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POLICY BRIEF

Strengthening infrastructures and human capital in health system management

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STRENGTHENING INFRASTRUCTURES AND HUMAN CAPITAL IN HEALTH SYSTEM MANAGEMENT



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Introduction

The various forms of economic crisis of the last two decades, combined with a so-called permanent crisis (Heifetz, 2009) of the health care system (the financing mechanism is in complete and direct dependence on GDP, which raises sustainability issues in relation to the economic evolution) have led to a shortage in the recruitment of health service workers in Romania (Guga, 2022). The chronic underfunding of the health system (especially in the area of salaries) has led to a real exodus of medical staff from Romania to western EU countries and/or to USA (Spiridon Drăgodan, 2021)

In addition to the staffing crisis, there is also a 'spatial' problem: shortages of equipment (infrastructure, logistical equipment) and organizational shortcomings: (in)equitable distribution across the territory and within jurisdictions, management problems in the system, redundancy of some services, major shortages in remote areas, etc.

The COVID crisis has also highlighted the shortage of medical staff and, in particular, shortcomings in the capacity to respond and adapt to pandemic situations (inflexibility = vulnerability = non-resilience).

In the absence of major resources that could cover these deficits through (new) investments in human capital and infrastructure, on the short and medium term, the only way to act is through policy levers that can improve the overall indicators in "health delivery" by substantial units. To this end we propose a policy of organisational arrangements and endowments to optimise the use of the currently existing infrastructure and human capital in the health system.

We target the governance of the health system on several levels: one of jurisdictional and territorial organisation (by specialties and classes of service) to cover and serve a large number of patients, one of infrastructure and equipment endowment and one of valorisation/optimisation of the use of human capital.

Specifically, we are targeting three types of sub-policies:

- 1** A policy of inter-connection and fostering collaboration and sharing of infrastructures and human capital between jurisdictions (intra/inter-regional, intra/inter-local) Integration-network
- 2** A policy of training and development of human capital in order to activate a more economically productive and collaborative behaviour in the specialty and to design optimized patient management flows;
- 3** A policy of bridging the gap between the research sector (in medicine, epidemiology), the health services sector and the system administration sector.

Keywords: integration, network, sharing, optimising, infrastructure, human capital, ongoing training, bridging the gap

Problem Statement (Issues & questions)

Staff crisis (human capital)

The latest [Euromonitor Report](#) (2020) highlights an alarming figure: more than 40,000 Romanian-born and trained health professionals are currently working in developed countries such as Germany, France, Belgium and the UK.

The loss is twofold: for the system it means a shortage of staff. We have one of the lowest numbers of doctors in the EU, approx. 307 doctors per 100,000 inhabitants, compared to Germany, for example, which has 431 doctors per 100,000 ([Eurostat](#)) By specialty, the situation may be even worse. Among the specialties lacking in Romania are anaesthesiology, intensive care, epidemiology, paediatrics, laboratory medicine and microbiology. But the issue

of specialties is rather a geographical one. There are local hospitals that have completely uncovered specialties. On another level, there is a major financial loss, because the training and education for a doctor is very expensive, namely: the equivalent of about 16,000 euros per student for six years of university. Add to that, even higher expenses for the years of residency for those who do it here (here the discussion is more complex, because during residency they do paid work, so residents are productive in the system, but still there is a spending during the learning processes).

This loss has been likened in the media to a veritable exodus of white coats (Spiridon-Drăgodan, 2021). Currently, the shortage of doctors in Romania, according to the Romanian College of Physicians, is about 40%.

CAUSES

- Low salary level (even after the major increase operated in 2017-2018).

- Underfunding of the medical system (which results in poor services and poor endowment and the impossibility of career development).

In addition to low salaries, Romanian medical professionals complain about a lack of equipment and materials, or a lack of high-tech equipment, which prevents them from practicing at a similar level to doctors abroad. These shortcomings also make it very difficult for them to advance in their professional careers, or to have good relations with patients, including in matters of trust.

- General socio-economic conditions (educational facilities for children, level of material well-being, etc.). The general socio-economic climate is unfavourable to a lifestyle in line with doctors' incomes. Poor school education conditions, dangerous environments, poor nutrition, pollution, etc.

A particular phenomenon that arises from the accumulation of these causes is also the overwork of health professionals. They often work on several jobs -

sometimes in both, the public and private systems - which can lead to conflicts of interest in addition to overwork and lower productivity in general. So:

- On the one hand, the overload is necessary for the system to cover a wide range of services.
- On the other hand, it is unfair and discriminatory, by fostering forms of inequality.

One side of the problem was solved by the 2017-2018 pay reform when salaries in the system were doubled or even tripled. Although incomes have not reached the level for which the migration phenomenon occurred however, the intention of doctors to leave has halved in 2021 compared to 2016 (according to the Romanian College of Physicians), which means that the “bleeding” has been stopped.

There remains the problem of endowment and system organisation for an adequate professional climate and socio-economic situation which should be solved by policies.

Spatial crisis - insufficient facilities and uneven distribution of specialities in the territory (endowment)

For a very long time, the public health system has not benefited from major investments (e.g. large hospitals). Then, due to exodus and reforms that have led to the shrinkage or closure of hospitals in smaller towns, there are areas with a shortage of specialities and important facilities. Even if there are disciplines where there is sufficient manpower, the distribution of staff in the territory is sub-optimal.

For this reason, the system has developed unevenly, in a polarized manner, in the benefit of large centres that have capitalised on infrastructure and hinterland advantages (particularly old university centres).



But even in these centres, according to an earlier allocation pattern, hospitals are small, territorially dispersed, non-integrated and generally specialised only in various categories of disciplines. However, because of accreditation procedures requiring hospitals to cover a range of activities as wide as possible, each of these small centres has developed on its own and redundancies and inefficiencies have arisen. For example, duplicated equipment without serving an optimal beneficiary population, or competition on the same patients.

The result is an inefficient over-servicing and under-servicing of space. Overall, and post-pandemic assessed, infrastructure and human capital are in deficit. This, because institutional objectives do not always coincide with social objectives

Objectives

General

Until new investment objectives are achieved...

Filling infrastructure and disciplinary specialties deficits in medicine with a system of organization / management of medical staff, infrastructure and medical spaces (locations)

Specific

Network Integration of available services and infrastructures to optimise territorial coverage of services.

Establishing a correlation between population served (epidemiology) - equipment distribution (endowment) - availability of specialist medicine by specialty.

Ensure a better connection between services - medical education - research to improve services

Options

So defining the issue (which is more about the deficit), in theory, the most effective response would be a massive investment to cover the deficit.

But in practice, the lack of resources and the existence of 'external' conditions - including the time horizon - force us to look at alternatives outlined in terms of possible timeframes and durations

Reset

- new infrastructures, new equipment - new capacity major infrastructure, all integrated - total effectiveness - (but requires long term + unlimited resources).

Reform

- network integration and strategic reorganization - (short to medium term) (requires work, determination & resources).

Maintain

- keep current situation with incremental improvements (short and long term)

Analysis of options

At the current level of data it is impossible to make a cost-effectiveness analysis of the 3 options. Only a preliminary listing of assets and needs for policy and a possible strategic plan which can make useful a cost-effectiveness analysis on each proposed measure.

Regarding a radical reform - Reset - as is said: the execution in time would raise the issue of multi-annual budgeting (which in conditions of economic instability is not feasible). Also certified is the lack of sufficient resources for a project that would bring all the shortcomings of a system accumulated over years and decades of dysfunction.

Maintaining the present status quo is the simplest and least costly option, but in terms of effectiveness it tends towards 0. If the present situation is not functional, even incremental improvements would not have spectacular results.

Claim

In the current endowment situation, dependent on the historical course so far: small and medium hospitals which were built in an epidemiologically different era - as compared to the characteristics of the current population-, we consider the most effective and the most history/geography/social - friendly model is the reorganization of the service through a strategic architecture (strategic means flexible) (Botezat et al. 2013) that organizes the medical body/human capital around specialty centers functionally connected to each other through an integrated intranet that retrieves and stores medical information from primary care and produces specialty service dispatch within and between centers.

Spatially speaking, this means pooling infrastructure (equipment, medical devices, logistics) for an integrated and optimal service design.

From a territorial point of view, the preferred level is that of NUTS 2 regions, because at this level there is a university centre which has the capacity to aggregate at hinterland level the capacities of the centres in the region.

The proposed networks are not so much a physical (hard) infrastructure, but more a logical one (soft), bringing together several specialties currently found in disparate hospitals - to serve a complex spectrum of conditions subsumed under diagnostic classes (e.g. cardiovascular, oncology, diabetes and nutritional diseases). While on the surface, this multi-centre location creates a difficulty for patients in need of these specialties, in fact, it is just the opposite, it facilitates, through a complementary, networked approach, an optimised patient pathway in the absence of a hospital specifically configured on these disciplines.

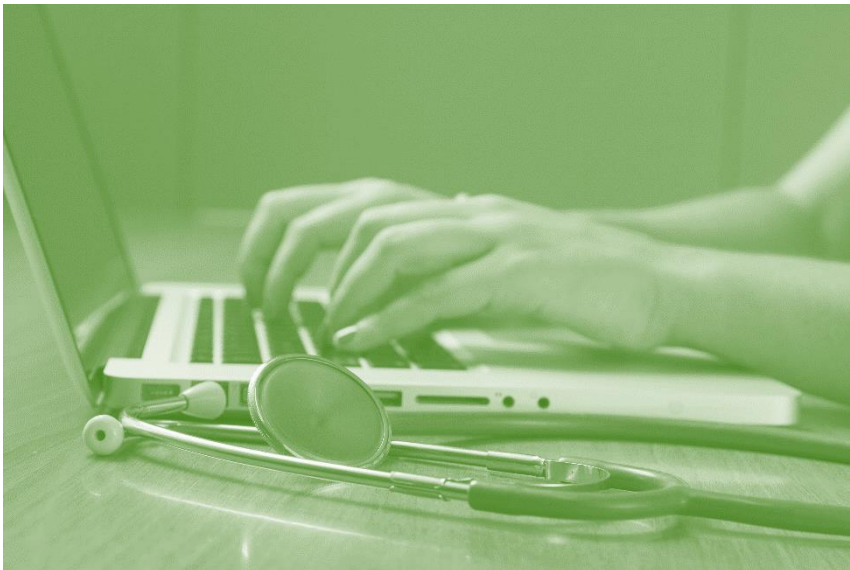
The present situation was anyway one of disparity. In fact, this kind of infrastructure is intended to be a successful substitute for the universal hospital - an integrated clinical response capacity, equivalent to a large-capacity hospital - taking advantage, in addition, of the capacity of several high-performing hospitals and the linkage to university centres.

From a technical point of view, this policy implies the negotiation of institutional arrangements to facilitate the pooling of infrastructures and the design of a use of staff to improve the functionality of services.

By joining several urban/rural/regional centres, this opportunity is extended to the whole area served (+ a more comprehensive and relevant clinical research base - patients from a fairly homogeneous epidemiological area) avoiding redundant projects and ideas, exchange of experience, development of the material base.

By interconnection with education and research area the Networks will ensure a faster translation of scientific results and novelties into the care system.

For an accommodation of human capital (health professionals) with this new history/geography/social - friendly system it is necessary to set up a continuous training and development programme (e.g.: sharing of infrastructures requires training, procedures and protocols for collaboration between institutions require training, etc.).



A very short PEST (analysis) filter will indicate also the external factors that may be involved in the feasibility of this proposal (Political, Economic, Socio-cultural - Behavioural and Technological) (Sammut-Bonnici and Galea, 2014)

Political Factors (governance elements)	Economic Factors
<ul style="list-style-type: none"> ▪ External: unstable context (war, pandemic, government crisis). ▪ Uncertainty-inducing condition, risks of economic destabilisation (e.g. energy) potential shocks and disruptions = NO major investment decisions recommended ▪ Local authorities in conflict with opposition (including on hospital management stake) ▪ Internal ▪ Authoritarian/stable/accepted management; ▪ Institutional turmoil. Professional rivalries by specialty and between hospitals ▪ Complicated internal consensus procedures 	<ul style="list-style-type: none"> ▪ Relations/ disputes with CAS and CJAS ▪ For construction and fitting out: shortage of labour on the market (risk of work delays). ▪ Very high energy prices ▪ Spectacular increase in prices of materials (risk of escalation) ▪ Financing difficulties due to bureaucratic problems (when settling services) ▪ Lack of resources at local authorities and political pressure to redirect funds ▪ Need to secure contracts by tendering with strong and reliable firms able to withstand market shocks ▪ GRANTS & EU Funding
Socio-Behavioural Factors	Technological factors
<ul style="list-style-type: none"> ▪ Congestion. increased waiting time for patients = patient pressure. Complaints, opening of disputes. ▪ -increase in the number of staff sicknesses due to increased staffing levels (overwork / excess sick leave for staff), generated by the massive departure of medical staff but also an increased morbidity fund post-pandemic; ▪ insufficient medical staff; ▪ lack of competence of doctors, professional ceiling, lack of skills and new specialisations; ▪ tensions between medical professionals ▪ public expectations for improved access to services 	<ul style="list-style-type: none"> ▪ Competition from private hospitals coming with more advanced technology in equipment. ▪ Opportunity to simplify some procedures through telemedicine which would reduce congestion and waiting times and replace infrastructure in remote areas. ▪ Some of the outdated equipment requires replacement which would produce better performance.

Executive

Reconfiguration of flows and spatial re-organisation of hospitals and other clinic places, according to identified functional patterns.

Circuits between hospitals/sections should be optimised according to the frequency of referrals (functional correlations/ co-morbidities) for better integration of services and reduction of waiting times, optimisation of energy consumption, consumables and available staff (including nurses and stretcher bearers, needed to transport patients).

Tasks

- 1 Mapping and design of existing flows and facilities and available space/spaces (asset mapping);
- 2 Agregate and list needs for change and/or (re)fitting out in communication with the wards;
- 3 Feasibility studies strategic plans and technical design (+ costs (alternatives to solutions) (Cost-effectiveness analysis);
- 4 Implementation.

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ABOUT

Jean Monnet Module on EU Interdisciplinary Studies:
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The reasons laying behind the project are related to the harsh economic challenges the EU is currently facing, the youth being mostly affected by very high unemployment rates. Thus, encouraging academic debates on how can young population acquire more competences and ease its labour market integration may be the key for reviving European economy (a more resilient EU).

All activities proposed in the project have an interdisciplinary and multidisciplinary character: the events are aimed at specialists in various EU issues (regional development, health, European funding opportunities, methodological aspects); the target audience consists of students, teachers, researchers, broad public – having different profiles and professional backgrounds; the topics of the events organised (seminars, workshops, round tables) cover many perspectives: economic, social, political, medicine, engineering etc.

[EURES](#) project is coordinated by Ramona Tiganasu, researcher at Centre for European Studies

[The Centre for European Studies \(CES\)](#) is an interdisciplinary department within the [Faculty of Law from Alexandru Ioan Cuza University of Iași](#), Romania and operates as a Jean Monnet Centre of Excellence in European Studies, from 2009.

CES's mission is to contribute to the development of the European dimension of education, to promote research and consultancy, information, documentation in the area of European studies and to, directly and indirectly, support the process of economic and social development in the North-East region of Romania.