



Physician migration in Romania: a study on the emigration preferences within the Cluj County healthcare system

Bogdan Stancu¹, Stefan Lucian Popa², Abdulrahman Ismaiel², Daria Claudia Turtoi³, Anca Monica Brata⁴, Traian Adrian Duse³, Cristina Pop⁵, Maria Barsan⁶, Alexandru Marius Padureanu³, Miruna Oana Dita³, Andrei Pop², Dinu Iuliu Dumitrascu⁷, Vlad Dumitru Brata³, Florin Vasile Mihaileanu¹, Razvan Alexandru Ciocan⁸, Claudia Diana Gherman⁸, Daniel Corneliu Leucuta⁹, Aida Puia¹⁰, Ion Cosmin Puia¹¹

1) Second Surgical Department, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

2) Second Medical Department, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

3) Faculty of Medicine, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

4) Department of Engineering of Food Products, Faculty of Environmental Protection, University of Oradea, Oradea, Romania

5) Department of Pharmacology, Physiology and Pathophysiology, Faculty of Pharmacy, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

6) Department of Occupational Medicine, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

7) Department of Anatomy, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

8) Department of Surgery-Practical Abilities, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

9) Medical Informatics and Biostatistics Department, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

10) Department of Community Medicine, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

11) 3rd Department of Surgery-Surgery, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

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Address for correspondence:

Stefan Lucian Popa
popa.stefan@umfcluj.ro

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Abstract

Introduction. Medical migration represents the movement of healthcare professionals from one country to another. The migration of Romanian doctors has evolved as a captivating and diverse phenomenon in the complex framework of global healthcare. As Romania struggles with its healthcare issues, many of its experienced medical personnel travel to foreign areas, lured by various factors ranging from economic concerns to the desire to gain clinical experience. The aim of this study is to elucidate the dynamics of this migratory phenomenon among physicians from Cluj County, Romania, between 2017 and 2022.

Methods. This retrospective study was performed between 2017 to 2022, and it was based on data from Cluj County Romanian College of Physicians, which included 571 specialist and consultant physicians from Cluj County who permanently migrated to other countries.

Results. Between 2017 and 2022, a total of 571 physicians permanently migrated from Cluj, Romania, to various other countries. Analysis of the gender distribution among these emigrants reveals a predominant female presence (58.1%) and a trend toward younger emigrating physicians, predominantly those under 30 years. In terms of professional specialties, Anesthesia and Intensive Care, as well as General Medicine/Family Medicine, are the most represented specialties, constituting 11% and 9.1% of the emigrating physicians, respectively. There was a declining trend from 2017 to 2021, followed by an upward trend in 2021.

Conclusions. Medical migration significantly impacts Romania's Cluj County healthcare, intensifying workforce shortages and possibly in the future compromising patient care. Failure to address this may perpetuate systemic vulnerabilities, hindering optimal healthcare provision and necessitating some reforms for resilience and sustainability.

Keywords: medical migration, healthcare system, healthcare professionals, strategies

Introduction

Medical migration represents the movement of healthcare professionals from one country to another [1]. The migration of Romanian doctors has evolved as a captivating and diverse phenomenon in the complex framework of global healthcare. As Romania struggles with its healthcare issues, many of its experienced medical personnel travel to foreign areas, lured by various factors ranging from economic concerns to the desire to enrich their clinical experience [2].

This movement results from a complex interaction of push and pull factors. Firstly, the economic differences that exist between Romania and Western European nations provide a powerful incentive for medical professionals to pursue possibilities overseas. Countries such as Germany, the United Kingdom, and France not only provide greater wages, but also better working conditions and access to cutting-edge medical technology [3]. This financial and professional appeal, along with a desire for a higher quality of life, serves as a driving factor pulling Romanian doctors outside the borders. On the other hand, systemic flaws within Romania's healthcare system drive medical experts to go beyond their native country for chances. Underfunding, overloaded healthcare facilities, and regulatory problems provide substantial barriers to professional progress and work satisfaction, prompting doctors to seek places where their abilities may thrive without the restraints they encounter at home [4]. Suciú et al. investigated this issue at its roots by surveying Romanian medical students on their desire to emigrate. According to the research, 84.7% of medical students wanted to practice medicine outside their home country [5].

In recent years, Romania has grappled with a pronounced phenomenon of medical migration, characterized by a substantial exodus of healthcare professionals seeking opportunities abroad. Since its accession to the European Union, Romania has experienced an accelerated pace of medical migration, a trend that has proven challenging to curb [5]. Central to this phenomenon are stark salary differentials between Romania and destination countries, which have emerged as primary drivers compelling physicians and other healthcare professionals to seek employment opportunities abroad. The temptation of higher remuneration, coupled with the perception of better working conditions and professional development prospects, has fueled an increasingly pervasive trend of medical migration among Romanian healthcare professionals [3-6]. Consequently, this migration exodus has engendered considerable strain on the Romanian healthcare system, exacerbating pre-existing workforce shortages and impeding efforts to ensure equitable access to healthcare services for the population [5]. Amidst these challenges, understanding the multifaceted dynamics underpinning medical migration in Romania is imperative for devising effective

policy interventions aimed at ameliorating workforce imbalances, enhancing retention strategies, and safeguarding the sustainability of the domestic healthcare workforce [3-6].

The qualified manpower leaving the country is leaving an indelible print on the healthcare system in Romania. The brain drain is a huge cause of concern as it deepens the shortages that exist now and creates rifts that are incalculable when it comes to professional profiles. These affect not only the quantity of available healthcare services but also the quality raising questions regarding the sustainability and the efficiency of the national healthcare system on a long-term basis [6].

While the migration of Romanian doctors causes difficulties in their native countries, it also symbolizes a transfer of skills and information [7]. Many Romanian physicians who work overseas bring significant experiences, new techniques, and a global perspective back with them. This cyclical movement can help Romania's healthcare system evolve and develop over time, as returning professionals become positive change agents. Aside from its impact on Romania, the movement of Romanian doctors benefits the global healthcare environment. It provides varied viewpoints, skills, and cultural competencies to the medical communities of target nations. The global movement of healthcare professionals promotes collaboration and the exchange of best practices, which benefits patients all around the world [8].

Paradoxically, Romanian medical schools have become more appealing to international medical students after the country's entrance to the EU in 2007, since they provide certificates with EU-wide recognition for comparatively inexpensive tuition and living costs. Currently, virtually all medical schools offer curricula in English and/or French, accounting for around 30% of total teaching capacity. Although Romania has grown increasingly appealing to international medical students, the country's health system is not appealing as a job, and most international medical graduates depart after receiving their first degree [9].

The aim of this study on physician migration from Cluj County, Romania, spanning the period between 2017 and 2022, is to elucidate the dynamics of this migratory phenomenon. Specifically, the study aims to analyze the specialties of the migrating physicians and to discern the destination countries they chose. By scrutinizing these facets, the research aims to provide insights into the factors influencing physician migration patterns, thereby facilitating a comprehensive understanding of healthcare workforce dynamics. Such insights hold profound implications for healthcare policy formulation and resource allocation, crucial for addressing workforce imbalances and ensuring the delivery of optimal healthcare services.

Methods

Study design and setting

The study utilized a retrospective observational design, drawing data from the Cluj County Romanian College of Physicians, during the period from 2017 to 2022.

Participants

The primary data source comprised anonymized records from the Cluj County Medical Association registry. Additionally, data on physician emigration were obtained, detailing departures from the country during the study period.

Variables

Collected data included information on physician demographics, such as age, gender, specialties, migration year, migration month, and migration country.

Research ethics

Ethical approval was obtained from the institutional review board, ensuring adherence to ethical standards in data collection and analysis.

Statistical analysis

Descriptive statistics were employed to summarize the demographic characteristics, specialties, and practice locations of the physicians. Categorical variables, such as gender and specialty, were described using frequencies and percentages, as well as column charts. For migration trend a line chart was used. To assess the relation between migration year and country of migration, a stacked column chart was used.

Results

The retrospective study was performed between 2017 to 2022 and 571 registered specialist and primary physicians from Cluj County who permanently migrated in other countries were included. Gender distribution, age demographics, physicians' specialty, emigration patterns on a monthly basis and the country preferences were analyzed.

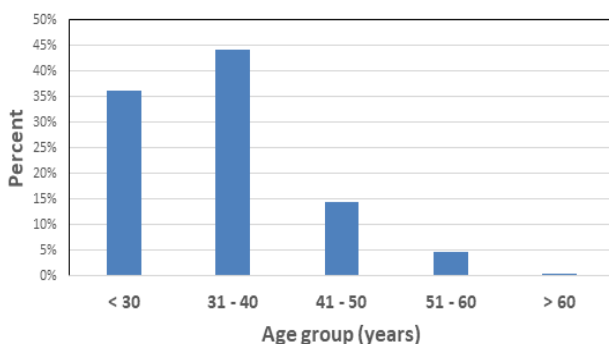


Figure 1. Distribution of emigrated physician by age group.

Between 2017 and 2022, a total of 571 specialist and primary physicians permanently migrated from Romania to various other countries. Analysis of the gender distribution among these emigrants reveals a predominant

female presence, with females constituting 58.1% (332 physicians) compared to 41.9% (239 physicians) of their male counterparts.

An examination of age demographics, as depicted in figure 1, indicates a trend toward younger emigrating physicians. Predominantly, those under 30 years of age and those in the 31-40 age bracket represent the largest segments, collectively comprising 80.4% of the total, accounting for 459 physicians.

Table I. Specialty distribution of emigrated physicians.

Specialty	Number	Percent
Anesthesia and Intensive Care	63	11.0
General Medicine/Family Medicine	52	9.1
General Surgery	37	6.5
Radiology	37	6.5
Ophthalmology	27	4.7
Internal Medicine	26	4.6
Cardiology	24	4.2
Psychiatry	24	4.2
Plastic Surgery	22	3.9
Orthopedics Traumatology	19	3.3
Labor Medicine	18	3.2
Obstetrics Gynecology	18	3.2
Dermatovenereology	17	3.0
Medical Oncology	14	2.5
Pediatric Psychiatry	14	2.5
Pathological Anatomy	14	2.5
Gastroenterology	13	2.3
ENT	13	2.3
Neurology	11	1.9
Urology	11	1.9
Pediatrics	9	1.6
Pneumology	9	1.6
Emergency Medicine	8	1.4
Nephrology	8	1.4
Diabetes and Nutrition	6	1.1
Cardiovascular Surgery	6	1.1
Rheumatology	5	0.9
Pediatric Surgery	5	0.9
Vascular Surgery	5	0.9
Neurosurgery	5	0.9
Laboratory Medicine	5	0.9
Neonatology	3	0.5
Radiotherapy	3	0.5
Medical Rehabilitation	3	0.5
BMF Surgery	3	0.5
Endocrinology	2	0.4
Hematology	2	0.4
Pediatric Nephrology	2	0.4
Allergists	1	0.2
Clinical Pharmacology	1	0.2
Geriatrics / Gerontology	1	0.2
Thoracic Surgery	1	0.2
Pediatric Orthopedics	1	0.2
Epidemiology	1	0.2
Forensic Medicine	1	0.2
Nuclear Medicine	1	0.2

Public Health

In terms of professional specialties, as detailed in table I, certain fields exhibit higher migration rates. Notably, Anesthesia and Intensive Care, as well as General Medicine/Family Medicine, are the most represented specialties, constituting 11% and 9.1% of the emigrating physicians respectively. Close behind are General Surgery and Radiology, each making up 6.5% of the total. The representation of other medical specialties falls below 5% each.

The temporal trend of physician emigration from 2017 to 2022 displayed a declining pattern initially, followed by a notable increase. Specifically, from 2017 through 2021, there was a consistent decrease in the number of physicians emigrating. However, in 2022, a reversal of this trend was observed, with emigration numbers escalating to levels comparable to those seen in 2018. This trend is clearly illustrated in figure 2.

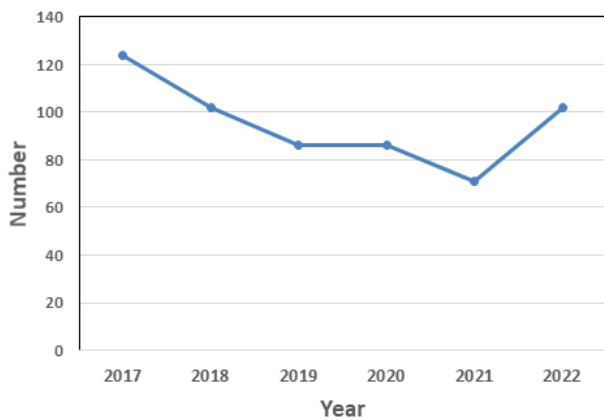


Figure 2. Temporal trends in physician emigration (2017-2022).

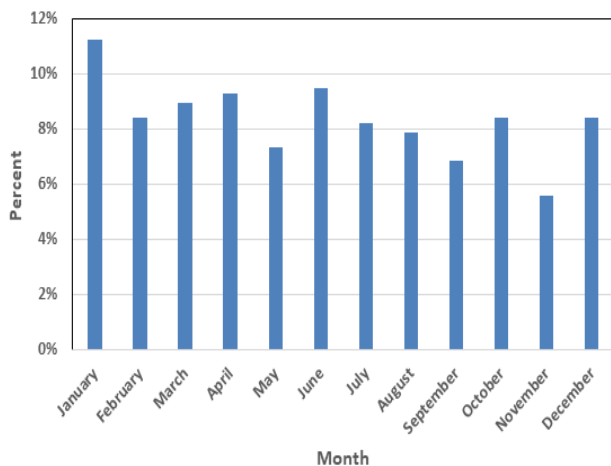


Figure 3. Monthly Distribution of Physician Emigration.

The analysis of emigration patterns on a monthly basis reveals a lack of significant seasonality, as depicted in figure 3. The distribution of emigration across most months is relatively uniform, with percentages ranging between 7% and 10%. However, it is noteworthy that January recorded the highest emigration percentage at 11.2%, while November witnessed the lowest at 5.6%.

In terms of temporal trends in country preferences, the data do not suggest a consistent pattern. For France, the years 2020 and 2021 saw the highest emigration rates, while 2019 and 2022 experienced the lowest, as depicted in figure 4. The United Kingdom's peak years were 2019 and 2020. Germany's attractiveness as a destination increased in 2019 and remained relatively stable thereafter. During the pandemic years of 2020 and 2021, Ireland saw a relative increase in incoming physicians, possibly at the expense of the United Kingdom.

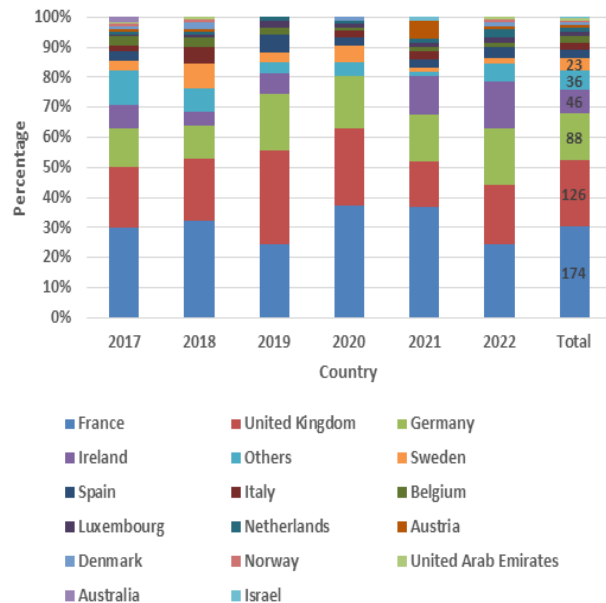


Figure 4. Distribution of emigration destinations for physicians.

Discussion

Permanent medical migration among Cluj County Romanian healthcare professionals represents a diverse phenomenon. Its extent warrants a comprehensive examination of the factors that influence the Cluj County Romanian medical professionals to seek employment abroad. Several factors can be identified as contributing to this decision such as improved economic prospects, improved working conditions and access to more advanced medical technologies in Western European countries such as Germany and the United Kingdom. In the past two decades, Romania has experienced a substantial emigration of

healthcare professionals, particularly since becoming part of the European Union. Studies indicate a notable increase, intensified in recent years, in the number of departing doctors. Particularly among younger doctors, despite recent income-increasing measures taken by the lawmakers, the possibility of deterring emigration through such measures appears limited. To address this issue, a coordinated effort which prioritizes modernization and understanding of the main driving factors of migration is required in order to have effective interventions [10].

Healthcare professional emigration is not limited to certain countries (e.g. Romania), but it is a global concern. This trend is caused worldwide by factors such as economic disparities and different working conditions. Therefore, addressing this shared challenge requires international collaboration in understanding and addressing systemic issues that may contribute to the migration of physicians.

Across diverse historical epochs, medical migration has been a pervading phenomenon, transcending temporal, and geographical borders. The ancient world, exemplified by the Silk Road, served as a conduit for the exchange of medical knowledge between East and West. In the Middle Ages, Islamic scholars played a pivotal role in disseminating medical wisdom, fostering a movement of expertise from the Arab world to Europe. Noteworthy is the migration of physicians from Greece to Rome during the Roman Empire, reflecting the historical continuity of such professional mobility. The Renaissance era witnessed the likes of Paracelsus and Vesalius contributing to the cross-fertilization of medical ideas. In the 19th and 20th centuries, geopolitical upheavals catalyzed waves of medical migration, exemplified by the migration of healthcare professionals from Eastern Europe to Western Europe. In recent decades, the globalization of healthcare has intensified the trend, with healthcare professionals relocating for better opportunities, professional growth, or an improved quality of life. This historical narrative underscores the enduring and global nature of medical migration, revealing a continuous thread woven into the fabric of human civilization over centuries.

Medical migration, driven primarily by economic factors, is a complex and multifaceted phenomenon deeply intertwined with the evolving landscape of global healthcare. One of the pivotal incentives behind the exodus of healthcare professionals lies in the substantial disparities in salaries and financial remuneration across countries. Many practitioners seek opportunities in high-income nations where compensation packages are more lucrative, reflecting the economic realities of the healthcare industry. Additionally, the allure of cutting-edge technological advances in well-developed healthcare systems acts as a magnetic force, attracting skilled medical professionals to nations where they can leverage state-of-the-art equipment and practices. The robust infrastructure and resources available in economically affluent countries play a pivotal

role, offering healthcare workers an environment conducive to professional growth and the delivery of superior patient care. Moreover, the prospect of improved living standards, comprehensive social services, and better quality of life further incentivizes medical migration. This economic calculus is heightened in the context of developing nations, where resource constraints, lower salaries, and inadequate infrastructure compel healthcare professionals to seek greener pastures. The globalization of healthcare has facilitated this migration, allowing practitioners to traverse borders in pursuit of enhanced economic opportunities, career advancement, and a higher standard of living. As the interconnectedness of the global economy persists, the economic motivations underpinning medical migration continue to shape the distribution of healthcare talent on an international scale.

Within the European Union, healthcare professionals who possess qualifications specified in the Directive's annexes and are currently registered with a regulatory body in an EU member state can pursue practice registration in any other member state through the automatic recognition procedures outlined in the Directive. This facilitates the process of migration without requiring additional tests or procedural formalities. However, it is important to note that professional registration, which represents the ability to practice their profession, does not absolve employers of their responsibility to verify that applicants possess the necessary skills and competencies for their intended roles [11].

Regarding migration, healthcare professionals may have various reasons for doing so. These may include better salaries, a more challenging work environment for those seeking to work in university hospitals, a better personal work-life balance, the ability to control one's schedule, and a higher ability to engage in non-work-related activities.

In a study conducted by Jakóbczyk et al. the general aim was to investigate the satisfaction level among physicians employed in this type of facility in Poland and to explore if those doctors were considering leaving the country for professional reasons. The study further intended to look into the potential measures at hospital level that could reduce the possibilities of those departures. The general career satisfaction among physicians was noted at 4.0 points on the six-point scale, with income having the lowest rating. It is also important to say that 34% of the surveyed participants expressed their intention to emigrate from Poland. Some of the main motivations behind this intention included the working conditions, improvement of the earnings and of the work-life balance and international oriented training [12].

In contrast, the physicians that choose not to migrate prefer to stay for personal reasons, even if they are not happy with their income. Many have thought about leaving, but those who decided to stay are usually influenced by personal factors, while those considering migration are

often motivated by financial concerns [13].

However, the same factors that have been found to encourage migration to a certain country seem to be the same ones that determine doctors to search for employment elsewhere. It is also important to note that even though the general factors that determine medical migration are universal, each doctor has her/his own personal mix of motives and there can be no universal solution to stopping migration [3].

Another side to medical migration is represented by countries like Ireland where periods of training abroad are seen as valuable, desirable, even as required work experience to obtain a good position. While some view medical migration as a positive experience that enhances their careers, some doctors may choose to stay in the destination countries rather than returning to Ireland. This shift challenges the traditional assumption that international training and experience will inevitably lead to doctors coming back to Ireland. The appeal of better working conditions, training opportunities, and career prospects abroad might influence some doctors to establish a permanent career in other countries rather than returning to their home country [14].

Besides the international migration, another problem that has to be addressed is the internal migration of physicians. Internal migration refers to the movement of doctors within a country, typically from one region or healthcare institution to another. This phenomenon has the potential to create an unfair distribution of healthcare professionals across national territories. Physicians mainly migrate from areas with suboptimal living or working conditions and restricted prospects for professional development. The appeal of specialized educational institutions and higher salaries plays a significant role in physicians' decisions to migrate. Furthermore, age appears to be a noteworthy factor, as younger physicians tend to be more inclined to move to different cities or even countries. This was also examined by Scheffer et al. which analyzed 275,801 physicians who graduated between 1980 and 2014, the study revealed that 57.3% had relocated, indicating their residence and/or professional practice in a state different from that of their medical school's location at the time of the study. Remarkably, 93.4% of physicians trained in cities with populations below 100,000 opted for migration [15].

Establishing a support network is important for immigrant success. Upon arrival in the desired country, leveraging acquired training, experience, social connections, language skills, and personal drive is essential for a new start. Professionals, especially in healthcare, often diversify their activities by engaging in research, writing, administration, teaching while also staying updated on the newest medical information and technologies [16].

The findings of this study hold significant implications for both research and practice in the realm of

healthcare workforce management. Firstly, the elucidation of physician migration patterns from Cluj County, Romania, sheds light on the determinants driving this phenomenon, thereby informing targeted interventions to mitigate workforce shortages and maldistribution. By identifying specialties with higher rates of emigration and destination countries favored by migrating physicians, healthcare policymakers can devise strategies to retain and incentivize practitioners in critical areas of need. Moreover, the study underscores the importance of international collaboration and information-sharing mechanisms to address global healthcare workforce challenges effectively. Practically, healthcare administrators and policymakers can utilize the insights gleaned from this research to implement evidence-based policies aimed at enhancing workforce retention, promoting equitable access to healthcare services, and bolstering healthcare system resilience. Furthermore, the study's methodology, sets a precedent for future research endeavors seeking to explore healthcare workforce dynamics in other regions or contexts. Continued monitoring of physician migration trends, coupled with targeted interventions informed by empirical evidence, is paramount for ensuring the sustainability and efficacy of healthcare systems worldwide. In conclusion, this study contributes valuable insights that have the potential to inform policy decision makers, improve healthcare delivery, and advance scholarly inquiry into the complex interplay of factors influencing physician migration patterns.

Conclusions

In conclusion, this study elucidates significant physician migration from Cluj County, Romania, over the period from 2017 to 2022. The migration pattern highlights a higher percentage of females; physicians below 40 years old; several more attractive specialties: anesthesia and intensive care, general medicine/family medicine, general surgery and radiology; a descending trend between 2017 and 2021, and an ascending trend in 2021. The substantial number of migrating physicians underscores the gravity of the issue, with adverse implications for healthcare system sustainability and patient care quality intensifying annually. These findings emphasize the urgent need for targeted interventions to mitigate physician emigration, address workforce imbalances, and safeguard the accessibility and quality of healthcare services in Cluj County and beyond.

References

1. Fraser A. Medical Migration. Source: *Journal of Medical Ethics*. 1977;3:179-182.
2. Apostu SA, Vasile V, Marin E, Bunduchi E. Factors Influencing Physicians Migration—A Case Study from Romania. *Mathematics*. 2022;10:505. Doi: 10.3390/math10030505

3. van de Pas R, Mans L, Koutsoumpa M. An exploratory review of investments by development actors in health workforce programmes and job creation. *Hum Resour Health*. 2023;21:54.
4. Petre I, Barna F, Gurgus D, Tomescu LC, Apostol A, Petre I, et al. Analysis of the Healthcare System in Romania: A Brief Review. *Healthcare (Basel)*. 2023;11:2069.
5. Suciú ŞM, Popescu CA, Ciumageanu MD, Buzoianu AD. Physician migration at its roots: a study on the emigration preferences and plans among medical students in Romania. *Human Resources for Health*. 2017;15:6.
6. Chen L, Evans T, Anand S, Boufford JI, Brown H, Chowdhury M, et al. Human resources for health: overcoming the crisis. *Lancet*. 2004;364:1984-1990.
7. Bhardwaj B, Sharma D. Migration of skilled professionals across the border: Brain drain or brain gain? *European Management Journal*. 2022;41:1021-1033.
8. Aluttis C, Bishaw T, Frank MW. The workforce for health in a globalized context--global shortages and international migration. *Glob Health Action*. 2014;7:23611.
9. OECD. Recent Trends in International Migration of Doctors, Nurses and Medical Students, OECD Publishing, Paris, 2019. Available from: <https://doi.org/10.1787/5571ef48-en>.
10. Georgescu M, Furtunescu F, Frumusachi O, Lopatica L, Minca D. What is known about emigration of the romanian doctors and what we should expect in the future. *Acta Medica Transilvanica*. 2020;25:1-3.
11. Ling K, Belcher P. Medical migration within Europe: opportunities and challenges. *Clin Med (Lond)*. 2014;14:630-632.
12. Dubas-Jakóbczyk K, Domagała A, Kiedik D, Peña-Sánchez JN. Exploring Satisfaction and Migration Intentions of Physicians in Three University Hospitals in Poland. *Int J Environ Res Public Health*. 2019;17:43.
13. Pinto da Costa M, Moreira C, Castro-de-Araujo LFS, Da Silva FM, Dos Santos RA. Migration of Junior Doctors: The Case of Psychiatric Trainees in Portugal. *Acta Med Port*. 2021;34:533-540.
14. Humphries N, Crowe S, McDermott C, McAleese S, Brugha R. The consequences of Ireland's culture of medical migration. *Hum Resour Health*. 2017;15:87.
15. Scheffer MC, Cassenote AJF, Guilloux AGA, Dal Poz MR. Internal migration of physicians who graduated in Brazil between 1980 and 2014. *Hum Resour Health*. 2018 Dec;16:21.
16. Zerpa O. Migration of physicians and keys to success. *Clin Dermatol*. 2020;38:523-528.