional hospital centre is the organization of one or more general, specialized, and/or day hospitals for the purpose of centrally managing financial, human, and capital resources within a defined territory (Art. 3, point 6)”. This new public hospital management model will introduce, for the first time, a performance-based reward system. Additionally, significant investments in hospital infrastructure, technology, and modernization will be made. Given these developments, this research aimed to evaluate the impact of national hospital plan in term of healthcare service performance improvement within Albanian healthcare system, enforcing the national hospital network.

Materials and methodology

Methodology

From the literature review, the case study methodology emerged as the most suitable for conducting this research due to its explorative nature [51, 52]. Case study allowed to generate in-depth insights into novel phenomena, when theoretical propositions are still emerging [47, 48]. This approach excels in examining contemporary real-world events over which the researcher has minimal control, such as pilot healthcare reforms, allowing for rich, contextualized data collection through multiple sources (e.g., documents, interviews, and observations) to ensure triangulation and construct validity [51, 53]. Numerous studies have successfully applied single-case study to analyse pioneering pilot projects in healthcare reorganization, including the development or the strengthening of national hospital network in transitional health systems in Albania [52, 54]. The regional Memorial hospital in Fier (Albania) represents an ideal single-case selection for several theoretically justified reasons:

- **Revelatory uniqueness:** As the first regional hospital in Albania that totally met the criteria fixed in the Law No. 55/2022 for autonomy within the national hospital network, Memorial hospital offered a rare opportunity to study a groundbreaking innovation in real time, revealing processes, challenges, and outcomes not previously observed in Balkan area's healthcare services. No other Balkan countries has implemented a comparable reform to improve the national hospital network that pays attention from the first phase of the reformative process on the

improvement of healthcare services performance [53].

- **Critical and extreme features:** The hospital's establishment under a bilateral Albania-Turkey health cooperation agreement—resulting in construction completed in just 68 days amid the COVID-19 pandemic—constitutes an unprecedented temporal and logistical feat in the region. This extreme context amplifies the case's value for testing propositions on crisis-driven reforms, international partnerships, and rapid infrastructure scaling in resource-constrained settings [52, 54].
- **Theoretical and policy relevance:** By focusing on this singular, information-rich case, the study can develop transferable theoretical constructs applicable to similar reforms in low- and middle-income countries, while informing evidence-based policy recommendations for caregiver support and healthcare governance in the Balkans [51].

Eventual issues related to data generalization are mitigated through analytical approach rather than statistical inference, prioritizing depth over breadth to advance understanding in such networks [55, 56].

Materials

To assess the impact of establishing national hospital network on the Albanian healthcare system, the research first examined the broader contextual framework of the country's health system, characterized by a predominantly decentralization [45, 57]. This framework includes key reforms such as Law 55/2022 on hospital autonomy, aimed at enhancing efficiency and access to high-specialty services with limited resources [49] and limiting the emigration of health workforce [34]. Such contextual analysis positioned the regional Memorial hospital as a paradigmatic case study within the national hospital network.

The investigation of this case study began with an initial email contact with the General Director of regional Memorial Hospital to request availability for an online interview. Received a positive answer, the semi-structured interview with the General Director took place online on 17th December 2024 [55, 58]. The interview was recorded having her verbal consent.

The interview focused on: Memorial hospital's establishment process and its affirmation within the national hospital network; applied organizational and managerial models; obtained results in terms of activity volume and performance; future development (Supplementary file – Annex 1). The single semi-structured interview with the Memorial hospital General Director served as a primary qualitative data source, providing insider insights into the hospital's establishment, operations, funding,

struction of new public hospitals, expansion, transformation and modernization of hospital structures.”

Article 8, point 2: “Regional-level hospital plans envision meeting the needs of the region's population based on demographic, epidemiological, disease and socio-economic development of the region, orienting the development of the hospital services network in the territory according to the level of hospitals.”

network position, and future goals. This approach fixed the exploratory case study methodology, allowing deep contextual understanding within Albania's national hospital network. Its role was pivotal for capturing non-quantifiable details that complement the quantitative database and on-site verification. However, limits were inherent data saturation.

A single interview cannot achieve it because of the intrinsic limited depth and possible bias from a single viewpoint (e.g., managerial optimism). Overall, the interview's strength lied in its targeted focus and verification steps, but transparency on these limits' credibility. Triangulation via the database, on-site visit (January 16, 2025), and literature comparison mitigated this partially. It was requested to the regional Memorial hospital management to fulfil a database with data on workforce, hospitalization, emergency room activity, and outpatient services for the period 2021–2024. So, information gathered from the interview and data analysis was subsequently verified during an on-site visit to the Memorial hospital on January 16th, 2025. During the visit the research group had a meeting coordinated by the General Director with the referents of the administrative offices (Head of the Administration and Hospital Planning Sector) and of assistance (Head of the Neurology Department, Director of the Directorate of Patient Care, and the two Chief Nurses) in which were clarified eventual misunderstanding and resolved some doubts emerged during data analysis. Informed consent for data management and processing was obtained from the professionals directly involved in the research, in compliance with Helsinki Declaration (1964) and European data protection regulations (Regulation (EU) 2016/679 – GDPR). Findings were discussed in relation to existing literature on the hospital performance evaluation criteria.

In accordance with the Italian Ministerial Decree of January 30th, 2023 on the “Definition of criteria for the composition and functions of local ethics committees,” particularly Article 5 (“Functions”), which limits the responsibility of such committees exclusively to the field of clinical research—consistent with the Declaration of Helsinki (1964 and subsequent amendments) and the Oviedo Convention on Human Rights and Biomedicine (1997)—this study did not require ethics committee approval. As an observational study focused on the organization and management of a healthcare institution, and falling within the domain of social sciences rather than biomedical research, it was not subject to review by a local ethics committee.

Results

Regional Memorial Hospital foundation and affirmation

Findings from the General Director interview referred to the foundation of regional Memorial hospital and its affirmation within the Albanian healthcare system.

The signing of Joint Protocol between the Council of Ministers of the Republic of Albania and the Government of the Republic of Turkey (November 11th, 2021) established the building and the joint operation of the Memorial hospital by the Albanian and Turkish governments for a period of three years. The hospital's construction of the regional Memorial hospital in Fier began on February 12nd, 2021 with funds by the Republic of Turkey [53] in the reformative approach for the Albanian healthcare system decentralization. The decentralization process aims to improve the provision of health services to citizens across Albanian territory and to favour the transfer of expertise on hospital management from Turkish Ministry of Health to the Albanian. The Memorial hospital was completed in just 68 days and was inaugurated on April 21st, 2021, in the presence of the authorities from both countries. It covers an areas 50,000 square meters, with a building footprint of 17,000 square meters and a maximum capacity of 150 beds - which has not yet been fully reached. Currently, 15 out of the 19 planned wards are operational, including the following departments and services: i. Emergency room; ii. Diagnostic department (Radiology – Computer Tomography (CT), Magnetic Resonance Imaging (MRI), traditional Radiology, and Echography – and Laboratory); iii. Outpatient services; iv. Pneumology; v. Urology; vi. Endocrinology; vii. Neurology; viii. Cardiology; ix. Internal medicine; x. Orthopaedic-Traumatology; xi. General surgery; xii. Anaesthesia-Reanimation; xiii. Neurosurgery; xiv. Thoracic surgery; xv. Haemodynamic. The activation of the Ophthalmology, Emergency Surgery, Infectious Diseases, and Vascular Surgery departments is imminent. Based on the epidemiological data from the population of the hospital's catchment area, the Albanian Ministry of Health has decided to specialize the Memorial hospital in cardiology, neurology, and internal medicine, classifying it as a third-level hospital. It is composed of three interconnected sections, all on a single floor. Section A houses the emergency room and is directly connected to internal medicine and inpatient wards. Section B contains outpatient clinics, diagnostic laboratory, radiology, interventional services, and the pharmacy. Section C accommodates the remaining hospital services.

Fier was chosen as the site for the first action to reform the national hospital network due to its strategic position, offering easy accessibility from major cities in southern Albania. The hospital serves approximately 500,000 people across the regions of Gjirokastra, Vlora, and Fier.

The contribution from Turkish Ministry of Health brought to the definition of a government asset that allows the joint management by Albanian and Turkish managers. Therefore, the governing bodies of Memorial Hospital are:

- the Management Board, which is the highest executive body, a collegian organ independent in its activity and functions.
- the Board of Directors, which consists of five Albanian members and refers to the Management Board.
- the Human Resources Board, which appoints personnel to be employed at the hospital and is headed by the General Director.
- the Training Council, which refers to a structure headed by the General Director.
- the Ethics Board, which refers to a structure led by the General Director.

The Albanian Ministry of Health appoints the General Director, responsible for managing the hospital, the Deputy Chief Economic Officer, and one of the two Chief Nurses, while the Turkish appoints the Deputy Medical Director General, the Deputy General Director and the other Chief Nurse. The presence of Turkish staff working in collaboration with Albanian one is a key strength of the Memorial hospital. This partnership helps to train and support local staff, particularly in clinical practice and hospital management, with a focus on efficiency and effectiveness.

Hospital Operational Guidelines outline the operational procedures for the hospital's functioning during the transitional phase of three years, under the joint management of Turkish and Albanian teams. These guidelines, adopted by hospitals' management board, include detailed descriptions of staff roles at all management levels. Each year, the budget objectives - both quantitative and qualitative - for Memorial hospital are discussed with the Insurance Fund based on the contracts signed. Additionally, the services provided to meet the health needs of the local population are reviewed and discussed annually. The financial model adopted is, in fact, consistent with that of all other hospitals in Albania. The hospital is funded through the State budget of the Republic of Albania, donor contributions, and other legitimate revenues. The rules and procedures for the procurement of goods, services, and civil works are implemented in accordance with Albanian legislation. Salary, payments for contracted personnel, and all other personal entitlements are covered with the hospital budget.

The Memorial hospital is working towards achieving financial autonomy starting in 2027, in alignment with the provisions of Law 55/2022 on hospital autonomy

(financial card for autonomy) The hospital is therefore preparing for increased autonomy with activities such as service packaging cost analysis, privacy and security protection, strategies for active mobility and attractiveness, and the implementation of double to boost revenue. This hospital have already reached the managerial autonomy in 2025 because hospital management team was tackled with organizing the hospital's management model according to the criteria set by Law 55/2022 since its establishment. For instance, by the end of 2024, the first thrombectomy surgeries offered free of charge by the Albanian health service were carried out at the Memorial hospital. In 2025, plans are in place to train medical professionals from other third-level hospitals in the country on these techniques and share the hospital's adopted organizational model aiming to enhance the efficiency of the entire Albanian healthcare system as enacted in Law 55/2022.

In application of the National Health Strategy 2021–2030, the Memorial hospital in Fier is the first of four regional hospitals in which the Albanian government has invested to strengthen the country's hospital network. These hospitals will serve as links between 4 and 5 regional hospitals and the country's university hospitals. The other three hospitals selected for their outstanding qualitative and quantitative performance will not be built up *ex novo* like the Memorial hospital but will be renovated. As part of this development strategy, Memorial hospital has invested especially in strengthening its integrated clinical pathways that allows the taking care of patients within the hospital following a predefined pathway between diagnosis, treatments, and assistance without needing to be transferred to Tirana, ensuring rapid response times and proactive care. The Ministry of Health has clearly defined which diseases can be treated at Memorial hospital and which must be redirected to the university hospital of Tirana (QSUT).

Moreover, the Memorial Hospital aims to address the health needs not only of Albanian citizens but also of the always much more tourists who visit the country region, particularly during the summer time in recent years. In summer 2024, more than 1000 tourists were hospitalized only in Memorial hospital with a significant impact in terms both of healthcare services provision and the cost associated with the services, as the request of reimbursement to tourists' home countries.

Memorial hospital hospitalization data (volume of activity and performance indices)

In the four years of Memorial hospital activity, hospitalization significantly grown over years with a + 436%, being especially attractive for patients who came out the catchment area with a + 540%.

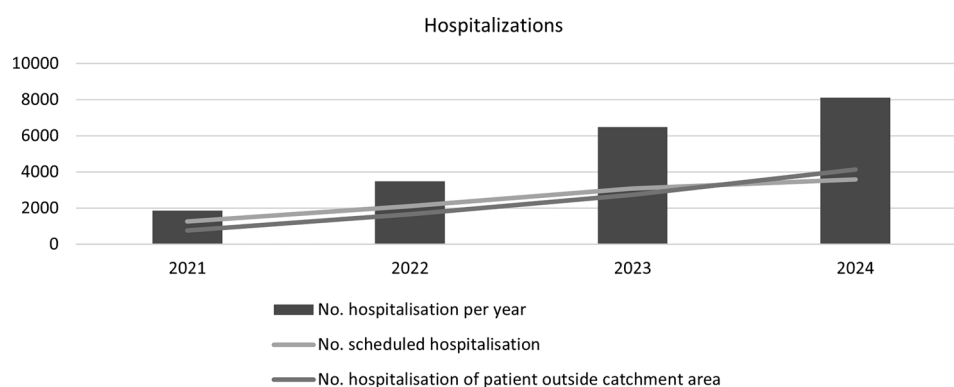
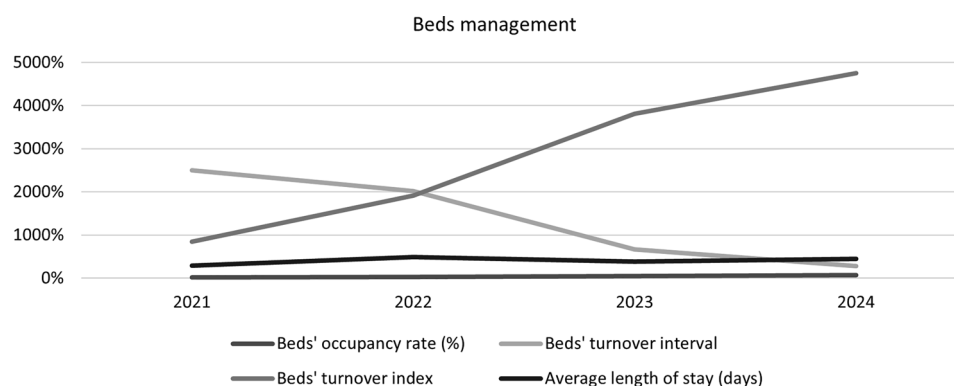
Table 1 Data on hospitalization in the period 2021–2024

Hospitalization	2021		2022		2023		2024	
	Absolute value	per 1000 persons	Absolute value	per 1000 persons	Absolute value	per 1000 persons	Absolute value	per 1000 persons
No. hospitalisation per year	1863	1,863	3480	3,480	6487	6,487	8114	8,114
No. scheduled hospitalisation	1253	1,253	2100	2,100	3072	3,072	3580	3,580
No. hospitalisation of patient outside catchment area	763	0,763	1660	1,660	2725	2,725	4,133	4,133
Beds	104	0,104	96	96	96	0,096	0,106	0,106
Beds' occupancy rate (%) *	14,0%		28,0%		49,0%		65,0%	
Beds' turnover interval **	25,0		20,1		6,6		2,8	
Beds' turnover index ***	8,4		19,16		38,1		47,5	
Average length of stay (days)	2,9		4,9		3,9		4,5	

* Optimal rate: around 85% [56]

** Ideal Standard for Beds' turnover interval: 1–3 days. Ideal Standard beds' turnover index: 40–50 times per year, though this varies by specialty (acute vs. chronic care) [59, 60]

*** This varies by many variables from clinical and health factors to hospital and operational ones [61]

**Graphic 1** Trends on hospitalizations in the period 2021–2024**Graphic 2** Trend beds management in the period 2021–2024

At the same time the hospital reached better results in terms of bed management, as reported below (Table 1 and Graphics 1 and 2):

- The average occupancy rate increased from 14% in 2021 to 65% in 2024.
- The turnover interval decreased from 25 days in 2021 to 2.8 days in 2024.
- The turnover index improved from 8.4 days in 2021 to 47.5 days in 2024.

Still reducing the average length of stay remained a challenge to be aligned with international standards having a fluctuating trend in the four years of activity. The rise in scheduled hospitalizations, which decreased from 67.2% in 2021 to 44.1% in 2024, was one of the factors influencing this challenge. This decline was mainly due to the significant increase in emergency room accesses followed by hospitalization: +1197% in 2022 compared to 2021, +319% in 2023 compared to 2022, and +103% in 2024 compared to 2023.

Key sectors in the hospitalization field included cardiology, where the number of hospitalizations grew from 617 in 2021 to 1,972 in 2024 (+319%), and neurology, in which hospitalization numbers progressed from 60 in 2022 to 392 in 2024 (+653%) (Table 2).

Memorial hospital emergency room data (volume of activity and performance indices)

The Memorial hospital is integrated part of the Albanian emergency medical service (EMS) network. As a third-level hospital, Memorial hospital has got a TRIAGE for the direct access to the own EMS within the hospital and a service that coordinates transfers from lower-level hospitals. Currently, the EMS emergency service does not manage patients with trauma or acute coronary syndrome, as the services do not maintain a continuous 24 h / 7 days active guard.

Regarding emergency department (ED) activity, the total amount of daily accesses, both direct and indirect, has increased from approximately 14 in 2021 to about 91 in 2024. 24% of the total hospitalizations in 2024 originated from emergency room visits. Despite the increase of patients' volume, the quality of service provided in the Memorial hospital's ED has remained consistent. Key performance indicators as average process time (2–3 h), admission rate (stable at 95%), dropouts rate before (from 1.53% in 2021 and 2023 and 1.5% in 2022 to 1.1% in 2024) and after medical visits (stable at 0.1%), and boarding time to medical (2 h) and surgical (30 mins) wards have all remained at performative levels. Regarding re-hospitalization, the 3-days re-hospitalizations rate dropped significantly from 30.6% in 2021 to 7.7% in 2024, marking a reduction of 74.8%. However, the 7-days re-hospitalizations rate increased slightly from 5.5% in 2023 to from 6.7% in 2024, although still lower than the 10.3% in 2021. These rates and numbers highlight the hospital's success in establishing a strong continuity of care system over the years, ensuring that patients discharged from the ED receive adequate follow-up care in their communities, where their healthcare needs are effectively met (Table 3 and Graphics 3 and 4).

A particularly interesting data point is the comparison between patient transfers from regional hospitals of the catchment area to Memorial hospital and those from this hospital to university hospitals in Tirana (Table 3 and Graphic 5). Transfers from regional hospitals to Memorial hospital increased significantly, rising from 550 in 2021 to 4,734 in 2024 – a growth of +860%. In contrast, transfers to university hospitals remained relatively low: 17 in 2021, 69 in 2022, 129 in 2023, and then back to 67 in 2024. While approximately 3% of cases were transferred to Tirana in 2021–2022 about, this percentage rose to 4% in 2023 before dropping to just only 1.4% in 2024. These figures highlight how Memorial hospital has increasingly

fulfilled its role as a filter for medium-to-high complexity cases effectively managing them within its and reducing their transfers to third-level hospitals in Tirana.

Memorial hospital outpatient services (volume of activity and performance indices)

As previously mentioned, outpatient services experienced the most significant growth. The diagnostic imaging service increased its production capacity by 697% between 2021 and 2024. This growth was largely driven by the increase in requests from outpatient users whom represented more than 85% of the total increase. However, it is worth noting that while only 7% and 8% of the service's activity was respectively dedicated to inpatients in 2021 and 2022, these percentages doubled to approximately 15% and 17% in 2023 and 2024 due to the rising number of hospital admissions and ED visits.

On the other hand, the laboratory's diagnostic service grew exceptionally of 1598% between 2021 and 2024. In the same period, request from inpatient decreased from 50% in 2022 to 37% in 2023, and further down to 28% in 2024. These contrasting trends highlighted the need for tailored managerial strategies for each service.

In 2024 the Memorial hospital faced for the first time some issues related to waiting lists that exceeded one month for certain tests (Table 4 and Graphics 6 and 7). The absence of priority codes and maximum waiting times provided for outpatient services by the Albanian legislation as usual in more advanced health systems (i.e. Urgent: within 72 h; Short term: within 10 days; Deferable: within 30/60 days; Scheduled: within 120 days) did not allow to judge the performance level. This could lead to an inappropriate use of the ED because Albanian population went to emergency room also without urgency to have deferrable diagnostic examinations.

Finally, the initial data on dual practice activity in 2024 were significant; in fact, dual practise is a key objective for the Memorial hospital in achieving autonomy – both managerial (2023–2025) and financial (2025–2027) – in accordance with the provisions of Law 55/2022 (Table 5).

Memorial hospital workforce

Data evidenced a very high turnover in workforce in the years 2022 and 2023. In 2024, turnover significantly slowed down for administrative staff (-39.8%) and health professionals (-39.9%), while it remained high at 63% for doctors. The presence of Turkish staff working at the Memorial hospital, mainly doctors and healthcare professionals, may explain this trend. Turkish professionals typically returned to their home country after a working period of 4/6 months at the Memorial hospital (Table 6 and Graphic 8).

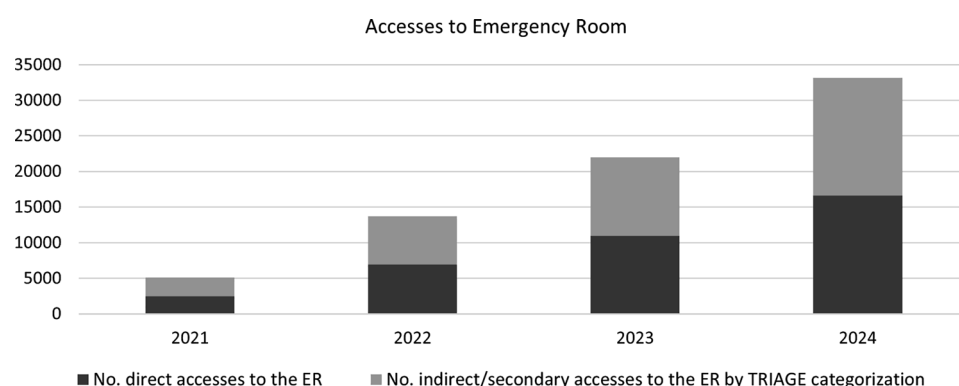
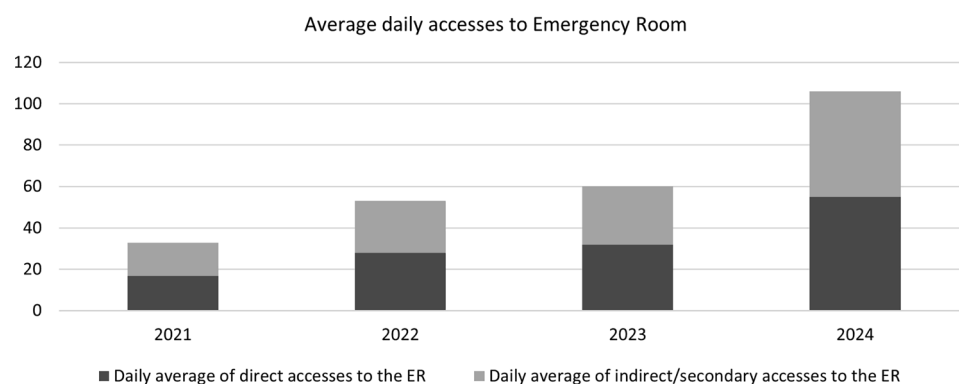
These data demonstrated how Memorial hospital is establishing itself as reference hospital within the

Table 2 Data on hospitalization in the period 2021–2024 for each ward

[illegible]

Table 3 Data on emergency room in the period 2021–2024

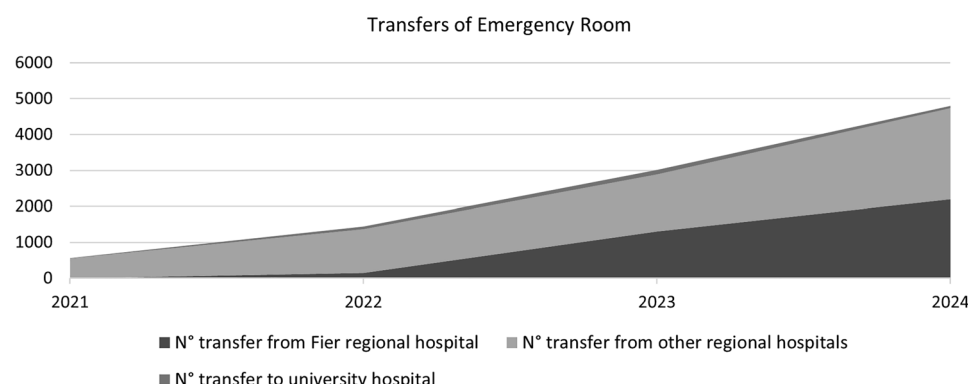
Emergency Room	2021		2022		2023		2024	
	Absolute value	per 1000 persons	Absolute value	per 1000 persons	Absolute value	per 1000 persons	Absolute value	per 1000 persons
No. direct accesses to the ER	2492	2,492	6959	6,959	11,016	11,016	16,605	16,605
No. indirect/secondary accesses to the ER by TRIAGE categorization	2600	2,600	6805	6,805	10,957	10,957	16,597	16,597
No. emergency hospitalizations	49	0,049	587	0,587	1875	1,875	1948	1,948
Process time (hours)	2		2–3		3–4		2–3	
% admission (filter)	95,7%		95,6%		95,2%		95,5%	
Daily average of direct accesses to the ER	17		28		32		55	
Daily average of indirect/secondary accesses to the ER	16		25		28		51	
% dropouts before medical visit	1,3%		1,5%		1,3%		1,1%	
% dropouts after medical visit	0,1%		0,1%		0,1%		0,1%	
% returns at 3 days	30,6%		16,1%		13,3%		7,7%	
% returns at 7 days	10,3%		11,7%		5,5%		6,7%	
Boarding time to medical wards (hours)	2		2		2		2	
Boarding time to surgery wards (minutes)	30		30		30		30	
N° transfer from Fier regional hospital	0	0	150	0,150	1300	1,300	2200	2,200
N° transfer from other regional hospitals	550	0,550	1220	1,220	1586	1,586	2534	2,534
N° transfer to university hospital	17	0,017	69	0,069	129	0,129	67	0,067

**Graphic 3** Trend accesses to emergency room in the period 2021–2024**Graphic 4** Trends average daily accesses to emergency room in the period 2021–2024

national hospital network because of the exponential growth of its activity volumes. From 2021 to 2024, the number of hospitalizations increased by 435% (+286% scheduled and +743% unplanned), emergency room accesses rose by 652% (+666% direct and +638% from

regional hospitals), radiological diagnostic capacity grew by 697%, and laboratory diagnostic capacity increased by 1598%.

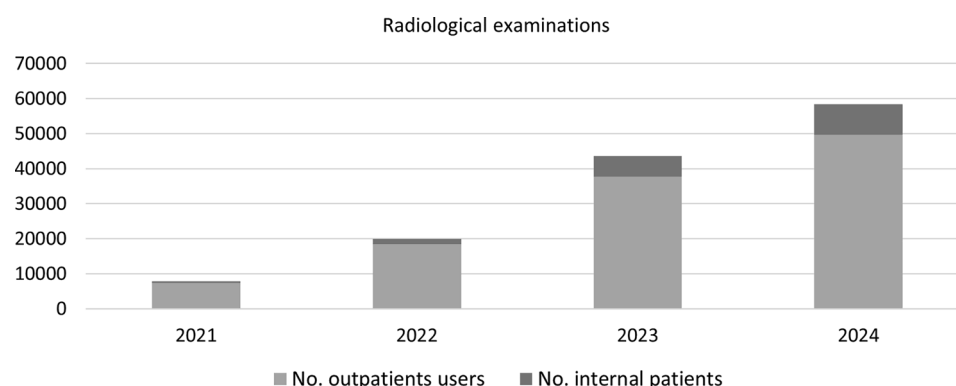
Memorial hospital is also an accredited facility for internship programs for bachelor's degrees in nursing



Graphic 5 Trend on emergency transports in the period 2021–2024

Table 4 Data on outpatient services in the period 2021–2024

Outpatient Services	2021		2022		2023		2024	
	Absolute value	per 1000 persons	Absolute value	per 1000 persons	Absolute value	per 1000 persons	Absolute value	per 1000 persons
No. radiological examinations	8078	8,078	19,948	19,948	42,071	42,071	56,357	56,357
No. outpatient services	7289	7,289	18,368	18,368	37,726	37,726	49,667	49,667
No. internal patients	556	0,556	1578	1,578	5911	5,911	8740	8,740
Average waiting list for ultrasound (days)	-	-	-	-	-	-	55	-
Average waiting list for CT (days)	-	-	-	-	-	-	50	-
Average waiting list for MRI (days)	-	-	-	-	-	-	5	-
No. laboratory examinations	14,575	14,575	11,445	11,445	168,372	168,372	231,724	231,724
No. outpatient users	14,575	14,575	7588	7588	122,686	122,686	180,090	180,090
No. internal patients	-	-	3857	3857	45,686	45,686	51,634	51,634
Average waiting list (days)	-	-	-	-	-	-	25–30	-



Graphic 6 Trends radiological examinations in the period 2021–2024

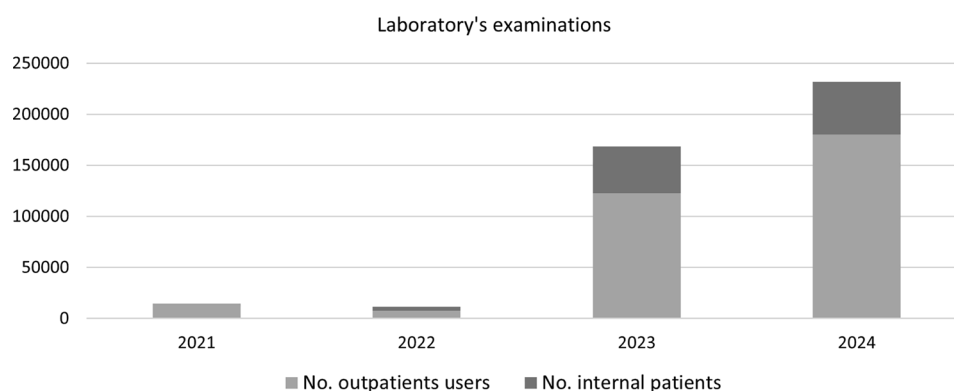
and allied health professionals based on the agreements with the University of Vlora and various private and public Schools of Medicine of University located in Tirana. Each semester approximately 200 students complete their internship at the regional Memorial hospital, where professionals provided mentorship. Additionally, Memorial hospital occasionally hosted also doctors-in-training at the request of the Ministry of Health. To systematise this training activity, interlocutions are currently underway regarding the terms to be included in an agreement between the Ministry of Health, the University of Tirana

and the Memorial hospital. This agreement aims to recognize Memorial hospitals as an institution for university-level health professionals training helping to address the current issues of staff shortage and offering the possibility to operate all services 24 h /7 days.

Discussion

National implications

Data analysis highlighted the significant progress made by the regional Memorial hospital in Fier in recent years



Graphic 7 Trend laboratory's examinations in the period 2021–2024

Table 5 Data on dual practice in 2024

Dual Practise	Consultations (2024)
Cardiology	193
Neurology	170
Endocrinology	116
Rheumatology	89
Pulmonology	65
Nephrology	44
Urology	44
Gastroenterology	41
Internal Medicine	2
Orthopaedics	2
Otorhinolaryngology	1
Neurosurgery	1
Total	768

Table 6 Data on workforce in the period 2021–2024

Workforce	2021	2022	2023	2024
Beds' capacity	150	150	150	150
Wards capacity	19	19	19	19
N° physicians	39	39	45	54
N° nurses & health technicians	155	116	124	134
N° administrative personnel	66	69	71	76
Other professionals	0	35	54	46
N° foreign (Turkish) staff	30	67	40	43
Physicians' turnover	41,0%	66,7%	64,4%	63,0%
Nurses & health technicians' turnover	30,3%	86,2%	75,0%	35,1%
Administrative personnel turnover	30,3%	52,2%	43,7%	3,9%

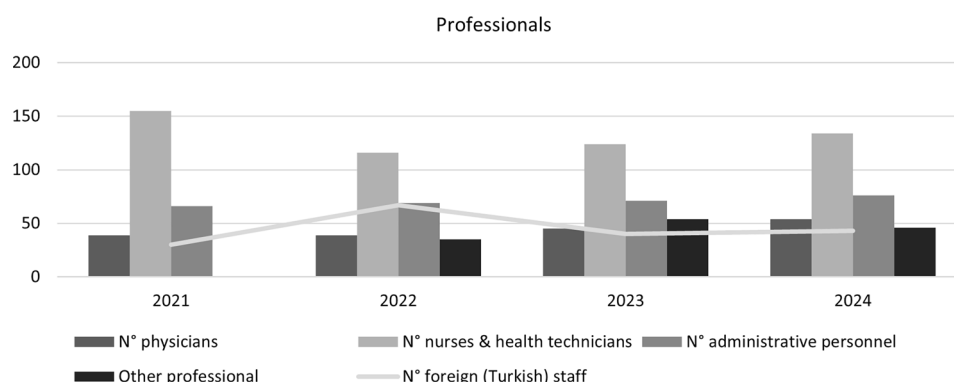
in expanding its services' capacity. This achievement can be discussed from two perspectives.

From the managerial perspective, the Memmorial hospital's growth was largely driven by a well-defined governance strategy outlined in the protocol signed between the Albanian and Turkish governments. This agreement ensured joint hospital operations for three years and provided essential regulatory tools, especially the "Hospital Operational Guidelines" [50]. Unlike other Albanian regional or university hospitals, the Memorial hospital's governance model was specifically designed to align

with the shared strategy of both countries, facilitating the achievement of specific objectives. Furthermore, the ongoing discussion and coordination of qualitative and quantitative goals -not only with the Albanian Ministry of Health and the Albanian Health Insurance Fund but also with the Turkish government- enhanced process control mechanisms. This approach ensured strict adherence to the signed protocols, both from an organizational-management and clinical-care perspective.

From organizational perspective, the establishment in Memorial hospital of a management goal-oriented allowed to establish itself as a performative and autonomous institution, both from a managerial and financial standpoint, in the national hospitals network. This was further reinforced by dedicated Albanian legislation supporting the national hospital network [24, 42] and the introduction of hospital autonomy [49]. The work done optimising Memorial hospital's ED performance as key driver of the hospital's success was of example [46]. Acting as a filter for medium-to-high complexity cases, it has significantly reduced pressure on university emergency services - fully achieving the ministerial goal set by the National Health Strategy 2021–2030 [42] and, at the same time, improved the rates on hospitalization in the other hospital's wards. Moreover, in few years, Memorial hospital's ED has successfully been recognized by population as an effective regional intermediate level between local primary healthcare centres and third-level assistance [46, 47]. This success was made possible by regional Memorial hospital capacity to exponentially increase volume activity and maintain the high quality of provided services. Data on patient transfers from regional hospitals of the Memorial hospital's catchment area to university hospitals, as well as its re-hospitalization rates within 3 or 7 days clearly reflected the efficiency and reliability of its EMS [2, 27].

However, some key services remain unavailable at Memorial hospital, including vascular surgery and infectious disease treatment, which are currently entrusted solely to Albanian university hospitals by the Ministry



Graphic 8 Trend workforce's volume in the period 2021–2024

of health. These restrictions limit the expansion of care provided by Memorial hospital and constraint potential investments. If the Ministry of Health authorizes the Memorial hospital to offer these advanced treatments, the hospital is prepared to make further investments, including hiring additional health professionals and doctors and acquiring new technology. Such developments would enable the Memorial hospital to become a comprehensive and self-sufficient ED, ultimately contributing to the full implementation of the national EMS reform [44].

Another key strength of Memorial Hospital is its commitment in the training of future doctors and health professionals offering internships for students as well as continuous training for both its own professionals and for those belonging to other regional and third-level hospitals across the country. Moreover, the involvement of Turkish colleagues adds significant value to those training paths because Albanian health workforce not only gain insights into the own national hospital network but also enhance their clinical expertise through international collaborations.

The Memorial hospital has emerged as a growing institution with enhanced capacities and significant improvements. Nevertheless, several key metrics indicate high workload and ongoing challenges that require strategic intervention. One major concern is the bed occupancy rate, which has exceeded 100% in certain departments, reaching 124.9% in cardiology. If left undressed, this could compromise the quality of care over time. To mitigate this, the Memorial hospital focuses on expanding bed capacity, improving staff recruitment and retention [34, 37], diversifying its medical services – such as introducing vascular surgery and emergency surgical treatments – and enforcing the collaboration with primary care services as before mentioned [5, 32].

Another pressing issue is dual practice - a core element of Law 55/2022 on hospital autonomy. Because its implementation remains limited due to legislative barriers. In fact, Memorial hospital were availability both of

professional or organizational resources to expand dual practice for satisfying the growing demand for diagnostic examinations and specialist consultations, that have the longer waiting lists. These challenges indicate that Memorial hospital is still operating under its capacity. Without further expansion and structural reforms, it may struggle to fully establish itself as a sustainable and comprehensive regional hospital in the long-term within the national hospital network [49].

Implications for Balkan area

The ongoing establishment of national hospital network in Albania, implemented in line with national strategies aimed at promoting healthcare decentralization [42] and increasing hospital autonomy [49, 57] represents a valuable model for other Balkan countries. The creation of performative regional hospitals within national hospital network can be effectively adapted across the region because it is leading indirectly to enhance the territorial distribution of healthcare services [8, 31] and significantly to improve access to care, particularly in underserved areas [17, 18].

Our findings indicate that the availability of a broader range of services—especially specialized care and services of medium to high complexity [2, 25, 46] - at the regional Memorial hospital in Fier encouraged patients from surrounding areas either to seek care locally or to avoid referral to Tirana, the capital city [4, 6]. This decentralisation of healthcare services' provision is particularly relevant for populations in conditions of social and health vulnerability, for whom geographical proximity and service availability are key determinants of equitable access to care [1, 2].

A crucial enabling factor in this process has been the strong partnership with the Turkish government [50], which supported both the construction of the Memorial Hospital and the development of governance, organizational, and managerial strategies. This collaboration helped to overcome significant challenges related to infrastructure development [10, 12], financial sustainability

[31, 39] and human resource availability [34, 37], introducing at the same time advanced organizational and managerial practices that contributed to achieving optimal performance levels [9, 13, 22, 48]. International partnerships established within this broader and cooperative framework appear as strategic opportunity for strengthening hospital systems in resource-constrained settings.

For countries in the Balkan area where reforms aimed at reinforcing hospital networks have already been initiated [28–30, 36], the Albanian experience highlights the importance of simultaneously investing in the integration of primary healthcare and hospital services within the same network to ensure genuinely integrated, equitable, and patient-centred care pathways. This is particularly relevant in contexts characterized by historical legacies of oversized hospital sectors alongside underdeveloped primary care and preventive services, which continue to pose structural challenges to health system efficiency and equity [4, 14, 15].

More broadly, these considerations are equally applicable to LMICs, where the development of integrated service delivery models remains a key priority for strengthening health system performance and resilience [26, 27].

Study's limitations and future developments

Despite the relevance of the findings, this study presents several limitations that should be acknowledged.

First, the analysis did not include an in-depth economic and financial assessment of regional Memorial hospital. The absence of detailed financial data limited the possibility of evaluating the efficiency, effectiveness, and overall financial sustainability of the hospital's organizational and managerial model. Consequently, results focused on structural and organizational aspects, without fully addressing their economic implications. Second, the study did not provide a comprehensive analysis of the entire regional hospital network. While the selected case offered valuable insights, the lack of a network-wide perspective may restrict the generalizability of the findings. A broader analysis encompassing all hospitals involved in the regional hospital network would allow for a more accurate assessment of coordination mechanisms, resource allocation, and performance variability across institutions. Third, the impact on national hospital network on the Albanian healthcare system was not fully explored. In particular, the effects on university hospitals in Tirana—both in terms of clinical activity and academic functions, such as the teaching and research ones—remained under-investigated. Understanding potential shifts in patient flows, human resources, and specialization patterns would allow to assess whether the network contributes to strengthening or potentially fragmenting the national healthcare system.

Future research should address these limitations by incorporating economic-financial analyses, including cost–benefit and cost-effectiveness evaluations, to provide a more comprehensive understanding of the financial sustainability of the model. Moreover, extending the analysis to the entire national hospital network would enable comparative assessments and support more robust conclusions. Finally, future studies should investigate the long-term systemic impact of this network on Albania's healthcare system, with particular attention to their interaction with university hospitals in Tirana, to evaluate their contribution to equity, efficiency, and overall health system performance.

Conclusions

The reform of organizational and managerial strategies of regional Memorial hospital in Fier as required by the Law No. 55/2022 “On Hospital Services in the Republic of Albania” positively impacted in term of performance improvement in Albanian healthcare system. By expanding specialized care to the southern regions of Gjirokastra, Vlora, and Fier, the Memorial hospital has played a pivotal role in decentralizing advanced medical services and increasing accessibility for patient across the country. This new hospital management ensured a more efficient and effective response to medium-to-high complex health needs beyond the university hospitals in Tirana.

Data on Memorial hospital's organization and activity in the period 2021–2024 revealed its higher volumes, stronger regional appeal, and a higher quality services. These achievements reflected efficient and effective resource management, operative monitoring, accounting, and reporting adopted by the Memorial hospital. The governance model implemented in Memorial hospital could be borrowed both by the other regional hospitals within the Albanian hospital network and university hospitals across the country due to their effectiveness. Additionally, the Memorial hospital success could serve as benchmark for regional and university hospitals across the country too.

Moreover, Albanian hospital network reform could serve as a model for other Balkan countries facing similar challenges related to the centralization of complex medical care in major cities, in equal access to healthcare services and no performative healthcare services.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12913-026-14224-8>.

Supplementary Material 1

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Author contributions

M.G.: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Resources, Software, Visualization, Writing - original draft; Writing - review & editing. R.D.: Data curation, Data curation, Resources, Visualization, Writing - original draft; Writing - review & editing; Supervision. N.P.: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Resources, Software, Visualization, Writing - original draft; Funding acquisition, Project administration, Validation; Supervision.

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Data availability

The original contributions presented in the study are included in the article, further inquiries can be directed to the corresponding author.

Declarations

Ethics approval and consent to participate

As an observational study focused on the organization and management of a healthcare institution, and falling within the domain of social sciences rather than biomedical research, did not require ethics committee approval in accordance with the Italian Ministerial Decree of January 30, 2023 on the "Definition of criteria for the composition and functions of local ethics committees," particularly Article 5 ("Functions"), which limits the responsibility of such committees exclusively to the field of clinical research—consistent with the Declaration of Helsinki (1964 and subsequent amendments) and the Oviedo Convention on Human Rights and Biomedicine (1997)—. Nevertheless, informed consent for data processing was obtained from the professionals directly involved in the research, in compliance with current European data protection regulations (Regulation (EU) 2016/679 – GDPR) and Italian legislation (Italian Legislative Decree No. 196/2003, "Personal Data Protection Code").

Consent for publication

Not applicable.

Generative AI disclosure

No Generative AI was used to create this manuscript.

Competing interests

The authors declare no competing interests.

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References

- Marmot M, Friel S, Bell R, Houweling TA, Taylor S. Closing the gap in a generation: health equity through action on the social determinants of health. *Lancet*. 2008;372(9650):1661–9.
- Nakahara S, Ichikawa M, Sakamoto T. Strengthening the Healthcare System in Low- and Middle-income Countries by Integrating Emergency Care Capacities. *JMA J*. 2019;2(2):123–30.
- OECD. Health at a glance 2025. OECD Publishing; 2025.
- Guagliardo MF. Spatial accessibility of primary care: concepts, methods and challenges. *Int J Health Geogr*. 2004;3(1):3.
- Atun R, de Jongh T, Secci F, Ohiri K, Adeyi O. Integration of targeted health interventions into health systems: a conceptual framework for analysis. *Health Policy Plan*. 2010;25(2):104–11.
- Peters DH, Garg A, Bloom G, Walker DG, Brieger WR, Hafizur Rahman M. Poverty and Access to Health Care in Developing Countries. *Ann N Y Acad Sci*. 2008;1136(1):161–71.
- Kruk ME, Gage AD, Arsenault C, Jordan K, Leslie HH, Roder-DeWan S, et al. High-quality health systems in the Sustainable Development Goals era: time for a revolution. *Lancet Glob Health*. 2018;6(11):e1196–252.
- Brown BB, Patel C, McInnes E, Mays N, Young J, Haines M. The effectiveness of clinical networks in improving quality of care and patient outcomes: a systematic review of quantitative and qualitative studies. *BMC Health Serv Res*. 2016;16(1):360.
- Ravaghi H, Afshari M, Isfahani P, Bélorgeot VD. A systematic review on hospital inefficiency in the Eastern Mediterranean Region: sources and solutions. *BMC Health Serv Res*. 2019;19(1):830.
- Ippoliti R, Falavigna G, Zanelli C, Bellini R, Numico G. Neural networks and hospital length of stay: an application to support healthcare management with national benchmarks and thresholds. *Cost Eff Resource Allocation*. 2021;19(1):67.
- Falavigna G, Costantino G, Furlan R, Quinn JV, Ungar A, Ippoliti R. Artificial neural networks and risk stratification in emergency departments. *Intern Emerg Med*. 2019;14(2):291–9.
- Przesmycka N, Strojny R, Życzynska A. Modernisation of hospital buildings built in the 20th century in the context of architectural, functional and operational problems. *Architectus*. 2023;2(74).
- Mascia D, Di Vincenzo F. Understanding hospital performance. *Health Care Manage Rev*. 2011;36(4):327–37.
- Di Vincenzo F. Exploring the networking behaviors of hospital organizations. *BMC Health Serv Res*. 2018;18(1):334.
- nder Schors W, Roos A, Kemp R, Varkevisser M. Reasons for merging and collaborating in healthcare: Marriage or living apart together? *Int J Health Plann Manage*. 2023;38(6):1721–42.
- Kalaris K, Wong G, English M. Understanding networks in low-and middle-income countries' health systems: A scoping review. *PLOS Global Public Health*. 2023;3(1):e0001387.
- Dubas-Jakóbczyk K, Albrecht T, Behmane D, Bryndova L, Dimova A, Džakula A, et al. Hospital reforms in 11 Central and Eastern European countries between 2008 and 2019: a comparative analysis. *Health Policy (New York)*. 2020;124(4):368–79.
- Beane A, Dondorp AM, Taqi A, Ahsan ASMA, Vijayaraghavan BKT, Permpikul C, et al. Establishing a critical care network in Asia to improve care for critically ill patients in low- and middle-income countries. *Crit Care*. 2020;24(1):608.
- Li J, Carayon P. Health Care 4.0: A vision for smart and connected health care. *IJSE Trans Healthc Syst Eng*. 2021;1–10.
- Zhou L, Ampon-Wireko S, Asante Antwi H, Xu X, Salman M, Antwi MO, et al. An empirical study on the determinants of health care expenses in emerging economies. *BMC Health Serv Res*. 2020;20(1):774.
- Elrod JK, Fortenberry JL. The hub-and-spoke organization design: an avenue for serving patients well. *BMC Health Serv Res*. 2017;17(51):457.
- Bravi F, Gibertoni D, Marcon A, Sicotte C, Minvielle E, Rucci P, et al. Hospital network performance: A survey of hospital stakeholders' perspectives. *Health Policy (New York)*. 2013;109(2):150–7.
- Mestre AM, Oliveira MD, Barbosa-Póvoa AP. Location-allocation approaches for hospital network planning under uncertainty. *Eur J Oper Res*. 2015;240(3):791–806.
- Wendt K, Hildebrand F. Networking between hospitals. *Eur J Trauma Emerg Surg*. 2025;51(1):151.
- Phelan H, Yates V, Lillie E. Challenges in healthcare delivery in low- and middle-income countries. *Anaesth Intensive Care Med*. 2022;23(8):501–4.
- Tvaliashvili M, Sulaberidze L, Goodman C, Hanson K, Gotsadze G. Exploring the risks of fragmentation in health care markets – An analysis of inpatient care in Georgia. *Soc Sci Med*. 2024;362:117428.
- Moresky RT, Razzak J, Reynolds T, Wallis LA, Wachira BW, Nyirenda M, et al. Advancing research on emergency care systems in low-income and middle-income countries: ensuring high-quality care delivery systems. *BMJ Glob Health*. 2019;4(Suppl 6):e001265.
- Vukosavljevic I, Vukosavljevic I, Milutinovic S, Krivokapic L, Cvetkovic-Jovanovic M, Ivanovic S. Analysis of the health care system in the Republic of Serbia: Cross-sectional study for the year 2021. *Med Pregl*. 2023;76(11–12):338–43.
- Vian T, Feeley FG, Domente S, Negruta A, Matei A, Habicht J. Barriers to universal health coverage in Republic of Moldova: a policy analysis of formal and informal out-of-pocket payments. *BMC Health Serv Res*. 2015;15(1):319.
- Dumitrache L, Nae M, Simion G, Talos AM. Modelling Potential Geographical Access of the Population to Public Hospitals and Quality Health Care in Romania. *Int J Environ Res Public Health*. 2020;17(22):8487.
- European Investment Bank. The EIB in the Western Balkans. [cited 2025 Dec 17]. Available from: <https://www.eib.org/en/projects/region/western-balkans>.
- Kamarajah S, Ademuyiwa AO, Atun R, Cieza A, Agyei F, Ghosh D, et al. Health systems strengthening through surgical and perioperative care pathways: a changing paradigm. *BMJ Glob Health*. 2024;9(Suppl 4):e015058.

33. Bamodu OA, Chung CC. Cancer care disparities: overcoming barriers to cancer control in low- and middle-income countries. *JCO Glob Oncol*. 2024;(10).
34. WHO Regional Office for Europe. Health workforce migration in the WHO European Region: country case studies from Albania, Armenia, Georgia, Ireland, Malta, Norway, Republic of Moldova, Romania and Tajikistan. [Internet]. Copenhagen; 2025 [cited 2025 Dec 17]. Available from: <https://storagehub.humana.com/cmsimage/allegati/allegato1758179528.pdf>
35. European Investment Bank. Health Overview. 2023. [Internet]. Luxembourg; 2023 [cited 2025 Mar 10]. Available from: https://www.eib.org/attachments/ucalli/20220314_health_overview_2023_en.pdf
36. European Commission. Growth Plan for the Western Balkans [Internet]. [cited 2025 Dec 17]. Available from: https://enlargement.ec.europa.eu/enlargement-policy/growth-plan-western-balkans_en
37. Boniol M, Kunjumen T, Nair TS, Siyam A, Campbell J, Diallo K. The global health workforce stock and distribution in 2020 and 2030: a threat to equity and 'universal' health coverage? *BMJ Glob Health*. 2022;7(6):e009316.
38. García-Pérez MA, Amaya C, Otero Á. Physicians' migration in Europe: an overview of the current situation. *BMC Health Serv Res*. 2007;7(1):201.
39. Čulafić S, Janovac T, Jovanović SV, Tadić J, Jaganjac J, Milošević A, et al. State Incentives and Sustainable Motivation System in the Health Sector. *Sustainability*. 2021;13(24):13592.
40. EU. Albania 2020 Report [Internet]. 2020 [cited 2023 Dec 8]. Available from: European Commission.
41. Ministria e Shëndetësisë dhe Mbrojtjes sociale. STRATEGJIA KOMBËTARE E SHËNDETËSISË SHQIPTARE 2016–2020. Tirana; 2016.
42. Ministria e Shëndetësisë dhe Mbrojtjes sociale. WHO regional office for E. STRATEGJIA KOMBËTARE E SHËNDETËSISË 2021–2030 NË SHQIPËRI. Tirana; 2021.
43. Persiani N, Romolini A, Galanti C, Caldés Pinilla MJ, De Luca M, Persiani N, Romolini A, Galanti C, Caldés Pinilla MJ, De Luca M. (2014). La riforma del sistema di finanziamento del Servizio Sanitario nazionale albanese. *Mecosan*. 2014;89(1):7–30.
44. Persiani N, Romolini A, Yzeiraj L, Dragusha E, Karma E. The Path for Introducing Diagnosis Related Groups (DRGs) in Albanian health care. In: *Economic and Financial Challenges for Balkan and Eastern European Countries* Springer Proceedings in Business and Economics. Springer, Cham; 2020. pp. 207–22.
45. Albanian Ministry for Health and Social Protection. STRATEGY ON THE DEVELOPMENT OF PRIMARY HEALTH CARE SERVICES IN ALBANIA [Internet]. 2020 [cited 2025 Jun 13]. Available from: <https://www.hap.org.al/wp-content/uploads/2021/12/PHC-Strategy-Nov2021-web.pdf>
46. Persiani N, Giusti M, Taiti F, Biancalani A, De Luca M, Caldés Pinilla MJ. Correction: The emergency medical services network's response to the COVID-19 pandemic in Albania. *Front Public Health*. 2025;13.
47. Giusti M, Vannini IE, Caldes MJ, De Luca M, Persiani N. The impact of COVID-19 pandemic on Albanian health emergency operation centre. *Eur J Public Health*. 2023;33(Suppl_2).
48. Lastrucci V, Romolini A, Giusti M, Persiani N. The impact of outsourcing operating theatre support services on hospital performances: the case of the largest university hospital of the Albania. *Economic Research-Ekonomska Istraživanja*. 2023;36(1):2199–214.
49. Albanian government. LIGJ Nr. 55/2022 PËR SHËRBIMIN SPITALOR NË REPUBLIKËN E SHQIPËRISË. Tirana; 2022.
50. Albanian government, VENDIM Nr. 58, datë 26.1.2022 PËR MIRATIMIN E PROTOKOLLIT NDËRMJET KËSHILLIT TË MINISTRAVE TË REPUBLIKËS SË SHQIPËRISË DHE QEVERISË SË REPUBLIKËS SË TURQISË, PËR FUNKSIONIMIN E PËRBASHKËT TË SPITALIT RAJONAL "MEMORIAL" NË FIER, GJATË FAZËS KALIMTARE. Tirana; 2022.
51. Stake R. Case study research. In Berlin: Springer; 1995. pp. 233–85.
52. Gerring J. What Is a Case Study and What Is It Good for? *Am Polit Sci Rev*. 2004;98(2):341–54.
53. Yin RK. In: Yin RK, editor. *Case study research and applications*. Thousand Oaks, California: Sage; 2018.
54. Flyvbjerg B. Five Misunderstandings About Case-Study Research. *Qualitative Inq*. 2006;12(2):219–45.
55. Miles MB, Huberman AM. *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, California: SAGE; 1994. pp. 1–354.
56. Bosque-Mercader L, Siciliani L. The association between bed occupancy rates and hospital quality in the English National Health Service. *Eur J Health Econ*. 2023;24(2):209–36.
57. UN Albania. WHO to support Albania's progress towards achieving hospital autonomy [Internet]. 2024 [cited 2025 Jun 13]. Available from: <https://albania.un.org/en/272906-who-support-albanias-progress-towards-achieving-hospital-autonomy>
58. Denzin NK, Lincoln YS. In: Denzin NK, Lincoln YS, editors. *The SAGE Handbook of Qualitative Research*. 4 ed. Thousand Oaks: SAGE; 2011. pp. 1–784.
59. Harrison GW, Shafer A, Mackay M. Modelling Variability in Hospital Bed Occupancy. *Health Care Manag Sci*. 2005;8(4):325–34.
60. Kaier K, Muters NT, Frank U. Bed occupancy rates and hospital-acquired infections—should beds be kept empty? *Clin Microbiol Infect*. 2012;18(10):941–5.
61. World Health Organization. Average length of stay, all hospitals. [cited 2026 Jan 23]. Average length of stay, all hospitals. Available from: https://gateway.who.int/en/indicators/hfa_540-6100-average-length-of-stay-all-hospitals/#id=19635

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