

TRANSFORMING THE BRAIN DRAIN INTO TRANSFER OF KNOWLEDGE AND TECHNOLOGY TO STRENGTHEN THE HEALTHCARE SYSTEM OF BOSNIA AND HERZEGOVINA

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Abstract. *In addition to the introduction (first part) and concluding remarks (last part), the article consists of three parts. In the second part, the authors elaborate on the complex political system that governs healthcare. The strengths and weaknesses of the Bosnian and Herzegovinian healthcare system are analyzed, with a focus on brain drain in medicine, in the next part of the article. In the fourth part, the authors illustrate the human capital crisis in the context of brain drain with a specific focus on how brain drain can be converted into the transfer of knowledge and technology. For this purpose, as an example of good practice, the authors used a case study analysis of the BHĀG E.V. Association. In the concluding remarks, the authors reflect on the research's limitations and emphasize how the process can be improved with the recommendations.*

Keywords: *healthcare, brain drain, transfer of knowledge, transfer of technology, investments.*

1. INTRODUCTION & METHODOLOGY

Bosnia and Herzegovina has a complex political and institutional structure that significantly shapes the organization and governance of its healthcare system. The General Framework Agreement for Peace in Bosnia and Herzegovina, in Annex 4 (Constitution), has created a multi-level governance system consisting of state, district, entity, cantonal, and local authorities. The complexity of the governance system shapes the models of collaboration between numerous ministries, agencies, public and private medical institutions, and health insurance funds. Considering this specific governing model, the authors emphasize the need to analyze the broader political and institutional environment in which the healthcare system operates.

In this article, the authors analyze the interconnection and interdependency between Bosnia and Herzegovina's political system and its healthcare governance, with particular emphasis on structural challenges in human capital management.

Following the previous direction, the authors analyze medical brain drain, which has become one of the most significant challenges to the sustainability and development of Bosnia and Herzegovina's healthcare system. Authors recognized the need to address

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the migration of medical professionals from the perspective of its long-term implications for the quality, accessibility, and stability of healthcare services in Bosnia and Herzegovina. However, based on the case study analysis, the authors recognized the potential and efforts of the medical diaspora in facilitating knowledge exchange, technology transfer, and professional cooperation with domestic healthcare institutions.

The article consists of three interconnected parts, along with the introduction and concluding remarks. In the second part, the authors elaborate on the complex political system that governs healthcare in Bosnia and Herzegovina. A systemic analysis of the country's political structure serves as a basis for a comprehensive understanding of the healthcare system presented in the third part of the article. In this section, the authors analyze the key strengths and weaknesses of Bosnia and Herzegovina's healthcare system, with a particular focus on the structural factors that have created an environment conducive to the brain drain of medical professionals. In the fourth part of the article, the authors reflect on the human capital crisis and the structural drivers of medical brain drain. In the selected case study, the authors demonstrate how brain drain can create an opportunity for knowledge and technology transfer. Concluding remarks reflect on the research's limitations and offer recommendations for future policy development and academic research.

The previously explained research employs a qualitative analytical approach that integrates institutional analysis, a literature review, and a case study methodology. The analysis is based on secondary data sources, including academic literature, policy documents, and international reports on healthcare systems and migration trends in the Western Balkans, with a specific focus on Bosnia and Herzegovina.

Authors have used a case study approach to analyze diaspora-driven cooperation initiatives that aim to strengthen the healthcare sector through knowledge transfer and professional collaboration. The chosen case study focuses on the activities of the Bosnian Herzegovinian Doctors Association in Germany (BHÄG). Research findings highlight how diaspora networks can facilitate clinical training, mentorship, and technological exchange between international medical centers and healthcare institutions in Bosnia and Herzegovina.

Authors have combined institutional analysis with empirical examples of diaspora engagement to provide a comprehensive understanding of both the structural challenges and the opportunities to strengthen the healthcare system through international professional cooperation.

2. POLITICAL SYSTEM OF BOSNIA AND HERZEGOVINA

Although this article focuses on the current political system of Bosnia and Herzegovina, it is important to note that the continuity of statehood is reflected in the evolution of the political system over time.

More precisely, “Bosnia and Herzegovina has a long historical continuity that can be traced from the tenth century to the present. It went through complex processes of crisis, occupation, and wars, but managed to survive and maintain its statehood. The last challenge to its survival was aggression in the period 1992 - 1995. In that political context, aggression was ended by the General Framework Agreement for Peace in Bosnia and Herzegovina” (Spahić, Čustović, 2024:28).

Evidently, the current political system of Bosnia and Herzegovina is based on the General Framework Agreement for Peace in Bosnia and Herzegovina (Dayton

Agreement)¹ and its Annex 4 (Constitution of Bosnia and Herzegovina). The Constitution has recognized statehood continuity² by reframing and reshaping state-level institutions and their jurisdiction³. Furthermore, the Constitution has defined the state's composition in terms of two entities.⁴ However, there was still a need to find a solution for the municipality of Brčko.

“The Dayton Constitution did not define the inter-Entity Boundary Line in the Brčko area (Annex 2, Article V). All parties agreed to use the Arbitral Tribunal that issued the Final Award and Annex in 1999, establishing the Brčko District of Bosnia and Herzegovina (Office of the High Representative, 2015). The Decision on the Brčko District of B&H was published in 2000. With this Decision, internal structural modification of the state was finished, and due to this process, a complex political system of Bosnia and Herzegovina emerged” (Spahić, Čustović, 2024:28).

Based on the Constitutions (state and entities) and the Decision on the Brčko District of Bosnia and Herzegovina (2000), the state has the following levels of governance: state-level, entity-level, and Brčko District institutions. At the entity level, the structure differs. One entity is more centralized (Republika Srpska), while the other, the Federation of Bosnia and Herzegovina, is more decentralized, including ten cantons. Each canton has its own government and, in the context of this research, its own healthcare system. Both entities have a local level, comprising cities and municipalities that also play a role in implementing health care policies.

3. CHALLENGES AND LIMITATIONS IN GOVERNING HEALTHCARE OF BOSNIA AND HERZEGOVINA

After briefly elaborating on the complex political system⁵ in the next section, we will examine how this complexity is reflected in health care governance.

¹ UN Peacemaker (1995), General Framework Agreement for Peace in Bosnia and Herzegovina (Dayton Agreement), Link: <https://peacemaker.un.org/sites/default/files/document/files/2024/05/ba951121daytonagreement.pdf> accessed 21.01.2026.

² “Continuation. The Republic of Bosnia and Herzegovina, the official name of which shall henceforth be “Bosnia and Herzegovina,” shall continue its legal existence under international law as a state, with its internal structure modified as provided herein and with its present internationally recognized borders. It shall remain a Member State of the United Nations and may as Bosnia and Herzegovina maintain or apply for membership in organizations within the United Nations system and other international organizations” Ibid. Annex 4. Article 1. Paragraph 1.

³ Responsibilities of the Institutions of Bosnia and Herzegovina. The following matters are the responsibility of the institutions of Bosnia and Herzegovina: a. Foreign policy. b. Foreign trade policy. c. Customs policy. d. Monetary policy as provided in Article VII. e. Finances of the institutions and for the international obligations of Bosnia and Herzegovina. f. Immigration, refugee, and asylum policy and regulation. g. International and inter-Entity criminal law enforcement, including relations with Interpol. h. Establishment and operation of common and international communications facilities. i. Regulation of inter-Entity transportation. j. Air traffic control.” Ibid. Annex 4. Article 3. Paragraph 1.

⁴ “Composition. Bosnia and Herzegovina shall consist of the two Entities, the Federation of Bosnia and Herzegovina and the Republika Srpska (hereinafter “the Entities”).” Ibid. Annex 4. Article 1. Paragraph 3.

⁵ For more information on the political system of Bosnia and Herzegovina, see Banović, D., Gavrić, S., & Mariño, M. B. (2021). *The political system of Bosnia and Herzegovina*. Cham: Springer International Publishing.

The Constitution itself does not address healthcare governance beyond establishing that it will be organized through entity-level institutions⁶.

Bosnia and Herzegovina's governance of the health care system follows the logic of the political system. In effect, there are 14 ministries of health and 13 health insurance funds. Local levels of governance (municipalities and cities) in both entities have certain responsibilities in the field of public health (primary healthcare and the implementation of preventive health programs). In addition to governmental institutions, healthcare systems include hospitals, health centers, and specialized institutions.

Governance is based on the regulatory framework⁷ that reflects the previously explained complexity. The health care system at the state level is governed by the Ministry of Civil Affairs⁸, which has a coordinating role among the entities' ministries, cantonal ministries, and the Department of Health and Other Services under the Government of the Brčko District of BiH.

The health care subsystem of the entity Republika Srpska is more centralized and comprises the Ministry of Health and Social Protection, the Health Insurance Fund, the Agency for Certification, Accreditation, and Health Care Quality Improvement of the Republic of Srpska, and the Public Health Institute of Republika Srpska.

However, the Federation of Bosnia and Herzegovina's healthcare subsystem is decentralized. At the entity level, there are the Federal Ministry of Health, the Health Insurance and Reinsurance Institute of the Federation of BiH, and 10 cantonal ministries

⁶ “Law and Responsibilities of the Entities and the Institutions.

a. All governmental functions and powers not expressly assigned in this Constitution to the institutions of Bosnia and Herzegovina shall be those of the Entities.” (UN Peacemaker, 1995), Annex 4. Article 3. Paragraph 3. a”.

⁷ For more information, see Federal Ministry of Health (2025). List of legal documents and bylaws in the field of healthcare. Link: https://fmoh.gov.ba/uploads/files/LISTA_PROPISA_-_za_WEB_-_azurirana_20072023.pdf (accessed 21.01.2026); The Ministry of Health and Social Welfare of the Republic of Srpska (2019a). Health Care Laws. Link: https://vladars.rs/sr-SP-Cyrl/Vlada/Ministarstva/MZSZ/dokumenti/Pages/Zdravstvena_zastita.aspx (accessed 21.01.2026); The Ministry of Health and Social Welfare of the Republic of Srpska (2019b). Public Health Laws. Link: https://vladars.rs/sr-SP-Cyrl/Vlada/Ministarstva/MZSZ/dokumenti/Pages/Javno_zdravstvo.aspx (accessed 21.01.2026); The Ministry of Health and Social Welfare of the Republic of Srpska (2019c). Policies, laws and by-laws. Link: <https://vladars.rs/sr-SP-Cyrl/Vlada/Ministarstva/MZSZ/farmacija/lijekovi/zakoni/Pages/default.aspx> (accessed 21.01.2026); The Ministry of Health and Social Welfare of the Republic of Srpska (2019d). Laws and by-laws. Link: <https://vladars.rs/sr-SP-Cyrl/Vlada/Ministarstva/MZSZ/farmacija/hemikalije/zakoni/Pages/default.aspx> (accessed 21.01.2026); The Ministry of Health and Social Welfare of the Republic of Srpska (2019e). Health insurance. Link: <https://vladars.rs/sr-SP-Cyrl/Vlada/Ministarstva/MZSZ/dokumenti/Pages/zdravzastita.aspx> (accessed 21.01.2026); Health Insurance Fund of Brčko District (2006-2026). Laws. Link: <http://fzobrcko.ba/zakoni> (accessed 21.01.2026).

⁸ “The Ministry of Civil Affairs coordinates activities in the field of health at the level of Bosnia and Herzegovina, and the activities are carried out through the activities of the Health Sector. The Department for Health in the Ministry of Civil Affairs of Bosnia and Herzegovina has a role in the coordination of health policies at the state level. The activities are aimed at harmonizing the plans of entity authorities, defining strategies on the international level, and ensuring efficient data exchange and cooperation with domestic and international institutions.” The Ministry of Civil Affairs of Bosnia and Herzegovina (2026). *About the healthcare sector*. Link: <https://mcp.gov.ba/en/about-healthcare-sector> (accessed 21.01.2026).

of health and 10 cantonal health insurance institutes. On the federal level, there is an Institute for Public Health FB&H.

The healthcare subsystem in the Brčko district is governed by the Department of Health and Other Services and the Health Insurance Fund of Brčko District. Like entities, health care can be provided by organizations founded with government or private capital.

After we elaborate on the complex health care system of Bosnia and Herzegovina, we will address its strengths and weaknesses in the next segment. For this purpose, we will analyze the Health Systems in Action series published by the World Health Organization in 2025⁹.

In the context of this article, the focus is on institutional, organizational, financial, and human capital aspects that are sorted into strengths and weaknesses:

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Some health care providers have increased transparency and targeted corruption. • There have been efforts to strengthen primary health care through a robust family medicine model. • Health reforms aim to improve prevention and digitalization • Accessibility of health services has improved, but some gaps remain • Improvements in perinatal and neonatal care have led to significant reductions in maternal and infant mortality • The rates of physicians and nurses are increasing 	<ul style="list-style-type: none"> • Bosnia and Herzegovina has a complex and fragmented health system • While benefits packages are relatively comprehensive, coverage is not universal • Resource pooling is mainly at the cantonal level in the Federation of Bosnia and Herzegovina, with limited redistribution across health insurance funds • Despite strengthening primary health care, health service provision remains hospital-centered • Health spending per capita is higher than in countries with similar income levels • The strong reliance on employment- related contributions raises concerns about financial sustainability • Rates of doctors and nurses are comparatively low • The ageing of health workers is a concern • Many young health professionals leave Bosnia and Herzegovina
<p>Graphical presentation made by authors based on the publication Litvinova Y, Rebac B, Cooreman E, Rechel B (2025). Health Systems in Action (HSiA) Insights – Bosnia and Herzegovina, 2024. Copenhagen: European Observatory on Health Systems and Policies, WHO Regional Office for Europe. Licence: CC BY-NC-SA 3.0 IGO.</p>	

⁹ “The Health Systems in Action Insights series supports Member States in the WHO European Region that are not in the European Union. The Insights for each country are intended to: provide core information and data on health systems succinctly and accessibly; outline the country health system context in which WHO’s European Programme of Work is set; flag key concerns, progress and challenges the health system by health system and build a baseline for comparisons, so that Member States can see how their health systems develop over time and in relation to other countries. The series is co-produced by the WHO Regional Office for Europe and the European Observatory on Health Systems and Policies. It draws on the knowledge and understanding of the WHO Country Offices and of the Division of Country Health Policies and Systems (CPS), the Barcelona Office for Health Systems Financing, and other WHO/Europe technical programmes; as well as the Health Systems in Transition series and the work of the European Observatory on Health Systems and Policies.” (Litvinova et al., 2025:4).

Considering earlier findings and detected weaknesses in the healthcare system in Bosnia and Herzegovina, we can see that the lack of governance of human capital, in general, and in health care in particular, has become a long-term challenge that needs to be addressed. The management of the comprehensive flow of human resources in healthcare is fragmented and disjointed. It seems that normal generational change is threatened by the inadequate process for introducing new, educated medical professionals into the healthcare system.¹⁰

The demand for this staff on the labor market is growing rapidly, which increases the pressure to integrate these young people systematically and continuously, starting in their student days. Unfortunately, the authorities are aware of these challenges, but their approach to overcoming them is fragmented. Poor general socio-economic conditions, corruption and nepotism, and the continuous threat of wars and conflicts, as general drivers of migration, are often combined with difficult working conditions and inadequate pay in the healthcare sector.

A comprehensive approach is needed to solve this problem across all stages, causes, current processes, and consequences. Unfortunately, we are mainly concerned with a list of causes and an analysis of consequences. There is a lack of systemic and strategic commitment to managing brain drain and its conversion into brain gain.

4. HUMAN CAPITAL CRISIS AND STRUCTURAL DRIVERS OF MEDICAL BRAIN DRAIN

In addition to the structural weaknesses described above, Bosnia and Herzegovina faces a profound human capital crisis in the healthcare sector. The basis of any decision-making process on the development and improvement of the system is quantitative and qualitative indicators of the situation. In the context of available statistics, in addition to the previously mentioned institutes whose data are used by the entity and state statistical agencies, there are also data from healthcare professional associations. The challenge is to functionally connect these data at the state level to provide a holistic picture of the state of healthcare human resources.

We need additional data on the number and qualification structure of employees, with a specific focus on the field of specialization. Detailed information is also needed on their geographical distribution within the system, their age status, and education processes in the context of lifelong learning. All of this data, along with the data already

¹⁰ In both entities, public health institutes collect statistics on the number of beds, the number of patients, and human resources in healthcare. What distinguishes them is the structure of the data they collect, beyond standard statistical reporting. The Institute of Statistics of the Republika Srpska publishes a publication called Health Statistics that does not include information on the age of employees in the healthcare sector. On the other hand, the Institute of Public Health of the Federation of Bosnia and Herzegovina collects data on employees' age and specialization by canton and at the entity level. Given this, it is evident that the Federation of Bosnia and Herzegovina can manage the outflow of employees more adequately. However, this process is unfortunately not holistic. For more information, see: Institute for Public Health FB&H (2025). Health Statistical Yearbook of the Federation of Bosnia and Herzegovina (2024). Link: https://www.zzjzfbih.ba/wp-content/uploads/2025/09/Godisnjak_ZZJZ_2024.pdf pp. 70. (accessed on 12.03.2026) and Republic of Srpska Institute of Statistics (2024). Health statistics. Link: https://www.rzs.rs.ba/static/uploads/saopstenja/zdravstvo/godisnja_saopstenja/2024/ZdravstvenaStatistika_2024.pdf (accessed on 12.03.2026).

collected on the number of beds and disease types, can contribute to better planning and management of the system.

Also, information is missing on the equipment and available technologies in healthcare institutions in both the public and private sectors. A comprehensive collection of this data, even when it is not part of standard reporting, is necessary in order to improve the healthcare system for both healthcare workers and service users.

Inadequate detection and elimination of systemic problems, due to insufficient and holistic indicators, combined with the previously mentioned socio-economic and political challenges, create fertile ground for brain drain. When collecting data on brain drain in this field, we face the challenge of finding reliable sources. There are no official statistics on the composition of health sector employees who have left the country, nor on the countries of reception. Apart from fragmented information and estimates from medical associations of entities, media reports, and data from the Labour and Employment Agency of Bosnia and Herzegovina, we do not have a holistic overview of the actual level of losses.

Effectively, the range of human capital losses among healthcare professionals cannot be estimated with this lack of reliable information. However, based on the available data, higher salaries, better working conditions, and opportunities for development and advancement are strong motivators for younger generations.

On the other hand, the age structure of the medical staff, along with the lack of new hires, seriously threatens to destabilize the health system and force the authorities to create hybrid solutions to address the shortage of specialists. The real danger lies in neglecting the need to collect the data required to create a realistic plan for the maintenance and development of Bosnia and Herzegovina's health system.

In addition to employment in public health institutions, medical personnel can also work in the growing private sector, funded by domestic and foreign capital, which presents its own challenges. Bosnia and Herzegovina currently has approximately 1,000 private medical practices and more than 300 private pharmacies, with private providers increasingly offering diagnostic and specialized services.

The development of private health services has some positive aspects, such as fostering innovation and competition. However, the rapid growth of this sector, coupled with existing public health challenges, poses a risk to the public health system. These risks can be reduced with better governance coordination.

The previously mentioned lack of reliable data, combined with insufficient coordination between the public and private healthcare sectors, presents a challenge. Data reporting is an obligation for both public and private healthcare institutions, but compliance with this requirement is often inconsistent. This inconsistency creates gaps in healthcare data.

When it comes to secondary and higher education for medical personnel, it is primarily delivered by public institutions, but private institutions have recently entered this segment. Experiences with the development of private education in other areas can serve as a warning that the standards of medical personnel education must be monitored and controlled.

Bosnia and Herzegovina, with all previously mentioned limitations, still has considerable medical expertise and institutional capacity. University hospitals in Sarajevo, Tuzla, Mostar, and Banja Luka, along with several cantonal and regional hospitals, can offer a wide range of services.

However, many of these institutions face difficulties due to outdated equipment, limited financial resources, and growing debt burdens.

In this context, the growing medical diaspora of Bosnia and Herzegovina represents both a consequence of the brain drain and a potential strategic resource. Large communities of Bosnian doctors now work in Germany, Austria, Switzerland, the United States, Canada, Scandinavia, and Australia.

Based on estimates, we have around 1,000 Bosnian-origin physicians in Germany alone. Currently, they are practicing in hospitals and academic medical centers. Most of them maintain strong professional and emotional ties to their country of origin. Furthermore, they express interest in supporting its healthcare development through training programs, mentorship, research collaboration, and technology transfer.

Evidently, in addition to addressing healthcare system challenges in the country, governments at all levels, within their respective jurisdictions, need to create institutional mechanisms to transform migration into brain circulation. These mechanisms would enable the transfer of knowledge, technology, and clinical expertise from the diaspora to domestic healthcare institutions. Such mechanisms are explored in the following section through the example of diaspora-driven cooperation initiatives.

4.1. Literature Review of Migration and Brain Drain in the Field of Medicine

A broader literature review shows that research worldwide addresses brain drain and migration in general. However, for the purpose of this article, and without any intent to diminish the contributions of researchers worldwide, we will focus on research related to the region.

Most of the available research focused on migration and brain drain from the Western Balkan region emphasizes economic, social, and political motivations of migrations (Çali, 2024; Jusufi & Ukaj, 2020; Kupiszewski et al., 2009; Lulle, 2020; Malaj & Malaj, 2017; Taravari et al., 2025). Furthermore, challenges of brain drain in the region as a specific form of migration have been addressed in several studies (Icoski, 2022; Jansen et al., 2024; Kacani et al., 2025; Ströhm, 2023; Radonjić & Bobić, 2021), coming from a more general scope of the phenomena rather than focusing on one group of highly skilled and educated professionals, like medical professionals.

Although we have limited research on regional and national brain drain in the medical field (doctors, nurses, midwives, dentists, pharmacists), there has recently been increased interest in this topic within the academic community. Most of the regional and national research on brain drain in this field emphasizes the need to identify motives and consequences (Blagojević et al., 2023; Gëdeshi et al., 2024; Lazarevik et al., 2016; Sudžuka & Pašić, 2025; Qehaja et al., 2025), patterns of mobility (Mara, 2023), and the drivers and prediction of further migration (Jurić, 2021).

Furthermore, there is an obvious necessity to address the needs and concerns not just of medical professionals but also of students, as they are the future of the health care system. Exposure to international mobility, internships, and other educational and professional opportunities significantly shapes the expectations of younger generations in the region. The need to address these specificities has been recognized in research in Albania (Prifti et al., 2025) and Croatia (Bojanić et al., 2015).

While some authors focus on identifying the motivations, patterns, and consequences of brain drain among medical professionals, others seek to determine how

receiving countries can support countries losing medical professionals (Schmitz-Pranghe et al., 2020) through intergovernmental cooperation.

Considering the earlier observation, we can see that, in the regional context, research into the brain drain of medical professionals is gaining importance. Effectively, we are gradually seeing more studies that, in addition to the regional context, focus on national challenges.

In the context of Bosnia and Herzegovina, the most recent research shows that “a significant number of healthcare workers are contemplating leaving due to dissatisfaction with political instability, corruption, and poor socio-economic conditions” (Jahić et al. 2024: 21). Furthermore, these motivations are not related only to medical professionals but to students in this field as well. The same research shows the following: “while a minority hopes to stay and make a future in the country, others plan to emigrate soon after completing their education or specialization, often viewing this move as permanent” (Jahić et al. 2024: 21).

Considering this brief overview of regional research on brain drain and migration, as well as the more specific issue of medical professional brain drain, it has become clear that we have significant research gaps. Obviously, it needs to be addressed by the government and the academic community in joint efforts to fund more research on these issues, which have lasting effects on society. Although governmental funding for this type of research can be politically provocative and challenging because it reveals system failures, it remains necessary.

4.2. Transforming the Brain Drain into Transfer of Knowledge and Technology: A Case Study BHÄG E.V. Association

Transforming brain drain into the transfer of technology, knowledge, and know-how is analyzed using the example of BHÄG (Bosnisch-Herzegowinische Ärztgesellschaft in Deutschland E.V. - Bosnian Herzegovinian Doctors in Germany e.V.

Although BHÄG primarily brings together physicians of Bosnian and Herzegovinian origin working in Germany, the Association also maintains an open and inclusive regional orientation. Its membership includes medical professionals from neighboring regions with close historical and professional ties to Bosnia and Herzegovina. Furthermore, the Association promotes dialogue and cooperation with professional medical societies in Serbia, Croatia, and other Western Balkan countries, recognizing that many healthcare challenges are shared across the region. Through conferences, workshops, and joint initiatives, BHÄG seeks to foster a climate of professional cooperation, open scientific discussion, and regional collaboration.

This Association, based on data available on its website, is a Germany-based association that networks physicians of Bosnian-Herzegovinian origin, organizes scientific congresses and workshops, and builds links of cooperation with medical institutions and professional bodies in BiH (BHÄG, 2026). It explicitly positions itself as a bridge for knowledge exchange, professional development, and joint projects between doctors in Germany (and the wider diaspora) and Bosnia & Herzegovina. The transfer of knowledge and technology is organized into several activities, as shown in the graphic below.

Congress & workshop platform for knowledge transfer	Formal cooperation agreements with Bosnian institutions/academies	Targeted clinical projects (example: neurosurgery / spinal procedures)
<p>The Association organizes scientific congresses (e.g., the 2nd Congress in Berlin, June 14, 2025) that bring together clinicians from Germany, BiH, and other countries for lectures, workshops, and networking. These events create the institutional space to plan training fellowships, mentor partnerships, and clinical projects.</p>	<p>The Association has reportedly signed cooperation agreements with Bosnian scientific/medical organizations (e.g., BHAAAS) for exchanges, internships, and clinical mentoring. These agreements explicitly mention strengthening departments in BiH through mentoring and training in German clinics.</p>	<p>Announced joint projects include mentorship and training to develop modern spinal procedures at the Neurosurgery Department of the University Clinical Center Sarajevo (KBC Sarajevo), as well as measures to improve the functioning of operating theatres — activities that normally require both hands-on training and equipment/OR upgrades.</p>
<p>Transfer of knowledge and technology In Bosnia and Herzegovina</p>		
<p>The Association leverages Bosnian-origin clinicians working in high-end centers (Germany, USA, other EU countries) to mentor younger colleagues, develop training curricula, and organize internships/fellowships at foreign clinics. This targeted training pipeline directs skill transfer to public hospitals when combined with return visits, tele-mentoring, or in-country workshops.</p>	<p>By connecting stakeholders (clinicians, embassy, professional bodies, sponsors), BHÄG creates channels through which equipment donations, joint grant proposals, or industry partnerships can be mobilized — evidenced by sponsorships and multi-partner event organization on their site.</p> <p>BHÄG mobilizes highly skilled clinicians abroad who can deliver up-to-date training, mentoring, and curriculum support without the high fixed costs of establishing new domestic training centers. This is a high-leverage, low-overhead model for targeted upskilling.</p> <p>Projects already announced (neurosurgery/spinal procedures, operating theatre functioning) focus on specialties where a relatively small set of training + equipment upgrades can substantially raise local capacity and outcomes.</p>	
<p>Diaspora mentoring & clinical placements</p>	<p>Networking that enables donations/project partnerships</p>	
<p>Graphical presentation prepared by authors based on data available on the Association's official web page (BHÄG, 2026).</p>		

Based on the activities presented by BHÄG, a relatively young Association (founded in 2024), we can conclude that they have achieved important results in connecting intended stakeholders. Furthermore, their efforts to acquire funding for further development of these activities are based on public budgets, donor grants, and industry partners. Evidently, funding needs to be scaled to match planned activities and to produce the desired outcomes.

The transfer of technology through the donation and procurement of equipment is an initial step needed to support the advancement of the Bosna and Herzegovina healthcare system. However, more systematic collaboration with governing institutions is needed, as equipment will require spare parts, maintenance contracts, and educators who can use it. Educating staff on the use of this equipment is an integral part of the Association's activities, but ensuring technical support and maintenance for donated equipment remains a challenge. The terms of the donated equipment must contractually obligate the recipients and the competent authorities to assume maintenance obligations; otherwise, the donated and purchased equipment may become unusable at the first failure or software update and be stored.

Another challenge for the Association's well-planned activities is the recognition of acquired knowledge and skills in public hospitals in Bosnia and Herzegovina. In this context, sending doctors for internships/fellowships in Germany is valuable, but returning clinicians may face issues with licensing, recognition of skills, or a lack of formal career pathways. Therefore, agreements and arrangements need to include clear instructions for recognition. Given the many authorities governing health care systems, the Association will need to adjust its approaches to these issues accordingly.

A complex governance system poses a challenge for other projects as well, since each project must be tailored to its respective legal and operational framework. Furthermore, the Association needs to develop cooperation with governing institutions to achieve sustainable results for its activities.

In a short time, the Association has achieved significant results. The possibilities and advantages of cooperation have been recognized by healthcare institutions, medical professionals, and the academic community. The remaining challenge is to connect the fragmented healthcare system's governing structures to this network.

4.3. Diaspora-Driven Medical Cooperation and Knowledge Transfer

In addition to the BHÄG association's activities, several other initiatives demonstrate the growing importance of the Bosnian and Herzegovinian medical diaspora in strengthening the country's healthcare system. One of the most prominent organizations is the Bosnian-Herzegovinian American Academy of Arts and Sciences (BHAAAS)¹¹, which includes many physicians, scientists, and researchers of Bosnian origin working in the United States and other countries. BHAAAS has been actively involved in organizing medical conferences, educational workshops, and academic collaborations with universities and clinical centers in Bosnia and Herzegovina. Through these initiatives, BHAAAS facilitates the transfer of modern medical knowledge,

¹¹ BHAAAS (n.d). The Medicine and Health Division of the Bosnian Herzegovinian American Academy of Arts and Sciences. Link: <https://www.bhaaas.org/en/page-medicine-and-health> Accessed on 12.03.2026.

research cooperation, and the development of academic networks between Bosnian institutions and leading international medical centers.

Concrete examples of diaspora-driven cooperation include several specialized clinical development projects. One such initiative is the development of a Center for Modern Spine Surgery at the Clinical Center of the University of Sarajevo, led by Professor Ibrahim Omerhodžić and supported by diaspora neurosurgeons, including Dr. Mirza Pojskić from Philipps University Marburg. This project aims to strengthen spinal surgery capacity through training programs, the introduction of modern navigation technologies, and international fellowships.

In practice, collaborative initiatives of the Bosnian and Herzegovinian medical diaspora included the involvement of 11 physicians from across Bosnia and Herzegovina in establishing a Center for Urogenital Surgery. This Center provides educational training activities in Germany and Bosnia and Herzegovina under the auspices of Dr. Senad Habibović, a Bosnian gynecologist working in Germany. The idea is that, through mentoring programs, surgical training, and the introduction of minimally invasive techniques, they can lay the groundwork for improving the treatment of gynecological and urological diseases in Bosnia and Herzegovina.

Similar initiatives are emerging in other medical fields, including cardiology, where cooperation between diaspora specialists and domestic institutions aims to strengthen diagnostic and therapeutic capacities and introduce modern treatment protocols. Development of a STEMI center and a modern national STEMI network for the treatment of myocardial infarction and heart failure.

Long-term capacity building involves developing structured academic mobility and research exchange programs between Bosnia and Herzegovina and European universities. Furthermore, increasing the number of research fellowships, doctoral exchanges, and clinical training placements for students and medical staff would significantly modernize medical education and clinical practice in Bosnia and Herzegovina.

Institutional support for diaspora engagement is also reflected in government initiatives such as the “TRANSFER” program of the Ministry for Human Rights and Refugees of Bosnia and Herzegovina¹². This program enables experts of Bosnian origin living and working abroad to visit institutions in Bosnia and Herzegovina for short academic stays upon invitation. During these visits, experts can deliver lectures, conduct workshops, participate in clinical training, and initiate collaborative research projects. Such initiatives represent an important mechanism for facilitating the circulation of knowledge between the diaspora and domestic institutions.

5. CONCLUDING REMARKS

The complex political system and the corresponding healthcare system in Bosnia and Herzegovina have their strengths and weaknesses. In this context, the authors systematized the observations in the publication *Health Systems in Action Insight for Bosnia and Herzegovina*, published by WHO in 2025.

¹²For more information, see The Ministry of Human Rights and Refugees of Bosnia and Herzegovina (2026). Program for transferring knowledge of experts from the diaspora to institutions and public institutions in BiH. Link: <https://dijaspora.mhrr.gov.ba/media/dokumenti/Ostali-dokumenti/Informacija%20o%20prenosu%20znanja%20iz%20iseljenistva%20u%20BiH%202024.pdf> (accessed 12.03.2026). Note: documents are in local languages.

In this publication, the following are highlighted as key strengths of the health system: increased transparency among health care providers and targeted anti-corruption efforts. Efforts have been made to strengthen primary health care through a robust family medicine model. Authors recognize efforts in health reforms aim to improve prevention and digitalization. Furthermore, access to health services has improved, but some gaps remain. Significant reductions in maternal and infant mortality were achieved through improvements in perinatal and neonatal care. Authors have recognized that the rates of physicians and nurses are increasing.

However, authors in the same publication show that the system's weaknesses in the organizational and financial context include: complex, fragmented health systems; benefits packages that are relatively comprehensive but not universally covered; limited distribution of funds across health insurance funds; and health service provision that remains hospital-centered. The specific focus is on human capital, in the sense of the ageing of health workers on the one hand and the many young health professionals leaving Bosnia and Herzegovina on the other.

The combination of the above strengths and weaknesses has created conditions that increase population migration, not just among medical professionals but also among the general population. Although brain drain and migration significantly affect the region, including Bosnia and Herzegovina, the research shows that the academic community has inadequately addressed mapping and research on this problem. The limited number of general studies underscores the need for greater funding for research projects that analyze the causes, motives, and consequences of brain drain.

The identified strengths and weaknesses of the health care system can be analyzed in the continuation of the research by using a SWOT analysis, since it is also necessary to design a suitable strategy. However, the previously observed gap in research on these processes at this stage prevents a comprehensive SWOT analysis of the health care system in Bosnia and Herzegovina. In this context, there is an evident need for further research that will, on the one hand, analyze the causes, motivations, and consequences in the homeland, and, on the other hand, examine how medical professionals organized themselves to actively work to improve the situation in the homeland.

Also, this research can serve as a solid basis for stronger ties between the Bosnian and Herzegovinian medical diaspora and the homeland. The selected case study indicates that patriotism can contribute to improving conditions in the homeland through knowledge transfer, staff exchanges, scholarships, study stays, conferences, and technology transfer. Although the article was focused on a specific case study, the authors noted that future research should include a survey or structured interviews on both sides of this process: the incoming side (doctors and medical staff) and the receiving side. This extended research would better capture motivations, needs, and opportunities and foster a predisposition for deeper cooperation.

Although the healthcare system of Bosnia and Herzegovina evidently faces significant structural challenges, including brain drain, fragmented governance, and limited financial resources, several emerging developments offer grounds for optimism. Over time, we are witnessing greater engagement by the medical diaspora through an increasing number of international academic partnerships and the development of targeted clinical cooperation projects. These activities demonstrate that brain drain need not be an irreversible loss of human capital. Diaspora networks with adequate governmental institutional support can contribute significantly to the transfer of

knowledge, technology, and clinical expertise. When combined with emerging forms of public-private cooperation alongside increased international academic integration, these processes may gradually strengthen the resilience and development of Bosnia and Herzegovina's healthcare system.

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