

Report No: AUS0001857

Europe and Central Asia

Health Workforce Mobility from Croatia, Serbia and North Macedonia to Germany

February 12, 2021

HEALTH NUTRITION AND POPULATION



© 2017 The World Bank
1818 H Street NW, Washington DC 20433
Telephone: 202-473-1000; Internet: www.worldbank.org

Some rights reserved

This work is a product of the staff of The World Bank. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent. The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Attribution—“World Bank. 2020. Health workforce mobility from Croatia, Serbia and North Macedonia to Germany. © World Bank.”

All queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: pubrights@worldbank.org.

Health workforce mobility study



February 1, 2021

ACRONYMS

AUS	Austria
AZR	Central Register of Foreigners
CIPH	Croatian Institute of Public Health
CNMTS	Chamber of Nurses and Medical Technicians of Serbia
COVID-19	Coronavirus Disease 2019
DEU	Germany
EC	European Commission
ECA	Europe Central Asia
EEA	European Economic Area
ERI SEE	Education Reform Initiative of South Eastern Europe
EU	European Union
GDP	Gross Domestic Product
GIZ	Gesellschaft für Internationale Zusammenarbeit
GMA	German Medical Association
GP	General Practitioners
ICL	Income Contingent Loans
KOHOM	Association of General Medicine Doctors and Family Medicines Specialists
MD	Medical Doctors
MOH	Ministry of Health
MSE	Ministry of Science and Education
NES	National Employment Service
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
SEE	South Eastern Europe
SORS	Statistical Office of The Republic of Serbia
UK	United Kingdom
WDI	World Development Indicators
WHO	World Health Organization
WHO-HFA DB	World Health Organization European Health for All Database

Contents

ACRONYMS	iii
ACKNOWLEDGEMENTS	viii
ABSTRACT	1
SYNTHESIS.....	2
<i>Introduction</i>	2
<i>A Framework: Health Workforce Management in the Context of Open Borders</i>	3
<i>The Magnitude of Health Workforce Mobility</i>	6
<i>Six Issues in Health Workforce Management Contribute to Increased Mobility</i>	8
<i>Policy Recommendations</i>	17
<i>References</i>	22
CASE 1: GERMANY	25
<i>Introduction</i>	25
<i>Germany has more immigrants than any other EU country whereas the populations of the Balkan countries are shrinking</i>	26
<i>Among these immigrants are a growing number of foreign physicians and nurses</i>	27
<i>Since 2012, the German Government has introduced legislation and programs to facilitate international recruitment of health professionals</i>	28
<i>Germany needs foreign health professionals to fill current vacancies and reduce shortages</i>	30
<i>About half of Germany’s physicians and nurses will retire within the next two decades which could further increase shortages</i>	30
<i>The current data and health workforce planning methods are inadequate to ensure the future health workforce and inform policy decisions</i>	31
<i>Despite the growing need for more health professionals, Germany is not spending enough on tertiary education and on training physicians and nurses</i>	32
<i>Germany benefits from foreign physicians and nurses who meet education quality standards and are successfully integrated into the German health sector</i>	35
<i>Innovative mechanisms will be needed to share the costs of financing the high-quality education of the future health workforce</i>	37
<i>Our findings show that, to sustain a growing international health workforce, it will be beneficial for Germany to support high quality public education in other countries</i>	38
<i>Policy recommendations to the Federal Government of Germany</i>	39
<i>References</i>	41
ANNEX: PEOPLE INTERVIEWED BY PHONE FOR THE GERMAN CASE STUDY	43
CASE 2: CROATIA	44

Introduction	44
Since Croatia joined the EU, a growing number of Croatian nationals emigrated, but this has slowed down in recent years	45
Outmigration of health professionals has slowed down too but is still above pre-EU levels	46
Shortages of health care professionals and limited unemployment point to health management issues, but so far, access to care has not been affected	47
Physicians and nurses are leaving to find better working and living conditions	49
Physicians and nurses also leave in search of more job opportunities and better paying jobs	49
The Government has introduced some measures to mitigate shortages including task-shifting and hiring physicians from neighboring countries	50
Health workforce planning and mobility management also need to be reformed and better data and analysis are needed on health workforce mobility	51
Government spending on tertiary medical education is already high resulting in more medical graduates than the EU average and Germany	52
To raise additional revenues, medical faculties offer preclinical courses in English to paying students	53
EU reforms in nursing education improved quality, but medical education quality will still need to be improved to ensure that medical graduates are ready for the workforce	54
Innovative financing mechanisms are needed to sustain education funding and ensure the development of the future health workforce	55
Health workforce mobility and shortages of physicians and nurses in Croatia are not yet alarming, but current data and methods for managing the future health workforce are inadequate, and new approaches to funding medical education are needed	56
Policy recommendations to the Government of Croatia	56
References	59
ANNEX: LIST OF PEOPLE INTERVIEWED IN CROATIA	60
CASE 3: SERBIA	61
Introduction	61
Serbia's population is shrinking as a result of emigration and declining fertility rates	62
Already before joining the EU, outmigration of health professionals from Serbia to Germany has been consistently high as Germany opened up its health labor market	63
Persistently high unemployment among health professionals point to health management issues, but so far, access has not been affected	65
Unemployment and unsatisfactory working conditions are causing many Serbian physicians and nurses to leave to find work in other countries	66
Health professionals also leave to find better jobs as the fiscal context defines overall health spending, the number of health positions and wages	66

<i>The government still needs to modernize health workforce planning to take account of high unemployment and outmigration, and better data and analysis are needed</i>	67
<i>Government expenditures on tertiary education are high but inefficient as they produce too many medical graduates who are unable to find work in Serbia</i>	68
<i>Medical and nurse education quality are major concerns and education financing not linked to outcomes and research</i>	70
<i>Serbia needs to explore innovative financing mechanisms to sustain tertiary education funding and increase cost recovery from its mobile health workforce</i>	70
<i>Our findings show that the migration of physicians and nurses from Serbia to Germany is a direct result of Serbia’s medical and nursing education being disconnected from conditions in the health labor market</i>	71
<i>Policy recommendations to the Government of Serbia</i>	72
<i>References</i>	75
ANNEX: LIST OF PEOPLE INTERVIEWED IN SERBIA	77
CASE 4: NORTH MACEDONIA	79
<i>Introduction</i>	79
<i>North Macedonia’s population is shrinking as a result of outmigration</i>	79
<i>Outmigration of physicians and nurses has increased too, mostly to Germany even though North Macedonia is not yet an EU member</i>	80
<i>Although there is some unemployment among medical personnel, rural areas need more physicians and nurses, but access to care has not yet been negatively affected</i>	81
<i>Physicians and nurses leave the country in search of better job opportunities and working and living conditions</i>	83
<i>The fiscal context limits the number of health jobs and the level of wages in the public health sector</i>	84
<i>While some measures have been taken to address shortages and reduce unemployment, there is a need to modernize health workforce planning and invest in data collection and analysis</i>	85
<i>Government expenditures on tertiary education are low and inefficient, which means that North Macedonia turns out fewer medical and nursing graduates than Serbia and Croatia</i>	86
<i>The low quality of medical and nursing education is a major concern, but the government is taking some steps to improve it with EU support</i>	88
<i>Innovative financing mechanisms are needed to increase education funding, to invest in improving health education, and to develop the country’s future health workforce</i>	89
<i>Our findings show that increased health workforce mobility is the result of high unemployment among young health professionals and of poor management of the health workforce</i>	90
<i>Policy recommendations to the Government of North Macedonia</i>	91
<i>References</i>	94

ANNEX: LIST OF PEOPLE INTERVIEWED IN NORTH MACEDONIA	96
---	----

Boxes

Box 1: Methodology: A Country Case Study Approach	2
Box 2: Good Human Resource Management	14

Figures

Figure 1: Health Workforce Management in the Context of Open Borders	4
Figure 2. Foreign physicians in Germany from selected countries, total number, 2006-2018	6
Figure 3. Annual number of medical doctors graduated per 100,000 population, 2000-2018	9
Figure 4: Health Workforce Planning Process in Australia	16
Figure 5. Crude rate of total population change, 2012-2018 yearly average.....	26
Figure 6. Immigration to EU countries by all nationals, annual numbers, 2012-2017	26
Figure 7. Immigration to Germany by EU or non-EU citizenship, annual % distribution, 2013-2017	26
Figure 8. Foreign physicians in Germany, total numbers by region of origin, 2004-2018	27
Figure 9. Foreign physicians in Germany, % distribution by region of origin, 2018	27
Figure 10. Foreign physicians in Germany, from selected countries, total number 2006-2018	28
Figure 11. Physicians per 1,000 and GDP per capita PPP, ECA and OECD, 2016 or latest.....	30
Figure 12. Nurses per 1,000 and GDP per capita PPP, ECA and OECD, 2016 or latest	30
Figure 13: Age pyramid for nurses and midwives, by gender	31
Figure 14: Age pyramid for MDs.....	31
Figure 15. Total expenditure on educational institutions from all sources as a % of GDP 2015/2016	33
Figure 16. Medical doctors graduated per 100,000, annual number 2000-2018	33
Figure 17. Nursing graduates per 100,000 population, OECD countries, annual numbers, 2008-2018	34
Figure 18. Applications for medical degree recognition in Germany, annual numbers 2014-2018 ..	36
Figure 19. Applications for nursing degree recognition in Germany, annual numbers 2014-2018 ...	36
Figure 20. Annual outflows of Croatian nationals to OECD countries, 2000-2017	45
Figure 21. Share of total outflow of Croatian nationals to OECD countries, by country of destination, 2017	45
Figure 22. Crude rate of total population change, 2012-2018 yearly average.....	45

Figure 23. Croatian MDs working in OECD countries, total numbers, 2008-2018	46
Figure 24. Croatian MDs in Germany, total numbers, 2008-2018.....	46
Figure 25. Nurse applications for certificates to work abroad, estimated annual number, 2013- August 2019	47
Figure 26. Applications for degree recognition by Croatian professionals in Germany, annual number by outcome, 2014-2018	47
Figure 27. Self-reported unmet needs for medical examinations in rural areas because of travel, 2018	48
Figure 28. Percentage of medical doctors aged 55 or older, 2017.....	48
Figure 29. Physicians per 1,000 population, 2006-2016.....	50
Figure 30. Nurses per 1,000 population, 2006-2016	50
Figure 31. Annual number of medical doctors graduated per 100,000 population, 2000-2018	52
Figure 32. Graduates in medicine and university-level nurse, annual numbers by gender, 2013-2018	52
Figure 33. Nurse graduates from nursing schools in Croatia, annual numbers, 2009-2016	53
Figure 34. Enrollment in the English-taught general medicine course at the University of Zagreb, by nationality of students, 2017/18 and 2018/9.....	54
Figure 35. Serbian nationals living in Germany, total numbers 2011-2018	62
Figure 36. Crude rate of total population change, 2012-2018 yearly average.....	62
Figure 37. Serbian physicians in OECD countries, total number 2007-2017	63
Figure 38: Serbian physicians in Germany, total number 2006-2018	63
Figure 39. Applications for recognition of Serbian professional qualifications in Germany, by outcome, annual numbers 2014-2018	64
Figure 40. Unemployed doctors and nurses in Serbia, annual numbers 2015-2019	65
Figure 41. Physicians per 1,000 population, 2006-2016.....	67
Figure 42. Nurses per 1,000 population, 2006-2016	67
Figure 43. Annual number of medical doctors graduated per 100,000, 2000-2018	69
Figure 44. Graduates of Universities and nursing schools in Serbia, annual number 2015-2018.....	69
Figure 45. Annual outflows of North Macedonian nationals to OECD countries, 2007-2017	80
Figure 46. Share of total outflow of North Macedonian nationals to OECD countries, by country of destination, 2017	80
Figure 47. North Macedonia-trained physicians in OECD countries, total number, 2008-2018.....	81
Figure 48. North Macedonian physicians in Germany, total number, 2016-2018	81
Figure 49. Number of North Macedonian applications for degree recognition in Germany, by outcome, 2014-2018	81

Figure 50. Share of medical doctors aged 55 years old and over, 2017.....	82
Figure 51. Unemployed physicians, annual average number 2014-2019	83
Figure 52. Unemployed nurses, by age group, 2019	83
Figure 53. Doctors per 1,000 inhabitants (2006-2016).....	84
Figure 54. Nurses per 1,000 inhabitants (2006-2016)	84
Figure 55. Annual number of medical doctor graduates, 2014-2018	87
Figure 56. Annual number of university-level nurse graduates, 2014-2018.....	87
Figure 57. Annual number of medical graduates per 100,000, 2000-2018.....	87
Figure 58. Nursing school graduates, 2014-2018	88

Tables

Table 1. Serbian Nurses in the Triple Win Program, 2013 - September 2019	64
--	----

ACKNOWLEDGEMENTS

This report was prepared by a team of World Bank staff and consultants. The synthesis chapter and all four case studies were prepared by Pia Schneider and Alessia Thiebaud. Husein Abdul-Hamid, Nina Arnhold, and Lars Sondergaard contributed to the education sections. Interviews for the case studies were conducted by Pia Schneider and Alessia Thiebaud for Germany, by Alessia Thiebaud, Danica Ramljak and Luka Voncina for Croatia, by Pia Schneider, Alessia Thiebaud, and Predrag Djukic for Serbia, and by Alessia Thiebaud, Predrag Djukic, and Ana Krsteska for North Macedonia. David Cochrane prepared a background paper on health workforce management and planning. Tania Dmytraczenko and Harry Patrinos provided management oversight. The report was prepared under the overall guidance of World Bank Country Directors Arup Banerjee, Linda Van Gelder, and Gallina Andronova Vincelette and World Bank Sector Director Fadia Saadah. Fiona Mackintosh was the editor. Maya Razat provided administrative support. The team is grateful for the guidance and time offered by all of the people interviewed for these four country case studies.

The authors wish to thank the peer reviewers of the case studies and the final report, including Andreas Blom, Dorothee Chen, Mukesh Chawla, Marcelo Bortman, Christel Vermeersch, Roberta Malee Bassett, and Paolo Belli. The report and case studies benefited from valuable feedback from Lars Sondergaard and Jamele Rigolini. World Bank managers and staff, and representatives from the Western Balkans, the European Union, OECD, and the World Health Organization participated at two workshops in June 2019 and July 2020 and provided helpful comments to the concept of the final case studies.

The study was conceptualized by Tania Dmytraczenko in collaboration with Jamele Rigolini and Lars Sondergaard, with contributions from Akiko Maeda and Kate Mandeville. This team successfully prepared the proposal. The study was funded by the World Bank Country Units in Vienna and Brussels.

ABSTRACT

Governments are worried that increased health workforce mobility could deplete human resources in the public health sector and in medical faculties, lead to staff shortages at home, and a loss of returns to their investments in medical education. This study of the magnitude and effect of health workforce migration from Croatia, Serbia, and North Macedonia to Germany examines how increased mobility affects the health and education sectors in these countries and whether governments should be concerned about this mobility and should take actions accordingly. The study used a case study approach and triangulated data from qualitative interviews with secondary data collected in the four countries. The country case studies found that there has been a moderate rate of emigration by physicians from Croatia, Serbia, and North Macedonia, and this trend has slowed after an initial spike. Germany has become the main destination country for physicians and nurses from these countries. Unemployment and unsatisfactory working and living conditions in the origin countries are the main reasons why doctors and nurses migrate. They also leave in search of better career opportunities.

Health workforce mobility is thus a symptom but not the ailment itself, which consist of underlying issues in health workforce management that need to be given immediate attention. These are: (i) a mismatch between the number of medical and nursing graduates produced by the education system and the number and specialties of medical workers needed; (ii) the large numbers of medical and nursing graduates whose degrees are not being fully recognized in destination countries because of the poor quality of the education that they received and who consequently take up work in lower-paid positions with less responsibility in destination countries; (iii) the lack of any way for origin countries to recover the costs of educating medical doctors who then leave to work abroad; (iv) inadequate human resource management in health facilities, which results in poor working conditions and a lack of career opportunities for health professionals; (v) the failure to gather and analyze data on the health workforce; and (vi) the continued use of past trends instead of future projections in health workforce planning that results in insufficient numbers of health jobs, unemployment and staff shortages in certain areas and skills, and the migration of many graduates to work abroad.

Understanding these issues and the motivations behind migration can help policymakers to develop and implement health and education policies as well as migration agreements between countries to manage the health workforce in the context of open borders. Based on these findings, the study offers three recommendations on education policy, namely: (i) to align education policy with the need for health workers; (ii) to invest in high quality health education; and (iii) to expand innovative ways to finance medical education including charging higher tuition fees and providing income contingent loan schemes with efficient repayment systems. The study also makes three recommendations for health policy: (i) to modernize the human resource management in health facilities; (ii) to make substantial investments in the collection and analysis of data on the health workforce; and (iii) to use the results from analysis of the productivity and dynamics of the health workforce in health workforce planning. Finally, the study recommends that countries should develop policies to manage health workforce mobility to maximize its benefits for the health and education sectors at home and reduce the administration involved in hiring foreign nationals. This would allow highly qualified nurses and physicians who return home after working abroad to take up positions commensurate with their newly acquired qualifications and skill levels, either to provide health care or to carry out medical research. It would also facilitate the entry of foreign physicians and nurses into the local health workforce.

SYNTHESIS

Introduction

This is the first study of the magnitude and effect of health workforce mobility from Croatia, Serbia, and North Macedonia to Germany. The study examines how this mobility affects the health and education sectors in these countries and whether governments should be concerned about this increased mobility and should take actions accordingly. The study was conducted because governments in origin countries are worried that increased mobility could deplete human resources in the health sector and in medical faculties, lead to staff shortages at home, and a loss of returns to their investments in medical education. This analysis of health workforce mobility uses a case study approach (Box 1). Most of the existing studies of health workforce mobility use aggregated trends across OECD countries and do not cover the Western Balkans.¹ The country case studies found that health workforce mobility is a symptom but not the ailment itself, and there are underlying issues in health workforce management that need immediate attention.

There has been an increase in physician mobility in OECD countries, but data on the mobility of nurses are incomplete. The OECD reported that between 2006 and 2016, there was a 50 percent increase in the number of foreign physicians working in OECD countries. The number of nurses increased by 20 percent over the five years prior to 2016.² Most of these foreign health professionals worked in the United States, the United Kingdom, and Germany. The total number of foreign medical doctors (MDs) in Germany increased from 22,000 in 2008 to over 58,000 in 2019, amounting to 14.5 percent of all Germany's physicians in 2019, up from 4.2 percent in 2008. Most of these physicians came from new European Union (EU) member states, mainly Romania, Hungary, and Bulgaria. Another 6 percent came from the countries of the Western Balkans.³ However, the data on nurses are insufficient and, thus, inconclusive, but anecdotal evidence suggests that an increasing number of foreign nurses circumvent labor market restrictions and have taken up jobs in home-based care in the wealthier EU member states.

Box 1: Methodology: A Country Case Study Approach

The four countries were selected for the case studies because they illustrate different aspects of the migration issue. Taking a four-country approach has made it possible to carry out in-depth analysis of: (i) the factors that influence health migration and (ii) the interactions between this mobility and a country's health education and health care systems. For each of the four country studies, key informants were interviewed, including health and education experts, and secondary data collected from the governments, from medical and nursing schools, and from hospitals, which was supplemented by data from international sources (the EU, the OECD, WHO, and the World Bank) and the literature. The interviews were conducted in person in the countries or by phone between October 2019 and February 2020. The case studies followed a standardized protocol that covered the magnitude of migration, the underlying reasons, how it affected health care and education policies, and any measures taken to manage it. The four country studies are not meant to be representative of either the EU or the Balkan region as a whole. Data limitations were the main constraint for this study, which were addressed by consulting data from different sources, including by triangulating data from qualitative interviews with secondary data collected in the four countries.

¹ OECD (2019).

² OECD (2019).

³ Albania, Bosnia & Herzegovina, North Macedonia, Kosovo, Montenegro, Serbia, and Croatia. See: EU factsheet - <https://www.europarl.europa.eu/factsheets/en/sheet/168/the-western-balkans>. Some individuals have dual nationality.

Similarly, a study published by the European Commission found that the EU expansion in the mid-2000s led to a moderate increase in health workforce mobility from the new member states to old member states. In 2011, the European Commission published a report (the Prometheus study) on how admitting 12 new member states into the EU in 2004 and 2007 had affected health professional mobility in Europe.⁴ The Prometheus study concluded that there had only been a moderate amount of migration among the 17 countries in the study. The annual outflows of health worker migrants rarely exceeded 3 percent of the domestic workforce. Furthermore, the emigration of health professionals from the new states peaked during the time around their EU accession and then decreased slightly thereafter. Although these numbers were not as high as anticipated and they subsequently decreased, they remained at a higher level than before the countries joined the EU. Therefore, concerns remained about personnel shortages in underserved rural areas in origin countries and their negative impact on health service delivery and access to care. The Prometheus study included an analysis of Serbia and found that, between 2004 and 2011, many Serbian medical doctors and nurses had left the country to work abroad because of high unemployment and low salary levels at home.⁵

Governments are concerned that increased mobility negatively affects education financing and access to and the quality of health care in the origin countries. It has been argued that the permanent migration of physicians to higher-income countries could disproportionately benefit health systems in wealthier EU member states, mainly because they do not reimburse the less advantaged origin countries for the cost of the migrants' expensive medical education.⁶ This is problematic because health professionals are among the most highly educated individuals in their countries, having benefited from years of expensive medical training. These professionals are needed to ensure the provision of comprehensive health coverage in their countries of origin. The concern is that the departure of even only a few specialists could upset health service delivery at home. In addition, if emigration is exacerbating existing regional differences in staffing, then this may be causing the quality of care in health facilities to deteriorate. In response to these concerns, WHO issued the Global Code of Practice on the International Recruitment of Health Personnel in 2010, which advocates ethical recruitment and discourages the active recruitment of foreign skilled health professionals from countries with acute shortages. It also calls for countries to monitor health worker mobility.⁷

The rest of this chapter is organized as follows. The next section depicts a framework for assessing health workforce management in the context of open borders. The subsequent sections present the findings of the four case studies on the magnitude of health workforce migration and the six main issues related to health workforce management that they identified. Based on these findings, the final section offers policy recommendations to ensure that the four countries can maintain a high-quality health workforce and first-class medical education systems.

A Framework: Health Workforce Management in the Context of Open Borders

An individual's decision to move to work in another country is affected by several factors. These include individual preferences, which are shaped by personal characteristics and professional aspirations. Individuals make their choices based on their expected gains from moving or staying. So whether the

⁴ Wismar et al (2011).

⁵ Jekic et al (2011).

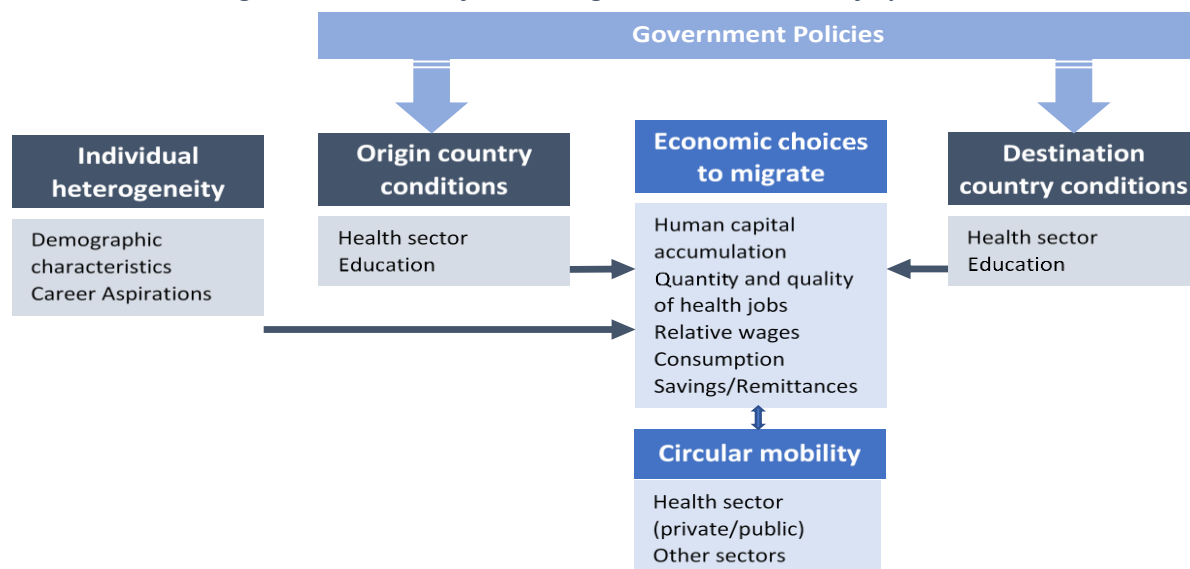
⁶ Glinos (2015).

⁷ WHO (2010a).

health and education sectors at home can respond to these preferences is an important factor, as is the attractiveness of the health and education sector in destination countries. These decisions are, therefore, influenced by government policies on education, health, and migration in both the origin and destination countries. This is depicted in Figure 1.

Medical doctors are more likely to leave if they are younger, male, and single, and if they expect migration to be beneficial to their professional career. Migration to another country is often the only way for physicians and nurses to gain relevant professional experience in centers of excellence or in a subspecialty. It is common for medical students to move abroad for their residency years to gain necessary experience. Medical students also migrate to study abroad because they expect to accumulate more skills that are highly valued both at home and abroad. Their migrant experience affects their future decisions about career aspirations and human capital accumulation and influences their expectations about working conditions in the health sector.^{8,9,10}

Figure 1: Health Workforce Management in the Context of Open Borders



Source: Dustmann and Goerlach (2016).

Policy on medical education is often not aligned with health workforce needs in either origin or destination countries. This lack of coordination can produce more graduates than there are positions available or can result in staff shortages, causing staff to move (Figure 1). In countries with strict study quotas, including Germany, the education system does not train enough physicians and nurses to maintain its workforce, resulting in vacancies. An aging health workforce plays a factor too. In Germany, almost half of all physicians and nurses will retire over the next 15 years, and their vacated positions will need to be filled. Serbia reports relatively high unemployment among health professionals since 2006, partly because enrollment rates in medical faculties were higher than the staff positions available in the health sector.¹¹ Persistently high unemployment causes health professionals in a given country to move to other countries where there are vacancies. The quality of the medical education that they received in their countries of

⁸ Newton et al (2012).

⁹ Zander et al (2013).

¹⁰ Buchan et al (2014).

¹¹ Wiskow (2006).

origin will define whether their degrees are recognized as well as their professional status in the destination country. But there is no mechanism in place for destination countries to reimburse the origin countries for the cost of the migrants' expensive medical education.

The data and methods used in health sector planning in many countries are inadequate for managing the future health workforce, and this can lead to unemployment and shortages. A country's health workforce plan should be designed to meet the changing health needs of the population. However, the reality in many countries, including the Balkan countries analyzed for this study, is that health workforce planning is still based on population trends from previous years, which results in a mismatch between the number of health staff and the number of available positions. This in turn causes health staff to move to countries with shortages of medical personnel, mostly better-off EU member countries. To strengthen health workforce planning, the European Commission launched the Joint Action Plan on Health Workforce Planning and Forecasting (2013-2016) to assist EU member states in developing the health workforce that would be needed in the future.¹² The Action Plan facilitated the creation of a minimum dataset for health workforce planning and a handbook on health workforce planning methodologies across EU countries. This agenda is still ongoing, and a recent assessment identified a need to invest in more detailed country-specific analysis and workforce planning and provide more support to local partners in their efforts.¹³

Health professionals make economic choices when deciding to move to work abroad. Good health workforce management should aim to optimize the motivation and job satisfaction of the health workforce. However unsatisfactory working conditions and living conditions in the origin countries are often the main reasons why doctors and nurses migrate. They also leave in search of better career opportunities. Young physicians and nurses face the most bureaucratic hurdles to take up work in the public health sector and often leave their countries to gain relevant professional experience and accumulate human capital elsewhere. Furthermore, the nominal wages for health professionals are considerably higher in higher-income countries, which increases the attractiveness of working abroad. Earning higher wages enable them to raise both their consumption and savings and to send more remittances home to their families (Figure 1).

Circular and temporary mobility is common. Some students and health professionals move abroad for a few years and then return to their home country. These returnees then contribute their new skills and experience to the local health sector. Short-term and weekend employment has become common too. Some health professionals who do not migrate leave the public health sector to work in private practice and in other economic sectors in their own countries (Figure 1).

Understanding the main motivations behind migration can help policymakers to develop and implement health and education policies as well as migration agreements between countries. Governments in some origin countries have increased wages in the public health sector to compete with the local private sector and with other public health system internationally.^{14,15} Governments have also increased tuition fees for students to raise additional finances for the medical education sector. In destination countries, governments have reduced the bureaucratic hurdles faced by foreign health professionals and harmonized their professional regulations to facilitate mobility. This has resulted in a steep increase in the number of foreign health professionals working in Germany. Most origin countries

¹² Buchan et al (2014).

¹³ Kroezen et al (2018).

¹⁴ WHO (2010b).

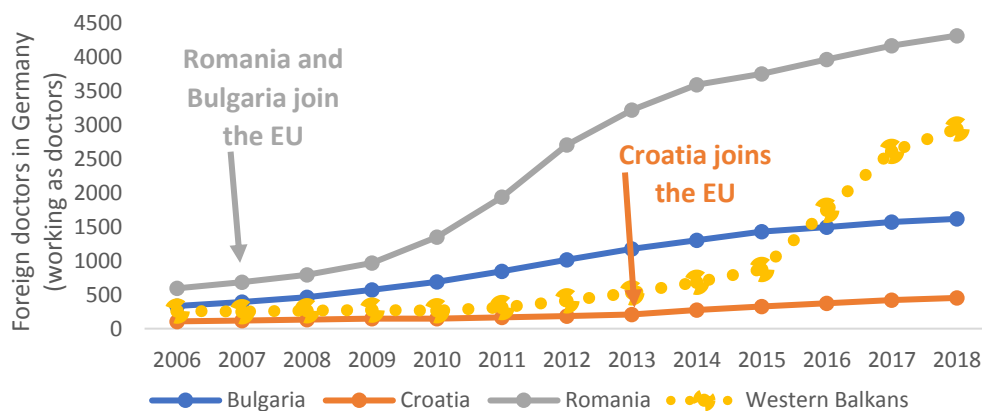
¹⁵ Glinos et al (2014).

who are losing their health professionals to higher-income countries have not implemented any policies to manage mobility and facilitate circular migration by their health professionals.

The Magnitude of Health Workforce Mobility

The magnitude of migration to Germany is facilitated when countries join the EU, but government policies on less restrictive labor laws and active recruitment also play a role. The four country cases included in this study found that the emigration of physicians from Croatia, Serbia, and North Macedonia has been moderate, and this trend has slowed after an initial spike. Germany has become the main destination country for physicians and nurses from Croatia, Serbia, and North Macedonia over the past decade. Similarly as in other new EU member states, the outmigration of physicians and nurses from Croatia to Germany peaked when the country joined the EU in 2013 but has since slowed down, though it is still higher than before the country’s accession. This trend is comparable to Bulgaria. There has also been a jump in the number of physicians migrating from Serbia and North Macedonia to Germany. Although these countries are not EU members, the outmigration of their health professionals has continuously increased since 2015, though leveling off more recently. This rise is comparable to the numbers of Romanian physicians who migrated to Germany after Romania joined the EU in 2007, although this growth has slowed down since 2014 (Figure 2). This suggests that migration is influenced not only by countries joining the EU but also by other factors. One factor is that Germany has introduced legal changes to facilitate the recruitment of physicians and nurses from new EU member states, European enlargement countries, and from countries with high unemployment as is shown in the German case study.

Figure 2. Foreign physicians in Germany from selected countries, total number, 2006-2018



Source: German Federal Statistical Office

An increasing number of foreign nurses have taken up jobs in health care in the wealthier EU member states. Data on nurses are limited. Germany reports that a growing number of nurses from the three countries have applied for recognition of their nursing degrees by the German authorities, as this recognition is needed before emigrants can work in Germany’s health sector. Between 2014 and 2018, the number of nurses from Croatia applying for degree recognition increased from 270 to 380 annually, while applications by Serbian nurses increased from 200 to 1,400 annually, and applications from North

Macedonia increased from 50 to 300 per year.¹⁶ There are no data on the number of foreign nurses who have taken up jobs in home-based and informal care in destination countries.

Germany has introduced policies to substantially relax its labor laws and open its health sector to non-EU health professionals to ensure current and future health service delivery. Germany, the main destination country for doctors and nurses, changed its education and health policies to reduce shortages of medical staff, but these changes were not sufficient to replace the country's aging health workforce or to compensate for its insufficient numbers of medical and nursing graduates. Therefore, the government has recently taken several steps to facilitate international recruitment to fill the high vacancy rates in Germany's health sector. To facilitate recruitment from non-EU countries, the Federal Recognition Act¹⁷ was passed in 2012. It defines the rules for equivalency recognition of the degrees of physicians and nurses who have completed their training in non-EU countries. Foreign physicians who are preparing to take this equivalency test are granted a provisional license to perform a restricted number of medical activities for up to two years.¹⁸ Also, since 2015, the Act on the Acceleration of Asylum Procedures has allowed foreign physicians who are asylum seekers to work alongside certified physicians in refugee centers without the required German license. Germany's "Triple Win" program facilitates the recruitment of nurses from countries with high unemployment. Since 2019, the German Agency for Skilled Workers in the Health and Nursing Professions (DeFa)¹⁹ has been responsible for recognizing foreign degrees and issuing visas and work permits for foreign health professionals within six months.²⁰ In 2020, the government reduced the minimum salary restrictions for EU Blue Card holders from €55,200 to €46,056, including for physicians,²¹ which is below the average annual wage of €50,000 for physicians in Germany, in order to recruit more junior staff. These policy measures all support international hiring to Germany's health sector. Origin countries mainly focused on policy reforms in their education and health sectors, but so far these changes have not overcome the challenges that contribute to the growing outflow of health professionals.

Based on current knowledge, there is insufficient information on how the COVID pandemic will affect the needs of health sectors and the magnitude of health workforce mobility. The case studies were conducted before the COVID-19 pandemic, which has resulted in an economic crisis and affected the provision of health care in countries around the world. Hospitals had to react swiftly. They created free capacity by postponing elective treatments, they shifted staff to departments with high patient loads, increased the working hours of part-time time staff, and hired additional staff. Governments have also transferred COVID patients across borders, for example from Italy, France, and the Netherlands to hospitals in Switzerland and Germany that still had free capacity. Italy and South Africa recruited medical doctors from Cuba on short-term assignments to help to treat the growing number of hospitalized COVID patients in those countries. Primary health care providers are critical too to treat less severe COVID-19 patients at home and keep people with chronic conditions from getting sick and needing hospital care.

¹⁶ German Federal Statistical Office.

¹⁷ Federal Recognition Act. Anerkennung in Deutschland. Recognition in Germany www.anerkennung-in-deutschland.de/html/en/federal_recognition_act.php

¹⁸ An amendment to the European Professional Qualification Directive (2005/36/EC) that made it applicable to citizens of all countries. <https://www.deutschland.de/en/topic/knowledge/how-to-become-a-medical-doctor-in-germany>

¹⁹ Deutsche Fachkräfteagentur für Gesundheits- und Pflegeberufe (DeFa): <https://www.defa-agentur.de/>

²⁰ <https://www.bundesgesundheitsministerium.de/presse/pressemitteilungen/2019/4-quartal/pflegkraefte-ausland-defa.html>

²¹ What is the EU Blue Card? <https://www.auswaertiges-amt.de/en/aamt/zugastimaa/buergerservice/faq/02a-what-is-the-blue-card/606754>

The COVID crisis has also led to the hiring of unemployed and economically inactive health professionals. This reflects past experiences in higher-income countries when health sectors have added jobs during economic crises. During the recession in 2007, the health sector in the United States gained about half a million jobs – mainly nursing positions – at the same time as the national economy was losing more than 7 million jobs.²² As demand for healthcare increases, nurses who were not previously in the workforce tend to fill vacancies as they are concerned about their economic situation. Similar trends were observed in the U.K., where recruitment of local nurses was highest and international recruitment was lowest during the years following the financial crisis in 2008. The outbreak of the COVID pandemic affected all migration to OECD countries, which has plummeted by 46 percent in 2020 compared to the previous year.²³ Germany's dependence on foreign health workers means that the health sector is vulnerable to any significant drop in workforce immigration, which has been the case during the COVID crisis. The German Ministry of Health reports that it has suspended recruitment of health professionals from the Philippines and Mexico but continues to recruit from the Western Balkan states.²⁴

Six Issues in Health Workforce Management Contribute to Increased Mobility

The case studies found six key issues in health workforce (HWF) management in origin and destination countries that contribute to increased mobility (Figure 1). These are: (i) a mismatch between the number of medical and nursing graduates produced by the education system and the number and specialties of medical workers needed; (ii) the large numbers of medical and nursing graduates whose degrees are not being fully recognized in destination countries because of the poor quality of the education that they received and who consequently take up work in lower-paid positions with less responsibility in destination countries; (iii) the lack of any way for origin countries to recover the costs of educating medical doctors who then leave to work abroad; (iv) inadequate human resource management in health facilities, which results in poor working conditions and a lack of career opportunities for health professionals; (v) the failure to gather and analyze enough data on the health workforce; and (vi) the continued use of past trends instead of future projections in health workforce planning that results in insufficient numbers of health jobs, unemployment and staff shortages in certain areas and skills, and the migration of many graduates to work abroad.

1. A mismatch between the number of medical and nursing graduates produced by the education system and the number and specialties of medical workers needed

Government spending on tertiary education is high in Serbia and Croatia, whereas tertiary education is underfunded in North Macedonia. Serbia spends 30 percent and Croatia 21.5 percent of its total education budget on tertiary education, which is considerably above the EU average of 15 percent.^{25, 26} Conversely, tertiary education in North Macedonia is underfunded, accounting for only 10 percent of total education spending (or 0.4 percent of GDP). In Germany public and private sources in Germany allocated

²² Wood (2011).

²³ OECD (2020).

²⁴ Deutsches Aerzteblatt (2020).

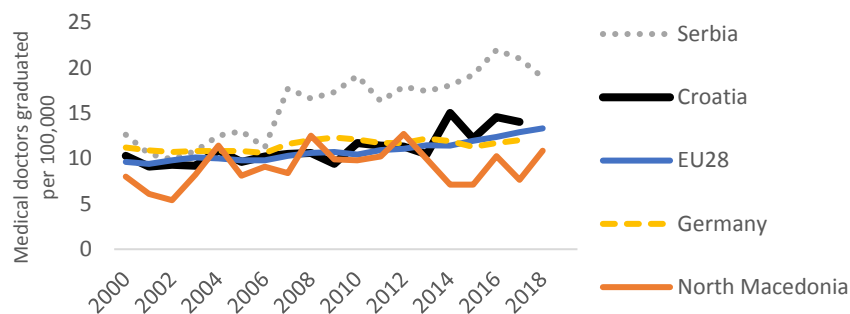
²⁵ EC Education and Training Monitoring. 2019 https://ec.europa.eu/education/sites/education/files/document-library-docs/et-monitor-report-2019-croatia_en.pdf

²⁶ Eurostat, 2019.

about 1.2 percent of GDP to tertiary education in 2015, which is substantially less than the more than 2 percent of GDP spent by comparator countries including the United States, Canada, and Australia.

The education systems in Serbia and Croatia produce far more medical graduates per population than Germany. In 2017, both Serbia and Croatia produced more medical graduates than Germany and more than the EU28 average (Figure 3). North Macedonia produces the fewest medical graduates among the four countries in the study. Germany has a quota for the number of study places at public universities (*Numerus Clausus*),²⁷ which has produced fewer medical graduates than are needed to fill the total number of healthcare positions in the country and to replace the aging health workforce.

Figure 3. Annual number of medical doctors graduated per 100,000 population, 2000-2018



Source: WHO-HFA DB (2000-2014) and authors' calculations using Statistical Office and World Bank data (2015-2018)

Germany's nurses and physicians already work at full employment, and there are staff shortages and high vacancy rates, particularly in rural areas. There are currently 80,000 vacant nursing positions, and it takes on average about 110 days to fill a vacant nurse position.²⁸ The government estimates that about 500,000 new nurses will be needed by 2030 to fill positions vacated by nurses who will have retired.²⁹ Similarly, half of all physicians are 50 or older and will retire over the next 15 years. Germany's working-age population is projected to shrink.³⁰ Therefore, Germany is having to recruit medical personnel from other countries to ensure that it has a full health workforce now and in the future.

Similarly, Croatia's health workforce is at almost full employment. The Croatian Employment Agency reported that 50 physicians and 472 nurses were unemployed in October 2019. However, some primary care practices in rural areas are understaffed, and these personnel shortages are likely to increase in the near future because about 30 percent of Croatia's physicians are aged 55 or older and will retire within the next decade. In a context of already high government spending on tertiary education, Croatia's government will have to find new ways to fill these vacant positions. This may involve hiring foreign staff or giving Croatian physicians and nurses who currently work abroad incentives to return home.

²⁷ Students need to score 1.0 on the Abitur in 14 states to qualify and a 1.1 in Niedersachsen and Schleswig-Holstein. Some universities conduct personal interviews, and some (such as Heidelberg) require students to pass a multiple choice test to qualify.

²⁸ <https://www.zdf.de/nachrichten/heute/gesundheitsminister-spahn-will-pflegekraefte-aus-mexiko-anwerben-100.html>

²⁹ GIZ (2019).

³⁰ DESTATIS German Government Statistics. Population Projection. https://www.destatis.de/EN/Themes/Society-Environment/Population/Population-Projection/_node.html

The situation is different in Serbia and North Macedonia where there are not enough jobs for nurses and physicians, and the education system exacerbates the already high unemployment rate. Persistently high rates of long-term unemployment among physicians and nurses in Serbia is one of the main reasons why so many health professionals are leaving the country. By September 2019, the Serbian National Employment Service (NES) reported 8,468 unemployed nurses and 2,533 unemployed physicians. The average duration of unemployment is long: 37 months for nurses and 25 months for medical doctors. Similarly, high unemployment among young physicians and nurses in North Macedonia causes them to leave to find work in other countries and this despite the relatively low production of physicians compared to EU countries noted earlier (Figure 3). In 2019, the vast majority of the country's 150 unemployed physicians are younger than 35 years old, which indicates that young doctors find it difficult to enter the health workforce. As for nurses, 1,118 were registered as unemployed in 2019, with most being younger than 30. Many of these physicians and nurses in the two countries are currently doing voluntary work in health facilities just to maintain their clinical practice.

Fiscal constraints limit the number of positions available to health professionals in origin countries, causing them to move countries with shortages. Total health expenditures in Croatia, Serbia, and North Macedonia ranged between 5 to 7 percent of their GDP in 2017, which was less than Germany's 11.2 percent and the EU average of 9.9 percent of GDP.³¹ However, fiscal limitations constrain their options to increase funding for the health sector. When Croatia joined the EU in 2013, the government introduced a hiring freeze in the public sector to manage public expenditure. As a result, the number of physicians per 1,000 population has remained steady at a low level since 2013. Similarly, fiscal pressures caused the Serbian government to institute a public sector hiring freeze in 2014. The private sector is still small in the three countries and provides few employment opportunities. In Croatia, only about 11 percent of physicians and nurses are working in private practice.³² To find work, physicians and nurses move to countries like Germany that have staff shortages and vacant positions. Better coordination is needed across government entities to prevent this mismatch between the number of medical and nursing graduates produced by the education system and the number of positions available for medical workers in the public health sector in different fiscal contexts.

2. Large numbers of medical and nursing graduates whose degrees are not being fully recognized in Germany because of the poor quality of the education that they received

The Government of Croatia has reformed the country's medical and nursing education in line with EU requirements to enable its universities and nursing schools to be EU-accredited. Physicians who have completed their training in the EU, the European Economic Area (EEA), or Switzerland are eligible to practice in Germany. In Croatia, the nursing curriculum was restructured based on EU requirements and nursing schools were accredited. The criteria for enrollment and graduation became stricter, which resulted in better education quality and fewer nursing students as non-accredited schools had to close. Medical education has also been reformed, as a result of which Croatia's medical faculties are now EU-

³¹ According to the World Bank's World Development Indicators (WDI).

https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=EU&year_high_desc=true

³² The public sector employs about 28,000 nurses. There are no available data on the remaining 13,000 nurses, but some of them work in the private health sector and in the non-health sector (for example, in tourism) where salaries are higher and working conditions are better. Data published in 2019 by the Croatian Institute of Public Health, available in Croatian at <https://www.hzjz.hr/priopcenja-mediji/najnoviji-podaci-o-broju-zdravstvenih-radnika-uvadenih-u-nacionalni-registar-pruzatelja-zdravstvene-zastite/>

accredited and attract a growing number of international medical students, including from Germany. In 2018, Germany provided full recognition to 93 percent of applications from Croatian medical doctors and partial recognition to 7 percent. About two-thirds of nursing degrees from Croatia were fully recognized.

The low quality of medical and nursing education in Serbia and North Macedonia negatively affects the recognition of their degrees in Germany. Germany does not automatically recognize medical and nursing degrees from non-EU countries like Serbia and North Macedonia. Germany assesses their degrees for equivalency with German degrees on a case-by-case basis, following the 2012 Federal Recognition Act.³³ In 2018, Germany provided full recognition to only about two-thirds of Serbian medical degrees and fewer than half of Serbian nursing degrees. North Macedonia has one of the lowest recognition rates in the region for its medical and nursing degrees in Germany, which accorded full degree recognition to only about 50 percent of the medical doctors' applications and 28 percent of the nurses' applications from North Macedonia. The low rates of degree recognition for physicians and nurses from the two countries indicate that the quality of their medical and nursing education is poor and does not meet EU standards.

The non-recognition of degrees in destination countries limits the professional opportunities available to physicians and nurses after they migrate. This means that instead of working in their trained profession, physicians without degree recognition often take up work as nurses or assistants, and nurses work as nurse assistants in long-term care at a lower salary or in the informal sector. If they had received a better education, their degrees would have been recognized, and they would be earning higher wages working in their trained profession. In all three origin countries analyzed in this study, there is a need to carry out a systematic assessment of learning quality and outcomes, student pass rates, and completion rates. Governments in Serbia and North Macedonia should consider raising the quality of their medical education systems to ensure international recognition for their degrees and to attract more faculty internationally and among the diaspora to teach at universities at home.

3. The lack of any way for origin countries to recover the costs of educating medical doctors who then leave to work abroad

Physicians and nurses benefit from a very expensive government-financed medical education and then leave their countries to work and pay taxes abroad, leaving origin countries with nothing to show for their investments in education. However, there are ways to mitigate this problem. Governments could increase tuition fees for students who attend medical courses while providing them with access to student loans, and charge full-cost tuition for students attending the general medicine programs taught in English.

To raise revenues to finance tertiary education, Serbia, Croatia, and North Macedonia all charge tuition fees but only to a limited extent so far. Universities in both Croatia and Serbia have introduced general medicine programs taught in English, which are attracting increasing numbers of international students, including students from Germany. The Universities of Belgrade and Novi Sad in Serbia offer general medical courses in English and charge annual tuition fees of €5,500 to €7,000 per student.³⁴ Tuition for medical courses taught in the English language at Zagreb University in Croatia costs €12,000 per year.³⁵ However, in the absence of any cost analysis, it is not clear whether these amount to full-cost fees or if

³³ Federal Recognition Act. Anerkennung in Deutschland. Recognition in Germany www.anerkennung-in-deutschland.de/html/en/federal_recognition_act.php

³⁴ <http://www.mf.uns.ac.rs/en/paymentdetails.php>

³⁵ <https://www.eu-medizinstudium.de/medizinstudium-in-kroatien#zagreb>

they are still being subsidized by the government. There may be scope to increase the revenue stream from tuition fees in the future not only from international students but also from domestic students based on a thorough cost analysis.

Higher tuition fees could be accompanied by the offer of income contingent loans (ICL). ICLs have been successfully used in the Netherlands, Ireland, the United Kingdom, and Hungary to finance higher tuition fees. Students only have to start repaying their loan once they are earning an income above a certain threshold amount. Hungary has no income threshold and a 6 percent repayment rate on full earnings. In the United Kingdom, graduates earning over £25,000 per year contribute 9 percent of their gross earnings towards the repayment of their loan. New Zealand has a lower threshold than the UK of £10,000 and a higher repayment rate of 12 percent of earnings. The United States requires graduates to repay 10 percent of their income above a threshold set at 150 percent of the poverty guideline, or US\$24,360 for a two-person household in 2017.³⁶ These ICL repayments are withheld from the worker's wages by their employer as is done with social insurance taxes. If graduates were to migrate to another country after completing their education, then their ICL repayments would have to be collected from their monthly wages by the government of the host country, which would then transfer the revenue back to the government that provided the ICL.

A repayment system based on the ICL experience could be designed to finance costly tertiary education in origin countries such as Serbia, Croatia, and North Macedonia. None of the four countries in this study has an ICL in place. While it will take time to introduce income contingent student loans, Germany could go ahead immediately and introduce a repayment mechanism for foreign physicians who received a publicly funded medical education and then migrated to Germany after graduation. This could take the form of a payroll tax levied by the German government on the salaries of foreign physicians (similar to a social insurance contribution) and then remitted to their countries of origin (Serbia, Croatia, or North Macedonia).³⁷ The German government could also match this repayment amount (as is done with social insurance contributions) and include that matching amount in the revenue amount transferred to Serbia, Croatia, or North Macedonia to help to cover the high costs involved in providing tertiary medical education in those countries. Over time, this would enable Croatia, Serbia, and North Macedonia to offer ICLs to its medical students who would repay those loans after they graduate when they earn more than a threshold income.

4. Inadequate health workforce management in health facilities

Dissatisfaction with working conditions, low salaries, and weak human resource management in the health sector are the main motivators for migration from Croatia, Serbia, and North Macedonia. Many health professionals who are leaving Croatia to work abroad or in the private sector cite stress and dissatisfaction with their jobs as their reasons for leaving. In 2017, the Croatian Medical Chamber found high rates of emotional exhaustion and depersonalization at work among young physicians. Almost all of them (92 percent) were not content with their work, and 77 percent expected no improvement in this situation. The Chamber also found frequent complaints about nepotism and political cronyism in the health sector.³⁸ In the same year, a survey of nurses yielded similar reasons for leaving Croatia, including

³⁶ Britton et al (2019).

³⁷ Barr (2001).

³⁸ Unpublished data provided by Dr Danko Relić, head of the Zagreb Medical School's Center for Planning of Professions in Biomedicine and Health.

dissatisfaction with working conditions, low salaries, and a lack of recognition of higher degrees,³⁹ all of which contributed to their low job satisfaction.^{40, 41} Serbian health professionals leave their country for similar reasons, including the search for better career opportunities, more professional development and recognition, better working conditions, a better work-life balance, more stable contractual arrangements, greater transparency and rule of law, and the chance to work with modern hospital infrastructure and equipment.⁴²

The bureaucratic hurdles that must be overcome to enter the health workforce are frustrating for young graduates. In North Macedonia, young physicians and nurses find it difficult to enter the workforce. A key reason is the lengthy bureaucratic process for becoming employed in a public health facility. To maintain their clinical practice, some young physicians work as unpaid private residents while registering as unemployed to receive some benefits from the government to live on. The government of North Macedonia is now streamlining the process for becoming employed in the health sector. Furthermore, employment contracts now become permanent after only four to six months, which increases job security.

Good human resource (HR) management in health facilities improves staff morale and patient outcomes.⁴³ The factors essential for efficient HR management includes: (i) redesigning workforce practices to include multi-disciplinary teams and task-sharing; (ii) increasing staff motivation by ensuring that jobs are enriching; (iii) ensuring career progression; (iv) optimizing work-life balance; (v) meeting the needs of women in the workforce; (vi) providing strong leadership and clear communication; and (vii) taking a health network approach in rural communities (Box 2).^{44 45 46}

The three countries have introduced measures to improve staff morale and management in health, but more needs to be done. In Croatia, the government has allowed nurses to replace physicians in emergency vehicles and is planning to shift less-complex tasks from nurses to nurse assistants. As a result, the job content of nurses becomes more important. Croatia has also accessed European Social Funds to strengthen their rural health network to increase access to primary care services in rural areas. Nominal wages for health professionals are considerably higher in higher-income countries than in the three origin countries studied, which increases the attractiveness of working abroad. The Croatian government announced a salary increase for public employees in early 2020, but this has been put on hold because of the fiscal impact of the Covid-19 epidemic. The experience from Estonia, Poland, and Lithuania suggests that health professionals have been returning home as a result of government reforms that have increased salaries and improved working conditions in the health sector.

³⁹ In Croatia, nurses with Masters degrees have the same compensation and responsibilities as those with a Bachelors' degree.

⁴⁰ Vlacic (2017).

⁴¹ Skalec (2018).

⁴² Santric-Milicevic et al (2015).

⁴³ Wilkinson et al (2019).

⁴⁴ Reid et al (2010).

⁴⁵ CFWI (2015).

⁴⁶ Beech et al (2019)

Box 2: Good Human Resource Management

When health staff are efficiently managed, this helps to reduce burn-out and turnover rates, increases job satisfaction among staff and patient satisfaction, improves quality of care, and improves health outcomes.

- **Workforce redesign and task-sharing** consists of multi-disciplinary care teams led by primary care physicians who see only those patients with the most complex health issues. The care management of the remaining patients is devolved to nurses and clinical pharmacists. This task-sharing and the introduction of virtual consultations have reduced patient volumes for physicians and increased the average patient consultation time.
- Some of the tasks normally performed by nurses are shifted to medical assistants, whose **job content** and professional role becomes more important. As a result, more care is expected to be delivered by health support staff in the future.
- **Career development** requires continuous professional development to be an essential component of human resource management. Promotion should be based on fair and transparent procedures and criteria that are relevant to the person's performance in their post. Transparency requires a job description to be accessible to all potential applicants.
- **Optimizing work-life balance** involves flexible working hours for health professionals specific to the needs of each age group, including for staff with child-rearing responsibilities. Older staff may welcome the chance to remain in their jobs on a part-time basis.
- **Women are the backbone of the health workforce.** Working hours should involve flexible shift-patterns and shorter working days to accommodate women during pregnancy and child-rearing. Family-friendly policies should be adopted in hospitals, including the provision of 24-hours childcare facilities for children of health professionals.
- HR management in health requires a **compassionate HR leadership and culture**, with meaningful internal communication and employee engagement to monitor staff concerns and aspirations. For younger staff, providing an inadequate induction can lead to a "sink or swim" working environment with too much responsibility and complexity vested in staff who have only recently qualified. Exit interviews will help ascertain staff members' reasons for leaving and their destination in terms of their future employment and will yield useful information about how best to retain staff.
- **The rural healthcare network** should focus on low-intensity inpatient care and extended primary care including community midwifery and chronic disease management. Primary care services can be provided by nurses with the support of medical assistants and paramedics. Flexible working conditions and professional development opportunities can reduce staff shortages in rural areas by improving the working lives of professional staff and creating local job opportunities, particularly for younger people who would prefer to remain in their rural communities.

5. *The failure to gather and analyze enough data on the health workforce since the Prometheus study*

A lack of data on the health workforce in many countries is hampering analysis of the subject. No data are currently being collected in Croatia, Serbia, or North Macedonia on the total number of health professionals, on the demographics, educational background, or professional experience of physicians and nurses who migrate to work abroad, on how long they stay and whether or not they return, or on their career development. The few "intention to leave" surveys that have been conducted suggest that younger, male, and single physicians are more likely than others to leave to work in other countries. The Prometheus study identified data limitations as a key constraint and recommended that countries invest in better data on and analysis of the health workforce and its mobility. Some initiatives have since been taken to improve data collection. For example, in 2019, the Ministry of Health of North Macedonia

launched an electronic registry of the health workforce in the public sector. However, as a result of the absence of data, it is impossible to assess whether more experienced health professionals stay employed in the public sector, leave to work in the private sector, or migrate to work abroad. In the absence of comprehensive statistics on the health workforce in the three countries, it is also not possible to discover the percentage of health professionals who have left their countries to work abroad. Because data on nurses are also limited, it is not possible to get a clear picture of how many nurses from the three countries have been working abroad in the past decade. For example, the number of nurses working in the home-based and long-term care health sectors in Germany, Austria, and Italy has increased in the mid-2000s, but these numbers are not captured in government statistics as many nurses work in the informal sector or are self-employed. The lack of data limits health workforce planning in all four countries and is inadequate for managing the future health workforce.

6. The continued use of past trends instead of future projections in health workforce planning

Increased emigration is a direct result of inadequate health workforce planning and management.

Accurately forecasting future medical workforce needs and managing the complex dynamics of health worker supply and demand is a challenge for all countries given the rising expectations for health care and increasing health workforce mobility.⁴⁷ A systematic analysis of the health workforce is critical to understand current and future workforce needs. In all four countries included in this study, the data and methods used in health personnel planning are inadequate for managing the future health workforce. Health workforce planning is still based on historical population trends and is overly focused on physicians, taking too little account of staff needs in outpatient and hospital care and in rural and urban areas.⁴⁸ As a result, this process reinforces existing shortages and unemployment and causes health professionals to leave to find work in other countries or different sectors. This is also the case in Germany where health workforce planning data and methods do not address some of the key challenges in the health sector including: (i) high vacancy rates in the health sector as a result of full employment; (ii) an aging health workforce force; and (iii) insufficient numbers of medical graduates to meet the current and future demands of the health sector. Workforce planning should anticipate changes in the demographics of the population and the health workforce, the composition and mobility of the workforce, regional differences in vacancies, staffing, and unemployment, reforms in the work process that facilitate task-shifting across health professions, and new care structures and technology.

Health workforce planning models involve a series of assumptions about how various factors might evolve in the future. These models require regular updating and a broadening of their scope to take into account changing economic and health service delivery contexts and assessments of the expected impact of different policy options and scenarios. The Joint Action Plan on Health Workforce Planning and Forecasting assists EU member states in developing the kind of health workforce that will be needed in the future. It covers four areas: (i) collecting better data for health workforce planning; (ii) using model-based planning methodologies informed by best practice; (iii) exchanging practical experience of planning methods; and (iv) using forecasting results in policymaking.⁴⁹ The Action Plan facilitated the creation of a minimum dataset for health workforce planning and the development of a handbook on health workforce planning methodologies. A recent assessment identified a need to invest in more detailed country-specific

⁴⁷ Bruen and Brugha (2020).

⁴⁸ Boeckmann et al (2016).

⁴⁹ Buchan et al (2014).

analysis and health workforce planning and to provide more support to local partners.⁵⁰ This initiative is still ongoing and might eventually be expanded to include Serbia and North Macedonia.

The workforce planning methods used by OECD countries provide helpful insights for other countries.

Health workforce planning includes a five to ten year planning cycle for the Queensland government in Australia.⁵¹ It includes three components: (i) defining the strategic direction for the health sector and identifying implications for the health workforce, (ii) conducting a future gap analysis of the current workforce; and (iii) setting strategic directions for the future workforce (Figure 4). This process involves defining benchmark parameters (based on best-practice guidelines and values from comparator countries) against which to compare subsequent results and identifying major challenges and opportunities for change. These parameters need to be regularly adjusted based on a review of changing health care delivery practice. For example, in the past, a benchmark ratio of one doctor to 2,000 population was generally used in planning. However, these days OECD countries use an adjusted ratio of one doctor per 1,800 population, which reflects the additional workload required for an aging population where 15 to 20 percent are aged over 65, a multi-disciplinary team approach, and the widening scope of practice to treat patients with non-communicable diseases, different acuities, and growing patient expectations. Finally, the implementation plan should map out the detailed actions needed over the forthcoming years and identify the responsibility for service delivery and financing.

Figure 4: Health Workforce Planning Process in Australia



Source: Queensland Government (2020).

Additional models are used in some countries to reduce the complexity of the health workforce planning process. In England, the Horizon 2035 project on the health workforce used horizon scanning

⁵⁰ Kroezen et al (2018).

⁵¹ Queensland Government (2020).

methods that identify how the future could look like in a planning model. This method results in four key messages for the future as follows. The first message is that the demand for health care and workforce time will grow twice as fast as the overall population. Second, 80 percent of additional demand will be driven by long-term care needs. Third, a radically different skill mix will be needed in the future, with a substantial increase in demand for support care skills. Fourth and finally, these new insights need to be incorporated into health workforce planning for the future.⁵² The UK Department of Health uses system dynamics simulation methods, which analyze the current demand for health services, future population growth, changes in levels of the population's need for health services, changes in workforce productivity (for example, through technological advances), and changes in service delivery to project future demand for health workers. These workforce projections are then segmented by gender, age, and primary and secondary care specialties to identify how the future health workforce will look like.⁵³ The amount of data needed is immense, and in many cases needs to be collated from different sources. The outcome will be a more accurate health workforce and skill mix which is expected to lead to improved quality of care, better alignment of staffing with patient need, improved staff morale, and reduced labor cost.

Policy Recommendations

The recommendations from the four country case studies are in line with those presented in previous studies. That Prometheus study made four policy recommendations: (i) to collect more data on the health workforce and on migration and to carry out more evaluations of the workforce; (ii) to develop health workforce strategies to retain more health professionals and optimize the skill mix in the health sector; (iii) to improve health workforce planning based on assessments of health workforce needs and better data; and (iv) to create an international framework to govern the recruitment of foreign staff, including bilateral agreements. These recommendations are in line with those from our four country case studies, which also offer additional recommendations on investing in high quality health education, health workforce management and planning, and the management of health migration.

1. Align education policy with health workforce needs

Align health education with health workforce needs in origin and destination countries. Educational spending and student numbers should match the current and anticipated needs of the health system and current and anticipated employment opportunities and should take into account the implications of the aging health workforce for the education system. In countries with shortages of healthcare personnel, the capacity for training physicians and nurses should be expanded. Partnerships between accredited universities in origin and destination countries can extend the number of study places available to foreign students. The findings from the health workforce planning process should inform the availability of medical specialty training to ensure that the future need for specific health professionals is met.

2. Invest in high quality health education

Invest in improving the quality of medical and nursing education in line with EU best practice. Destination countries could support medical and nursing education reforms in countries of origin (such as Serbia and North Macedonia) to ensure that their medical training meets EU standards and that their degrees are recognized by EU countries. This could include restructuring the nursing curriculum, enacting

⁵² CFWI (2015).

⁵³ Willis et al (2018).

stricter criteria for enrollment and graduation, developing an accreditation program for nursing schools and medical faculties, and closing non-accredited schools, as this was done in Croatia. Partnerships between governments, learning institutions, and professional associations (such as medical professionals associations) in origin and destination countries could strengthen the quality of programs and teaching at universities in origin countries and facilitate their participation in international medical school rankings. Furthermore, to be able to produce strong candidates for university medical programs, governments need to invest in improving the quality of the science curriculum in the general education system. Setting high quality standards for university entrance exams in line with EU requirements will help to improve the quality of applicants and increase the number of students who are capable of completing their studies.

Attract highly qualified diaspora teaching staff to return home to work in local universities. There is scope for EU funding to support medical research positions at universities and hospitals in origin countries with a focus on science, technology, and innovations in health fields. These research positions might attract researchers from the diaspora to return home to advance medical research in their native countries. Their presence would also help increase the practical research experiences of medical and science students at local universities and hospitals. Destination countries could support this process by helping medical faculties in origin countries to enter international partnerships, such as the Erasmus Program, or to access research and science fellowship programs funded by, for example, the EU (such as the Marie Curie research fellowship program⁵⁴) or investments by private research firms.

Decentralize the training of nurses to rural areas to ensure future staffing in rural health facilities. Students who come from and are trained in rural areas are often more willing to work in rural areas. The decentralization of training would involve establishing branches of accredited nursing schools in rural communities to recruit and train young people from these communities to be nurses and allied health professionals (Box 2).

3. Reform tertiary education financing for medical studies

Expand innovative financing for medical education. Universities in Croatia and Serbia already provide pre-clinical courses taught in English, and these courses should charge full-cost tuition based on a cost-analysis to raise revenues from local and foreign students to fund medical education programs. Additional revenues could be raised in origin countries by increasing tuition fees for all medical students and implementing income contingent loan schemes and efficient repayment systems based on the experience of other countries such as Hungary, the Netherlands, and Ireland. It would first be necessary to define a legal framework for the ICL and to set up an efficient repayment mechanism that took account of international workforce mobility. Alternatively, following the UK experience, the scheme could instead require graduates to make monthly direct transfer repayments to the government that funded their education. Alternatively, as happens in New Zealand, the governments could put a legal obligation on the migrating debtor to repay an annual minimum amount of their ICL, or they could link it to the provision of relevant government services, such as passport renewals.

Introduce a repayment mechanism for physicians who benefit from subsidized public medical programs in their own countries and then migrate abroad after they graduate. Destination country governments, such as Germany and Slovenia, would collect the ICL repayment from the wages earned by physicians

⁵⁴ Marie Curie Research Fellowship Program. <https://ec.europa.eu/research/mariecurieactions/>

from the three countries and transfer the amount back to their respective governments. This would be in the form of a payroll tax levied by the destination country government on the salaries of foreign physicians (similar to a social insurance contribution) and then remitted to their countries of origin (Serbia, Croatia, or North Macedonia). Governments in destination countries could also match this repayment amount (as is done with social insurance contributions) and include that matching amount in the revenue amount transferred to origin countries to help to cover the high costs of providing tertiary medical education in those countries.

4. Modernize health workforce management

Modernize human resource management in health facilities. A motivated health workforce is crucial to ensure good quality care. To address staff concerns about poor working conditions, origin countries should modernize their human resource management in their health facilities (Box 2). This could involve developing effective employee promotion policies and a process for managers to follow, improving working conditions, offering employees opportunities for continuous medical education and opportunities to conduct medical research, and ensuring that health professionals can fully apply their knowledge by providing them with appropriate health infrastructure and medical equipment. Best practice is to encourage managers to conduct exit interviews with staff to determine the reasons for leaving and their destinations in terms of future employment. These data can then help current HR management to improve their staff satisfaction and retention strategies.

Review the work process in health facilities. A review might reveal daily tasks that can be shifted from physicians to nurses or to young medical graduates to alleviate some of the work pressure currently borne by physicians. For example, primary care services can be provided by nurses with the support of medical assistants and paramedics, which can widen the scope of these jobs while also reducing the burden on emergency care physicians. Clinical practice programs to attract medical students and graduates could be set up in health facilities in rural areas where there are staff shortages. Within the current fiscal context, all of the three origin country governments should be able to afford to finance more nurse positions in health facilities, starting in rural areas where access to care is limited. Flexible working conditions, professional development opportunities, and family-friendly policies are all key factors in good management.

Strengthen career counselling for unemployed health professionals and help them to find employment locally or abroad. Where necessary, unemployed physicians and nurses should be given additional support to facilitate their entry into the workforce, especially in areas where shortages exist. This can include mentoring programs to facilitate the entry of new medical graduates into the workforce and the recruitment of unemployed physicians and nurses in rural areas with shortages. Alternative work arrangements could be offered (such as part-time work and job-sharing) to increase the number of health staff that can be employed within the current full-time equivalent positions and budget constraints.

Revisit pay scales in health and ensure transparency. Pay scales should be defined according to the objectives of a position using measurable factors such as seniority, patient load, patient complexity, task complexity, shift length and timing, and serving in an under-served location. Performance-based bonuses can be paid to staff for achieving an agreed set of targets. Publishing pay scales and allowances/benefits

packages so that they are clear to all those working in the health sector is a way to introduce greater transparency into the health market and to address low morale and shortages in underserved areas.

5. Collect data and conduct analysis

Make substantial investments in better data collection and analysis in all countries. Serbia, Croatia, and North Macedonia could partner with Germany and other destination countries to ensure that their data collection, management, and reporting follow international standards. More data and analysis are needed on the financial and teaching performance of nursing schools and medical faculties, including their quality and learning outcomes. The Ministries of Health also need data on their health workforce to analyze vacancies in health facilities by medical specialty and to use the results in health workforce planning and recruitment. These data encompass all major staff groups by grade (including staff in full-time equivalent positions), headcounts of physicians by specialty and grade of nurses and professional and technical staff, the age structure of staff with annual numbers of people joining and leaving the sector (including via migration), and the capacity and output of medical faculties and nursing schools. Data derived from payrolls that are aggregated nationally and regularly tend to be the most up-to-date and reliable information on the public workforce. A substantial increase in data and analysis will be required to fill the current dearth of information on the migration of nurses and physicians by specialty, the length of time that they work abroad, their return migration, their educational achievements, and their professional expertise. Having data on returnees' reintegration into the workforce in their origin countries will make it possible to identify how their newly acquired skills affect their career development and the quality of health care delivery.

6. Modernize health workforce planning

Conduct analysis of the productivity and dynamics of the health workforce in the public and private health sector and use the results in health workforce planning. Best practice workforce planning begins with national leadership and involves key stakeholders in the process. To set up such a workforce planning structure, the Ministries of Health of the three countries could create a steering committee to oversee the planning process that would be implemented by technical working groups. The main stages in this process are depicted in Figure 4 above and consist of: (i) defining specific planning objectives congruent with the national health strategy; (ii) carrying out a situational analysis of existing staffing in relation to the structure and capacity of health services; (iii) projecting future staff requirements by specialty and staff group; (iv) assessing the supplies from health training institutions, and (v) developing an implementation strategy and action plan.⁵⁵ Horizon scanning methods can be used to visualize how the future health sector might look and define objectives for the sector. The second step involves analyzing the quality and productivity of staff across major service areas, the results of which should be used to inform the budgets for the health workforce and medical education. To conduct this analysis, detailed data will be needed on population numbers, a breakdown of the health workforce, the existing structure, capacity and use of services including bed levels and occupancy, and patient activity levels by type of facility and medical condition. Modern methods should be used to ensure that the forecasting and planning process takes account of increased mobility across borders, changing disease burdens, changes in medical technology, aging populations, and aging health workforces.

⁵⁵ OECD (2013).

The governments of Croatia, Serbia and North Macedonia should consider collaborating with other countries to develop a comprehensive workforce forecasting model. This could be done with the help of the Joint Action Plan on Health Workforce Planning and Forecasting, which helps to set up country learning clusters, gather a minimum data set and which provides modern methods for workforce planning.

7. Develop policies to manage health workforce mobility

Harness the benefits of health workforce mobility. The governments of Croatia, Serbia, and North Macedonia should consider collaborating with the governments of destination countries to facilitate temporary migration for physicians and nurses to expand their clinical skills in Germany and elsewhere and then return to work in their home countries. The return of highly qualified health professionals to work in the health care system and in medical research facilities would also improve the quality of health care in the three countries. This type of managed migration would allow highly qualified nurses and physicians who return home to take up positions commensurate with their newly acquired qualifications and skill levels to provide health care and carry out research at home without the loss of seniority benefits.

Adopt migration policies that can help destination countries to fully benefit from mobility. Destination countries could expand their well-functioning programs such as Germany's Triple-Win program and its current active recruitment of nurses from countries with high nurse unemployment. Croatia is in the process of becoming a destination country as it is beginning to recruit medical personnel from other countries to fill growing shortages in rural areas. The Croatian government could reform its administrative processes to accelerate the hiring of foreign health professionals as was done by the German government. Croatia should also take steps to facilitate recruitment from bordering countries with unemployed physicians, including Serbia and Bosnia and Herzegovina, by providing foreign nationals with support with language skills, education, and career development to maximize their contribution to the Croatian health sector. Using such a diversity management approach (using best practices with proven results to create a diverse and inclusive workplace) within healthcare institutions and training institutions and providing foreign applicants with more realistic information about the health sector during recruitment can facilitate the entry of foreign physicians and nurses into the local health workforce.

References

- Barr, Nicholas (2001). *The Welfare State as Piggy Bank: Information, Risk, Uncertainty, and the Role of the State*. Oxford University Press, Oxford.
- Beech, Jake, Simon Bottery, Helen McKenna, Richard Murray, Anita Charlesworth, Harry Evans, et al. (2019). "Closing the Gap: Key Areas of Action of The Health Workforce." The Health Foundation, Kings Fund, and The Nuffield Trust, London <https://www.kingsfund.org.uk/publications/closing-gap-health-care-workforce>
- Boeckmann, Melanie, Rebecca Runte, Miriam Düsterhöft, and Heinz Rothgang (2016). *One handbook for diverse needs? A feasibility study at state-level within Germany's self-governed healthcare system*. University of Bremen/ The Joint Action Health Workforce Planning and Forecasting, EU. http://healthworkforce.eu/wp-content/uploads/2016/07/D054_Specific_Report_FS_DE.pdf
- Britton Jack, Laura van der Erve, and Tim Higgins (2019). "Income contingent student loan design: Lessons from around the world." *Economics of Education Review* 71; 65-82.
- Bruen Carlos and Ruairi Brughna (2020). "We're not there to protect ourselves, we're there to talk about workforce planning: A qualitative study of policy dialogues as a mechanism to inform medical workforce planning." *Health Policy* 124; 736-742.
- Buchan, James, Matthias Wismar, Irene Glinos, and Jenni Bremner (2014). "Health professional mobility in a changing Europe. New dynamics, mobile individuals, and diverse responses." World Health Organization, Geneva.
- CFWI (2015). "Future demand for skills: Initial results of Horizon 2035." Centre for Workforce Intelligence, <http://www.cfw.org.uk/>
- Deutsches Aerzteblatt (2020). *Anwerbung ausländischer Pflegekrafte stockt*. August 4, 2020. <https://www.aerzteblatt.de/nachrichten/sw/Ausl%E4ndische%20Pflegekr%E4fte?s=&p=1&n=1&nid=115291>
- Dustmann, Christian and Joseph-Simon Goerlach (2016). "The Economics of Temporary Migration." *Journal of Economic Literature*, 54(1), 98-136.
- European Commission (2012). *Staff working document on an action plan for the EU health workforce. Towards a job-rich recovery*. Strasbourg, European Commission (http://ec.europa.eu/dgs/health_consumer/docs/swd_ap_eu_healthcare_workforce_en.pdf)
- German Bundesaerztekammer (2020). Physician statistics for 2019. <https://www.bundesaerztekammer.de/ueber-uns/aerzttestatistik/aerzttestatistik-2019/>
- GIZ (2019), "Project Triple Win: Recruiting nurses from abroad sustainably." <https://www.giz.de/en/downloads/giz2019-en-triplewin.pdf>
- Glinos, I.A. (2015). "Health professional mobility in the European Union: exploring the equity and efficiency of free movement." *Health Policy*, 119, 1529-1536.
- Glinos I., J. Buchan, and M. Wismar (2014). "Health professional mobility in a changing Europe: Lessons and findings," in J. Buchan, M. Wismar, I. Glinos, and J. Bremner (eds) *Health professional mobility in a changing Europe: New dynamics, mobile individuals and diverse responses*. European Observatory on Health Systems and Policies, WHO.

- Jekic, I.M., A. Katrava, M. Vučković-Krčmar, and V. Bjegović-Mikanović (2011). "Geopolitics, economic downturn, and oversupply of medical doctors: Serbia's emigrating health professionals," Chapter 19 in M. Wismar, C.B. Maier, I.A. Glinos, G. Dussault, and J. Figueras (eds). *Health professional mobility and health systems. Evidence from 17 European countries*. WHO Regional Office for Europe, Copenhagen on behalf of the European Observatory on Health Systems and Policies.
- Kroezen, Marieke, Michel Van Heogaerden, and Ronald Batenburg (2018). "The joint action on health workforce planning and forecasting: Results of a European programme to improve health workforce policies." *Health Policy*, 122(2);87-93.
[https://pubmed.ncbi.nlm.nih.gov/29241846/#:~:text=The%20Joint%20Action%20on%20Health%20Workforce%20Planning%20and%20Forecasting%20\(JAHWF,the%20HWF%20and%20HWF%20planning.](https://pubmed.ncbi.nlm.nih.gov/29241846/#:~:text=The%20Joint%20Action%20on%20Health%20Workforce%20Planning%20and%20Forecasting%20(JAHWF,the%20HWF%20and%20HWF%20planning.)
- Newton, S., J. Pillay, and G. Higginbottom (2012). "The migration and transitioning experiences of internationally educated nurses: a global perspective." *Journal of Nursing Management*. 20:4, 534–550.
- OECD (2020). *International Migration Outlook 2020*. OECD Publishing, Paris https://read.oecd-ilibrary.org/social-issues-migration-health/international-migration-outlook-2020_ec98f531-en#page1
- OECD (2019). *Recent Trends in International Migration of Doctors, Nurses, and Medical Students*. OECD Publishing, Paris <https://doi.org/10.1787/5571ef48-en>.
- OECD (2013). *Health workforce planning in OECD countries: a review of 26 projection models from 18 countries*. OECD Health Working Paper No. 62, OECD Publishing, Paris
- Ognyanova Diana, Claudia B. Maier, Matthias Wismar, Edmond Girasek, and Reinhard Busse (2012). "Mobility of health professionals pre and post 2004 and 2007 EU enlargements: Evidence from the EU project PROMETHEUS." *Health Policy*, 108, 122-132.
- Queensland Government (2020). Strategic workforce planning guide.
<https://www.health.qld.gov.au/system-governance/strategic-direction/health-workforce-information-gateway/workforce-planning>
- Reid, R.J., K. Coleman, E.A. Johnson, P.A. Fishman, C. Hsu, M.P. Soman, et al (2010). The group health medical home at year two: cost savings, higher patient satisfaction, and less burnout for providers. *Health Affairs*, 29(5):835–43 <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2010.0158>
- Santric-Milicevic, M., B. Matejic, Z. Terzic-Supic, V. Vasic, U. Babic, and V. Vukovic (2015). "Determinants of intention to work abroad of college and specialist nursing graduates in Serbia." *Nurse education today*, 35(4), pp.590-596. <https://www.ncbi.nlm.nih.gov/pubmed/25623630>
- Skalec, K. (2018). "Emigration intent among nursing students at the Croatian Catholic University - Nursing Department." Zagreb, October. https://bib.irb.hr/datoteka/957804.Kristina_kalec_-_diplomski_rad-konana_verzija.docx
- Vlacic, A. (2017). "Opinions of nurses on professional careers and migration abroad." Bachelor of Science thesis. Osijek. <https://repozitorij.mefos.hr/islandora/object/mefos%3A670/datastream/PDF/view>
- WHO (2010a). *The WHO Global Code of Practice on the International Recruitment of Health Personnel*, World Health Organization <http://www.who.int/hrh/migration>.

- WHO (2010b). *Global policy recommendations on increasing access to health workers in remote and rural areas through improved retention* Geneva WHO
http://whqlibdoc.who.int/publications/2010/9789241564014_eng.pdf
- Willis, Graham, Siôn Cave, and Martin Kunc (2018). Strategic workforce planning in healthcare: a multi-methodology approach. *European Journal of Operational Research*, 267 (1), 250-263.
- Wilkinson, A., O. Muurlink, N. Awan, and K. Townsend (2019). HRM and the health of hospitals. *Health Services Management Research*. Vol. 32(2) 89-102.
- Wismar, M., C.B. Maier, I.A. Glinos, G. Dussault, and J. Figueras (eds) (2011). *Health professional mobility and health systems. Evidence from 17 European countries* (Prometheus Study). WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies, Copenhagen.
- Wiskow, C. (2006). *Health worker migration flows in Europe: overview and case studies in selected CEE countries-Romania, Czech Republic, Serbia and Croatia*. ILO, Geneva.
- Wood, C.A. (2011). "Employment in health care: a crutch for the ailing economy during the 2007-2009 recession." *Monthly Labor Review* 134(4): 13-8.
- Zander, B., M. Blümel, and R. Busse (2013). "Nurse migration in Europe: Can expectations really be met? Combining qualitative and quantitative data from Germany and eight of its destination and source countries." *International Journal of Nursing Studies*. 50:2, 210-218.

CASE 1: GERMANY

Introduction

There are growing concerns in new European Union (EU) member states and in the Balkan countries about their health professionals leaving to work in higher-income countries. It has been argued that the permanent migration of physicians to higher-income countries could disproportionately benefit health systems in these wealthier EU member states, mainly because they do not reimburse the less advantaged countries for the cost of the migrants' expensive medical education.⁵⁶ This is problematic because health professionals are among the most highly educated individuals in their countries having benefited from years of expensive medical training, and they are needed to ensure the provision of comprehensive health coverage in their countries of origin. Given that destination countries such as Germany are recruiting foreign health professionals, this leaves their countries of origin footing the bill for the expense of their medical education and getting no return for it.

This note summarizes the findings of a country case study on Germany in the context of a World Bank study on health workforce mobility from Croatia, Serbia, and North Macedonia. Germany currently has the highest number of immigrants in the EU, which is why it was selected for this analysis. For each country case, many key informants were interviewed, including health and education experts, and data were collected from the government, from medical and nursing schools, and from hospitals (Annex 1). Interviews for the German case study were conducted by phone between December 2019 and February 2020. These case studies are not meant to be representative of the EU and Balkan region.

The analysis in the Prometheus study included Germany.⁵⁷ It found that, despite Germany's restrictive laws on migration, the number of physicians from the new EU12 countries who were working in Germany had increased from 2,571 in 2003 to 4,409 in 2008. Most of these physicians came from Poland and Romania. The total number of nurses from new EU member states working in Germany had increased only slightly, but the study estimated that the actual number could be much higher as the data on nurses were extremely limited. Some nurses were registered as self-employed at home, which under the German laws allowed them to work for more than one client in Germany. In 2011, the Prometheus study concluded that Germany's restrictive labor market approach may have influenced health professionals' migration decision following the EU enlargement in 2004 and 2007.

Our findings show that Germany faces four major challenges in the area of its current and future health workforce: (i) full employment and high vacancy rates; (ii) an aging health workforce; (iii) insufficient numbers of medical and nursing graduates to meet demand; and (iv) inadequate data to monitor these challenges and inform policy decisions. The German government is already addressing these issues by making reforms in the health and education sectors. Based on the findings of this case study, we offer some additional policy recommendations to different branches of the German government, including the Ministries of Health and Education, and to the German development agency, *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) GmbH, to support the quality of the medical education provided in other countries and to improve the management of a mobile health workforce.

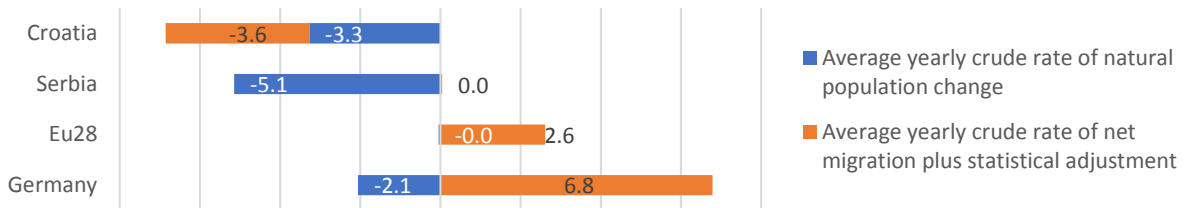
⁵⁶ Glinos (2015).

⁵⁷ Wismar et al (2011).

Germany has more immigrants than any other EU country whereas the populations of the Balkan countries are shrinking

Because Germany receives the highest number of immigrants in the EU, its population is growing. Between 2012 and 2018, Germany had a considerably higher net migration rate than the EU28 average (Figure 5). Net migration to Germany has averaged over 570,000 people annually over the last five years, which has more than compensated for the decline in Germany’s population caused by its below replacement fertility rate. More people migrated to Germany than to other EU countries (Figure 6), including from the Balkans. Meanwhile, the populations of the Balkans countries are declining due to both outmigration and falling fertility rates.

Figure 5. Crude rate of total population change, 2012-2018 yearly average

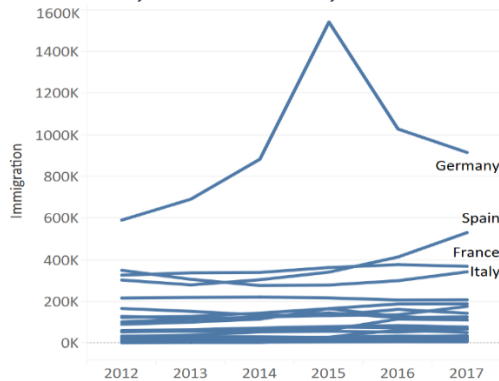


Source: Eurostat.

Note: North Macedonia conducted the last population census in 2002.

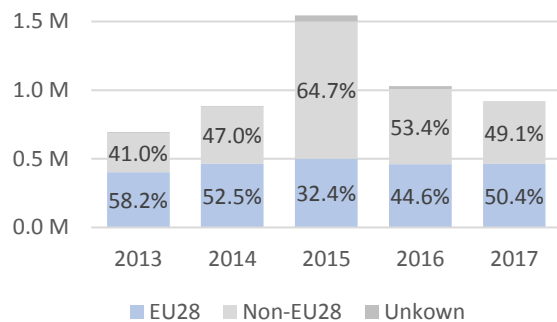
In 2018, about 100,000 people from Croatia, North Macedonia, and Serbia immigrated to Germany. Croatia has been an EU member since 2013, whereas Serbia and North Macedonia are not. Except for a surge in non-EU migration in 2015 during the peak of the refugee crisis, migration inflows to Germany are evenly split between EU and non-EU citizens (Figure 7). Since 2013, about 48,000 Croats have moved to Germany every year. In addition, between 2013 and 2018, Germany received an average of 17,100 immigrants annually from North Macedonia and 31,700 from Serbia.⁵⁸

Figure 6. Immigration to EU countries by all nationals, annual numbers, 2012-2017



Source: Eurostat and German Federal Statistical Office

Figure 7. Immigration to Germany by EU or non-EU citizenship, annual % distribution, 2013-2017



⁵⁸ German Federal Statistical Office

Among these immigrants are a growing number of foreign physicians and nurses

The number of foreign physicians in Germany has doubled over the past decade, with most arriving from the new EU member states, including a recent surge from the Western Balkans. The number of foreign medical doctors (MDs) in Germany increased from 22,000 in 2008 to over 58,000 in 2019 (Figure 8), amounting to 14.5 percent of all physicians in 2019, compared to 4.2 percent in 2008. Most of these physicians came from new EU member states, mainly Romania, Hungary, and Bulgaria. There has also been a surge in physicians immigrating from the Middle East and North Africa (Syria and Egypt). By 2018, Syrian and Egyptian physicians constituted 18 percent of foreign MDs in Germany, just below the 21 percent who came from old EU member states. Another 6 percent came from the Western Balkans (Figure 9). By 2018, most foreign MDs in Germany were from Romania (4,312), Syria (3,908), and Greece (2,777). The number of Romanian physicians in Germany peaked in 2014, seven years after Romania joined the EU and Germany opened its labor market to Romanians. The number of Croatian physicians has been growing steadily since 2013. The number of physicians migrating from the Western Balkans grew substantially between 2012 and 2017, with a surge in 2015 (Figure 10); although these countries are not EU member states. Germany is the most popular prospective destination for Serbian first-year and fifth-year medical students who intend to emigrate and practice abroad.⁵⁹

Figure 8. Foreign physicians in Germany, total numbers by region of origin, 2004-2018

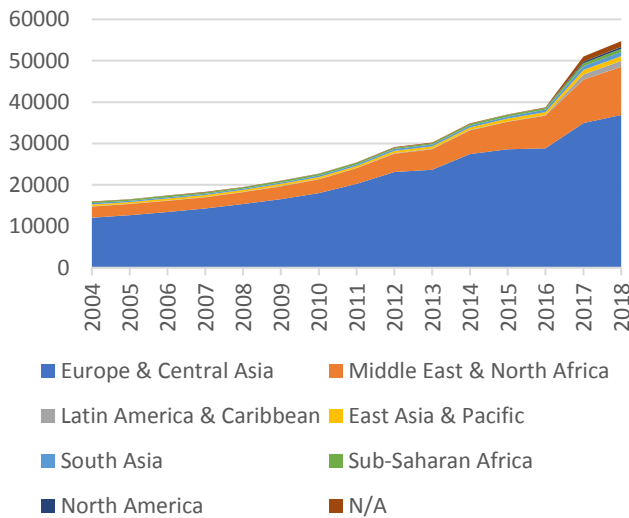
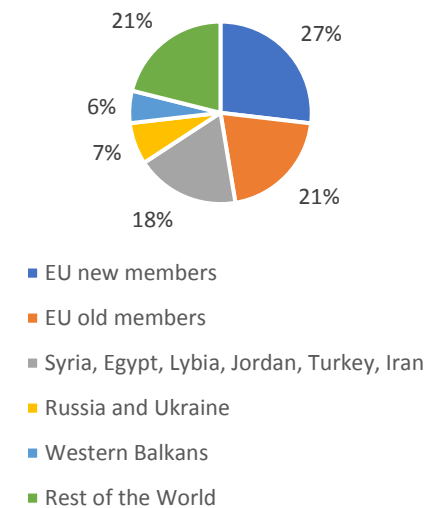


Figure 9. Foreign physicians in Germany, % distribution by region of origin, 2018

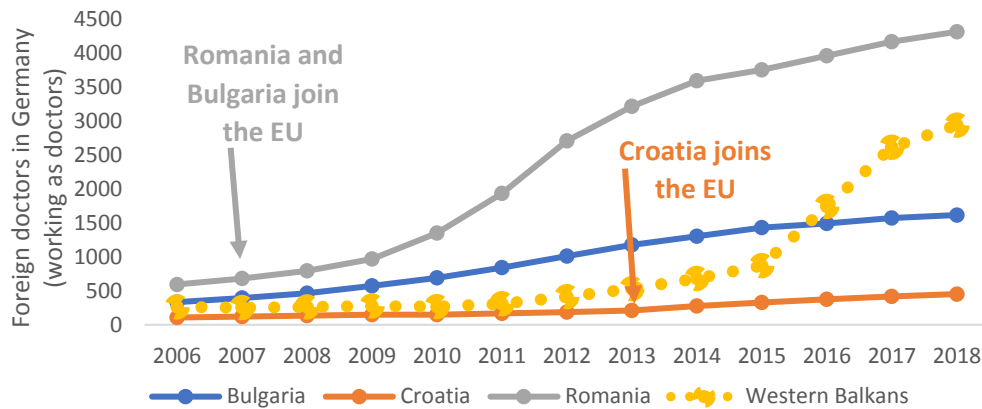


Source: German Federal Statistical Office

Note: "EU new member states" include states that joined the EU on or after 2004. "EU old member states" include states that joined before 2004 (EU15).

⁵⁹ Santric-Milicevic et al (2014).

Figure 10. Foreign physicians in Germany, from selected countries, total number 2006-2018



Source: German Federal Statistical Office

Not all health workforce migration is permanent, but more data are needed on return migration and the benefits of this for origin countries. Not all health professionals make a long-term or permanent decision to migrate.⁶⁰ Temporary migration to higher-income countries like Germany is often the only way for physicians and nurses to gain professional experience in centers of excellence or in a relevant subspecialty. Temporary migration is common among health professionals and is used to take advantage of training opportunities before moving on to work in other countries or returning home to bring new skills and experience to the country of origin. However, no data are collected on these temporary and return migration flows, which means that there is only anecdotal evidence on return migrants. Little is known on returnees' reintegration into the local health workforce and how their newly acquired skills affect their career development and health care delivery. Still, during the past decade Germany has become a preferred destination for foreign health professionals. There are several reasons that explain this trend.

Since 2012, the German Government has introduced legislation and programs to facilitate international recruitment of health professionals

The German government has introduced a series of laws to facilitate the hiring of foreign health professionals. In 2011, the Prometheus study found that Germany's restrictive labor market approach was one of the reasons why only few foreign health professionals moved to Germany following the EU enlargement. However, in the following years, the Government launched a process to open the health labor market to foreign health professionals. Physicians who have completed their training in the EU, the European Economic Area (EEA), or Switzerland are eligible to practice in Germany. To facilitate the recruitment process for all other foreign workers, the Federal Recognition Act⁶¹ was adopted in 2012, based on which the state health authorities assess the qualifications of physicians who have completed their training in other countries for equivalency on a case-by-case basis.⁶² Foreign physicians who are preparing for this equivalency test are granted a provisional license to perform a restricted number of

⁶⁰ WHO (2017).

⁶¹ Federal Recognition Act. Anerkennung in Deutschland. Recognition in Germany www.anerkennung-in-deutschland.de/html/en/federal_recognition_act.php

⁶² Some *Bundesländer* only have one medical license agency known as *Approbationsbehörde*, while other Federal States have several medical license agencies, with different requirements regarding documents to be submitted. Besides identification documents, these may include proof of clean criminal record, health certificates, proof of German language knowledge (at least B2 level, plus a specific Medical German test - Level C1 of CEFR), birth certificates, CV in German, and copies of medical degrees.

medical activities for up to two years.⁶³ In 2015, the Act on the Acceleration of Asylum Procedures was adopted and allows foreign physicians who are asylum seekers to work alongside certified physicians in refugee centers without the required German license. In 2020, the government has reduced the minimum salary restrictions for EU Blue Card holders from €55,200 to €46,056 per year to reduce personnel shortages, including for physicians.⁶⁴ Reducing the salary threshold below the annual average wage of €50,000 for physicians allows recruiting more junior staff. The government still monitors the hiring process to ensure that all ethical standards are met. The German government coalition agreement is committed to managing health workforce mobility. In addition, the Ministry of Health in collaboration with GIZ is in the process of developing a global health strategy.⁶⁵ These measures open the German health labor market for foreign health professionals.

Germany’s “Triple Win” program facilitates the recruitment of nurses from countries with high unemployment, including Serbia. “Triple Win” is a joint program established by the German Federal Employment Agency’s International Placement Service and the GIZ to recruit qualified nurses for German employers. The program focuses on countries with more nurses than jobs, including Serbia, Bosnia & Herzegovina, the Philippines, and Tunisia. Since the program’s inception in 2013, about 5,700 nurses have participated. The program assesses and selects nurses, provides them with language and professional courses, and matches them with employers. It also offers them administrative and logistic support for their move to Germany and their stay (such as help with paperwork, housing, and travel). The program has a high satisfaction rate (98 percent) and low dropout rates. Demand has continued to grow both from nursing staff and German employers. However, the Serbian government decided to stop participating in the Triple Win program as of February 2020, despite high unemployment rates among nurses, and over concerns that too many nurses migrating to Germany might lead to shortages in Serbia in the future.⁶⁶

More recently, the German Ministry of Health and the state of Saarland have established a public agency to facilitate the faster recruitment of foreign nurses. Until now, it took up to two years for a foreign nurse to go through the administrative immigration process and be available to start working in Germany. To accelerate this process, the government in 2019 established the German Agency for Skilled Workers in the Health and Nursing Professions (DeFa),⁶⁷ financed mainly by the Ministry of Health. DeFa is responsible for processing the recognition of educational degrees and issuing visas and work permits for health professionals within six months.⁶⁸ Employers pay €350 for this service for each person recruited. Currently, most applications processed by DeFa are from nurses from Mexico and the Philippines, although the Philippine government has currently suspended the emigration of nurses due to the COVID-19 epidemic.

Germany has introduced these legislations and programs to respond to a growing demand for health professionals. With these reform measures, the German government is facilitating the international recruitment of health professionals to meet current and future demand, and address the following

⁶³ Amendment of the European Professional Qualification Directive (2005/36/EC) to make it applicable to citizens from all countries. <https://www.deutschland.de/en/topic/knowledge/how-to-become-a-medical-doctor-in-germany>

⁶⁴ What is the EU Blue Card? <https://www.auswaertiges-amt.de/en/aamt/zugastimaa/buergerservice/faq/02a-what-is-the-blue-card/606754>

⁶⁵ <https://www.giz.de/de/weltweit/79725.html>

⁶⁶ <https://www.zeit.de/wirtschaft/2020-02/migration-serbien-pflegekraefte-deutschland-fachkraefte-kooperation>

⁶⁷ Deutsche Fachkräfteagentur für Gesundheits- und Pflegeberufe (DeFa): <https://www.defa-agentur.de/>

⁶⁸ <https://www.bundesgesundheitsministerium.de/presse/pressemitteilungen/2019/4-quartal/pflegekraefte-ausland-defa.html>

challenges: (i) high vacancies rates in Germany’s health sector and full employment, (ii) an aging health workforce force, (iii) inadequate data and methods for health workforce planning, and (iv) insufficient numbers of health graduates to meet the current and future demands of the health sector. The following sections examine these challenges in more details.

Germany needs foreign health professionals to fill current vacancies and reduce shortages

Germany can afford to support more jobs in the health sector than Balkan countries as its health spending is higher, but not all health positions are being filled leading to shortages. Higher-income countries like Germany have more physician and nurse positions per capita than the countries in the Balkans (Figure 11 and Figure 12). This is because the number of health jobs available in any given country is determined by total health spending, which is influenced by economic growth. However, Germany does not have enough physicians and nurses to fill all positions in the health sector. Because there is only a 1 percent unemployment rate for nurses in Germany, there are currently 80,000 vacancies for nursing positions, and it takes on average about 110 days to fill a vacant nurse positions.⁶⁹ There tend to be shortages of nurses and GPs in rural areas,⁷⁰ which means that patients go to hospital emergency departments instead, which is costly for the health sector.⁷¹ Another problem is that about 62 percent of female nurses and 36 percent of male nurses work part-time. Therefore, even more individual staff are needed to reduce shortages and ensure that the German population’s need for health care is met.⁷²

Figure 11. Physicians per 1,000 and GDP per capita PPP, ECA and OECD, 2016 or latest

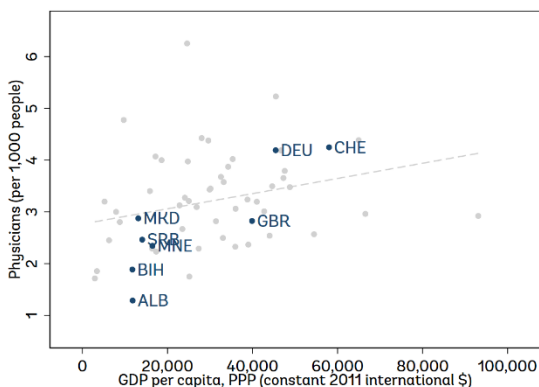
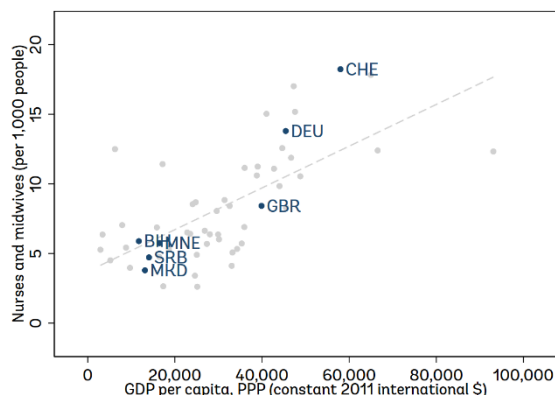


Figure 12. Nurses per 1,000 and GDP per capita PPP, ECA and OECD, 2016 or latest



Source: World Bank.

Note: Countries for which no data are available after 2010 are not pictured.

About half of Germany’s physicians and nurses will retire within the next two decades which could further increase shortages

The current health workforce shortages are being exacerbated by an aging health workforce, with about half of Germany’s physicians and nurses being due to retire over the next two decades. In 2018, of

⁶⁹ <https://www.zdf.de/nachrichten/heute/gesundheitsminister-spahn-will-pflegekraefte-aus-mexiko-anwerben-100.html>

⁷⁰ Aerzteblatt. Immer noch grosse regionale Unterschiede bei der Aerztendichte. 3. Mai 2019.

<https://www.aerzteblatt.de/nachrichten/102808/Immer-noch-grosse-regionale-Unterschiede-bei-der-Arztendichte>

⁷¹ OECD (2019).

⁷² German Federal Employment Agency (2019).

Germany's total population of 84 million, more people were over the retirement age of 67 (19 percent) than were under 20 years old (18.4 percent).⁷³ The health workforce is aging too. About 23 percent of the workforce are aged between 55 and 65 and thus approaching retirement, whereas only 16 percent are between 15 and 25.⁷⁴ This situation is particularly pronounced for female nurses (Figure 13) and for all medical doctors (Figure 14). Almost half of all physicians are 50 or older and will retire over the next 15 years. It has been estimated that about 500,000 new nurses will be needed by 2030 to fill positions vacated by nurses who will retire.⁷⁵

Figure 13: Age pyramid for nurses and midwives, by gender

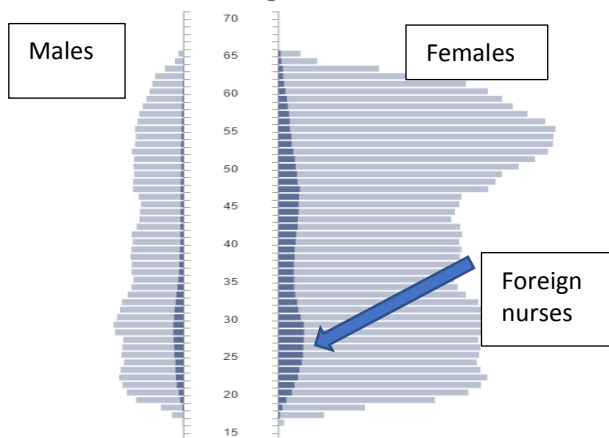
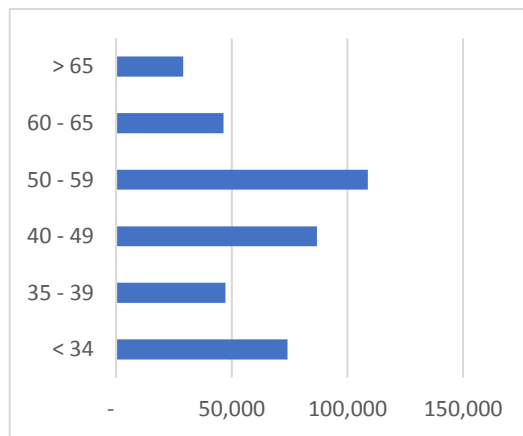


Figure 14: Age pyramid for MDs



Sources: For nurses: Deutsche Bundesagentur für Arbeit (Ministry of Labor)

<https://statistik.arbeitsagentur.de/Navigation/Statistik/Statistische-Analysen/Interaktive-Visualisierung/Alterspyramiden/Alterspyramide-Beschaeftigte/Alterspyramide-Beschaeftigte-Nav.html>

For medical doctors: Bundesärztekammer. Statistik 2018. Note: Ministry of Labor statistics for MDs is incomplete.

https://www.bundesaerztekammer.de/fileadmin/user_upload/downloads/pdf-Ordner/Statistik2018/Stat18AbbTab.pdf

The current data and health workforce planning methods are inadequate to ensure the future health workforce and inform policy decisions

Alleviating shortages will require reforming the current system of health workforce planning in Germany. The health workforce planning process is still based on historical population trends and is overly focused on physicians, taking too little account of staff needs in outpatient and hospital care and in rural and urban areas.⁷⁶ It needs to be reformed to take into account regional differences in vacancies, staffing, and unemployment as well as future demographic trends in both the population and the health workforce. Planning should take account of current reforms in the work process that facilitate task-shifting across health professions, and create new care structures through non-hospital settings to ease the workload on nurses.⁷⁷ Germany's dependence on foreign health professionals means that the sector is vulnerable to any significant drop in health workforce migration to Germany so this kind of future scenario needs to be considered in the planning process. Planners should therefore consider projections regarding trends in international health workforce mobility and options for recruiting foreign professionals into the

⁷³ Federal Agency for Civic Education (2019).

⁷⁴ German Federal Employment Agency (2020).

⁷⁵ GIZ, 2019

⁷⁶ Boeckmann et al (2016).

⁷⁷ Conference of Health Ministers and the Conference of Ministers of Education (2015).

German health sector. The health workforce and health education budget should be defined in accordance with the results of this annual planning exercise.

There is little data and analysis to inform health workforce planning and the management of increased mobility in the health sector. EU countries are not obliged to collect and report data on health workforce mobility. As a result, little is known about how migration affects the provision of healthcare and the health workforce in Germany or in the migrants' countries of origin. Germany already has a comprehensive data system in place to document health education, health workforce and migration, although further investments could be made, particularly to gather more data on nursing, the duration of migration, and career development. Data on returnees' reintegration into the local health workforce will be helpful to analyze how their newly acquired skills affect their career development and the quality of health care delivery. More data will be needed to ensure that health workforce planning can be based on the current context and the future dynamics of the sector. Better data are also needed on learning quality, outcomes, the cost and efficiency of medical faculties and nursing schools, and the entry of graduates into the health workforce to inform health and education policy.

Despite the growing need for more health professionals, Germany is not spending enough on tertiary education and on training physicians and nurses

Germany spends a smaller share of its GDP on tertiary education than other comparable OECD countries and charges no tuition fees. The German states (*Bundesländer*) have planning and financing responsibility for tertiary education which is coordinated by the Conference of Ministers of Education.⁷⁸ Medical education is expensive. It has been estimated that Bremen, the only state with no medical faculty, would need €25 million annually to set up a medical faculty and an additional €100 million annually once it became operational.⁷⁹ In 2015, public and private sources in Germany allocated about 4.2 percent of GDP to education, including 1.2 percent for tertiary education (Figure 15). This tertiary education spending is substantially less than the more than 2 percent of GDP spent by the United States, Canada, and Australia. It has been estimated that the German government spends about €200,000 to train one medical student,⁸⁰ but German public universities do not require students to pay tuition fees, only administrative fees. The government provides about 21 percent of all students with zero-interest loans to cover these administration fees and their living expenses either in Germany or while studying abroad.

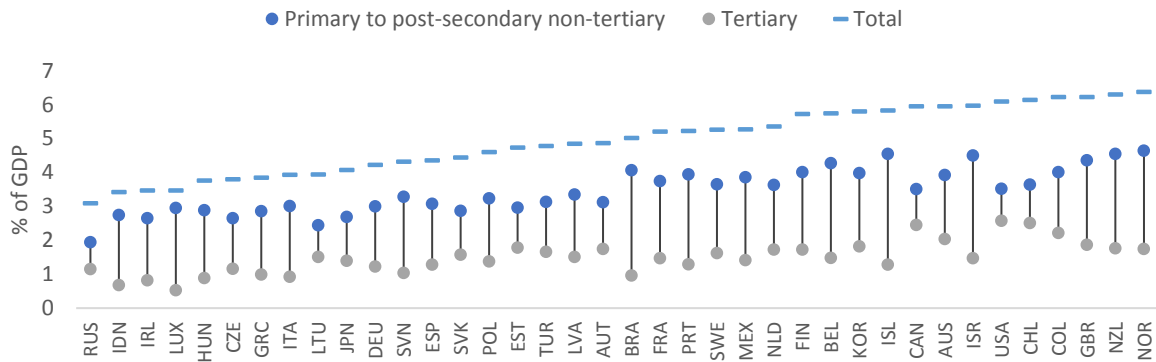
⁷⁸ Kultusministerkonferenz. Tertiary medical education (Hochschulmedizin):

<https://www.kmk.org/themen/hochschulen/hochschulmedizin.html>

⁷⁹ <https://www.faz.net/aktuell/wirtschaft/kein-studiengang-medizin-bremen-steuert-kleine-loesung-an-16047385.html>

⁸⁰ praktischArzt: Medizinstudium Kosten. September 2016. <https://www.praktischerarzt.de/blog/medizinstudium-kosten/>

Figure 15. Total expenditure on educational institutions from all sources as a % of GDP 2015/2016

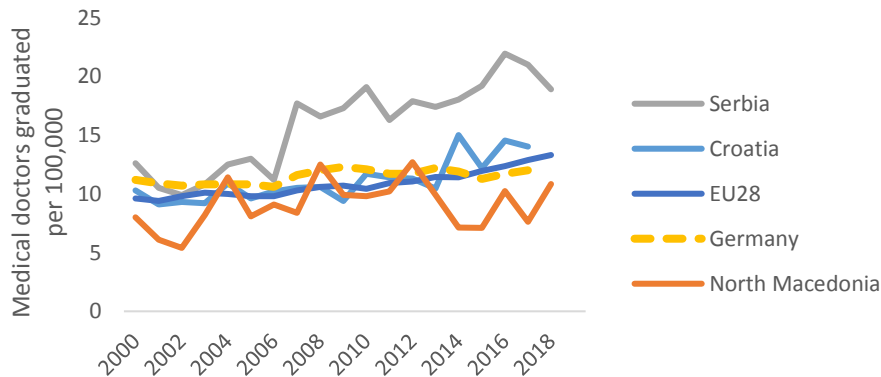


Source: OECD.

Notes: Includes public, private, and international institutions. DEU = Germany.

Germany trains fewer medical students per capita than Serbia and Croatia because of its strict study quotas. Since 1968, Germany has a quota for the number of study places at public universities (*Numerus Clausus*), and the methods used to determine entry to universities vary between the states depending on their budget priorities.⁸¹ At the national level, this method of planning and financing tertiary education results in fewer medical graduates than are needed to fill the total number of positions in Germany and to replace the aging workforce. In 2017, about 90,000 students were enrolled at German medical faculties and about 10,000 of them graduate every year.⁸² For comparison, Serbian universities produce nearly twice as many medical graduates per capita than Germany, which was slightly below the EU-28 average in 2018 (Figure 16). Once health workforce data and planning has been improved, it can be used to define the number of study places for health professions in Germany.⁸³

Figure 16. Medical doctors graduated per 100,000, annual number 2000-2018



Source: WHO-HFA DB (2000-2014) and authors' calculations using MoESTD and World Bank data (2015-2018)

⁸¹ Students need to score 1.0 at the Abitur in 14 states to qualify and a 1.1 in Niedersachsen and Schleswig-Holstein. Some universities conduct personal interviews, and some (such as Heidelberg) require students to pass a multiple choice test to qualify.

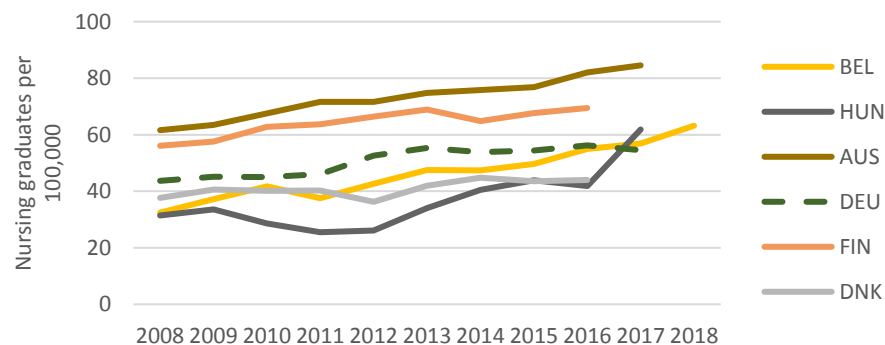
⁸² Duration of medical studies is 6 years until students graduate with a medical degree.

⁸³ OECD (2015).

To avoid study quotas, some German medical students enroll in expensive private universities or choose to study in other countries at a lower cost. Medical students who cannot find a study place in a public university because of quotas may choose to enroll in one of Germany's five private universities,⁸⁴ which do not have quotas but which charge tuition fees of €12,000 to €23,000 per year.⁸⁵ Alternatively, they may choose to study abroad at internationally recognized medical faculties offering pre-clinical courses in general medicine at a lower cost than German private universities. Four public universities in Croatia and two in Serbia now offer general medicine courses in English or German, and these schools are attracting increasing numbers of international students, including students from Germany. The Universities of Belgrade and Novi Sad offer general medical courses in English and charge annual tuition fees of €5,500 to €7,000 per student.⁸⁶ Tuition at Zagreb University for medical courses taught in English language costs €12,000 per year.⁸⁷ In addition to these institutions having less stringent entry quotas than German universities and relatively low tuition costs, they also have the advantage that their credentials are recognized in Germany, which makes it easy for German students to study a few years abroad before returning home to finish their studies. German students are allowed to use their student loans and grants to study abroad.

Germany currently trains fewer nurses than other OECD countries and not enough to meet future demand (Figure 17). The vast majority of nurses are trained at the diploma level through three-year vocational training programs offered by 1,746 schools (as of 2018) that are owned by charities or the private sector.⁸⁸ This includes hospital-based training. If they wish, they can then go on to pursue further education (bachelor's and master's degrees and doctorates in nursing) and specialize within the hospital setting. However, during the past decade Germany trained just enough nurses to keep up with population growth.

Figure 17. Nursing graduates per 100,000 population, OECD countries, annual numbers, 2008-2018



Source: OECD.

Note: Germany = DEU. Austria = AUS

⁸⁴ These private universities are: Medizinische Hochschule Brandenburg, Medizinische Privatuniversität Nürnberg, Kassel School of Medicine, Privatuniversität Witten/Herdecke, and Asklepios Campus Hamburg.

⁸⁵ Schwörer and Wissing (2018).

⁸⁶ <http://www.mf.uns.ac.rs/en/paymentdetails.php>

⁸⁷ <https://www.eu-medizinstudium.de/medizinstudium-in-kroatien#zagreb>

⁸⁸ Humar and Sansoni (2017).

The German government's coalition agreement (*Koalitionsvertrag*) contains a strong commitment to medical and nursing education and to the implementation of the Masterplan for Medical Studies 2020.⁸⁹

The Masterplan involves restructuring and upgrading medical studies, an emphasis on training for general medicine, and increasing the availability of general practitioners in rural areas. The Federal government has increased its funding commitments to tertiary education and supports states in harmonizing their methods for deciding on their study quotas for medicine. To address the shortage among nurses, the German health and education ministries in collaboration with the states plan to increase investment in nursing education. But more is needed to fill current vacancies and replace an aging health workforce in the coming years.

Germany benefits from foreign physicians and nurses who meet education quality standards and are successfully integrated into the German health sector

Although Germany facilitates international hiring, the low recognition rates for medical and nursing degrees from Serbia and North Macedonia are an indication of the low quality of their medical education, but Germany has not introduced any programs to improve the quality of education in these countries. Between 2012 and 2015, 75 percent of 63,000 immigrants who requested qualification recognition were physicians or nurses.⁹⁰ Applications for the recognition of nursing and medical degrees from Serbia, North Macedonia, and Croatia have been increasing, mostly from Serbia (Figure 18 and Figure 19). During Croatia's EU accession period, the government reformed the curricula for medical faculties and nursing schools to comply with the EU's educational standards.⁹¹ In 2018, Germany provided full recognition to 93 percent of applications from Croatian MDs and partial recognition to 7 percent. About two-thirds of nursing degrees from Croatia were fully recognized. However, Germany provided full recognition to only about two-thirds of medical degrees from Serbia and half of MD applications from North Macedonia. In addition, fewer than half of Serbian nursing degrees were fully recognized, and only 28 percent of nursing degree applications from North Macedonia received full recognition. Nurses with partial degree recognition usually take up work in lower-paid nurse assistance jobs when they move to Germany. Low degree recognition rates can be attributed to low education quality, underfunded schools, and the absence of an accreditation system for education in those countries. Although Germany has introduced legal and policy changes aimed at increasing international recruitment, so far the German government has not introduced any legislation to support the provision of high-quality medical education in the countries from which they are recruiting medical staff.

Some private partnerships exist between countries to promote nursing education and clinical standards. In 2019, the Osijek health faculty in Croatia in collaboration with a German private hospital network started offering a pre-diploma and diploma-level nursing degree at the university level in German language. Students pay tuition fees of €8,000 per year. In 2010, a German private school – the *Heimerer Schule*⁹² – partnered with the Institute of Southeastern Europe for the Advancement of Health and Nursing Science to create the Heimerer College in Kosovo in 2010. At this college, nurses are trained at the bachelor's degree level following the German curriculum.⁹³ These private partnerships provide

⁸⁹ Koalitionsvertrag zwischen CDU, CSU and SPD. 19. Legislaturperiode. 2018.

<https://www.bundesregierung.de/resource/blob/656734/847984/5b8bc23590d4cb2892b31c987ad672b7/2018-03-14-koalitionsvertrag-data.pdf?download=1>

⁹⁰ Press release No. 315 of 21 August 2019 https://www.destatis.de/EN/Press/2019/08/PE19_315_212.html

⁹¹ Directive 2005/36/EC of the European Parliament and the Council.

⁹² <https://www.heimerer.de/ueber-uns/>

⁹³ <https://kolegji-heimerer.eu/en/home-page-heimerer/>

opportunities for knowledge exchange and networking across countries. The German Medical Association (GMA) works in partnership with the Chambers of Physicians from the Central and Eastern European Countries to maintain the same high practical standards across borders.^{94,95}

Figure 18. Applications for medical degree recognition in Germany, annual numbers 2014-2018

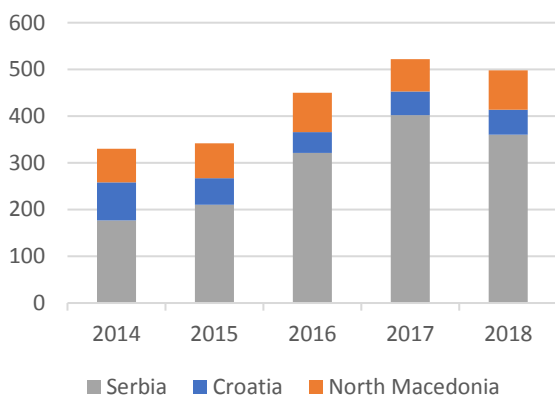
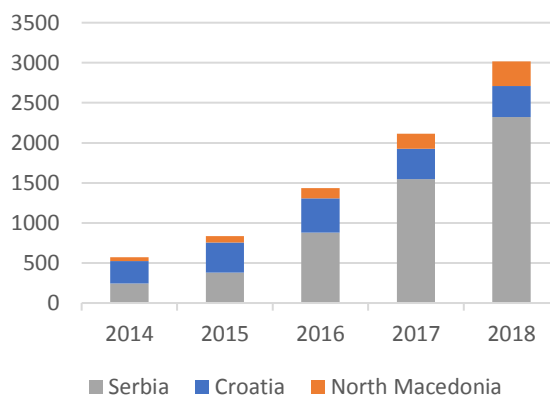


Figure 19. Applications for nursing degree recognition in Germany, annual numbers 2014-2018



Source: German Federal Statistical Office

International partnerships between medical faculties and hospitals in Germany and other countries can facilitate the accreditation and recognition of qualifications while also improving the quality of training in the countries of origin.⁹⁶ German universities work in close partnership with universities in other countries, for example, through the Erasmus student exchange program.⁹⁷ Given the limited number of study places available in Germany, these international partnerships could be expanded to increase the number of study places available at accredited foreign universities, including for German students whose full-cost tuition could be co-financed by the German government. To invest in high-quality medical education, universities in Serbia and North Macedonia could be encouraged to join the Erasmus exchange program. These kinds of partnerships would enable the German government to subsidize the training of local nurses and physicians in countries with high rates of migration to Germany, while at the same time strengthening the quality of teaching and medical research in these institutions. Fostering the growth of these centers of excellence would also help to improve the quality of local health care provision and management.

Foreign nurses and physicians can only be successfully integrated into the German health sector if they can fully use their skills. Investing in high-quality education will facilitate the successful integration into the German health workforce. Studies have found that foreign nurses in Germany are more likely to leave if they encounter a poorer working environment, insufficient recognition, and more limited decision-making power than in their home country.⁹⁸ Some foreign physicians working in German hospitals have difficulties with the German healthcare institutions and competencies and with interpersonal

⁹⁴ www.medical-chambers.org

⁹⁵ <http://www.medical-chambers.org/2018PragueStatement.html>

⁹⁶ Tommasini et al (2017).

⁹⁷ Erasmus Program: https://ec.europa.eu/programmes/erasmus-plus/about_en

⁹⁸ Zander et al (2013).

interactions.⁹⁹ Some physicians struggle with insufficient knowledge of the language, culture, clinical practices, and health system and with the behavior of patients and co-workers. These health professionals are likely to move on and seek work elsewhere, which is inefficient given the high costs of recruiting foreign professionals. The German government has launched programs within health facilities and hospitals to support the integration of foreign health workers by providing them with induction and language courses, information on administrative formalities inside and outside of the workplace (for example, on obtaining residence permits), tutoring, and support to help their families settle in and find jobs. International collaboration with training institutions and hospitals can contribute to successful integration as this is already done with the “GIZ Triple Win” program.

Innovative mechanisms will be needed to share the costs of financing the high-quality education of the future health workforce

The fact that Germany does not reimburse other governments for their medical education expenditures may not be sustainable over time. While in theory Germany has the fiscal space to increase education spending to train more nurses and physicians at public universities, the current official policy of the German government is to facilitate the recruitment of foreign health professionals instead. German employers pay for the costs of recruiting and training foreign personnel, and the German government does not have to reimburse foreign governments for the costs of training those physicians and nurses. This leaves the countries of origin footing the bill for the expense of their medical education and getting no return for it. However, countries like Croatia and Serbia already spend a high share of their education budget on tertiary education and may not be able to sustain this level of output at the required quality standard over time. These countries are already facing additional costs to comply with EU standards and to ensure the equivalency of medical and nursing degrees. Therefore, it is going to be necessary for recipient countries like Germany to partner with these countries of origin to find innovative ways to share the costs of educating the future mobile health workforce.

Innovative solutions are needed to develop a sustainable and fair mechanism for financing the expensive medical studies of the mobile health workforce. If high-income countries like Germany continue to recruit physicians and nurses from countries where medical education is largely government-funded, this situation will not be sustainable without a change in how this education is financed. One solution might be to introduce income contingent student loans (ICLs) in origin countries, which have been successfully used in some countries to finance costs of tertiary studies, including the Netherlands, Ireland, the United Kingdom, and Hungary. In these ICL schemes, students only have to start repaying their loan once they earn an income above a certain threshold amount. In the United Kingdom, graduates earning over £25,000 per year pay 9 percent of their gross earnings towards the repayment of their loan. New Zealand has a lower threshold than the UK of £10,000 and a higher repayment rate of 12 percent of earnings. Hungary has no income threshold and a 6 percent repayment rate on full earnings. The United States requires graduates to repay 10 percent of their income above a threshold set at 150 percent of the poverty guideline, which is US\$24,360 for a two-person household.¹⁰⁰ These ICL repayments are withheld from wages by the employer as is done with social insurance taxes.

⁹⁹ Klingler and Marckmann (2016).

¹⁰⁰ Britton et al (2019).

A repayment system based on the ICL experience could be designed to help finance costly tertiary education in origin countries. None of the four countries in this study has an ICL in place. While it will take time to introduce income contingent student loans, Germany could go ahead and introduce a repayment mechanism to be applied to physicians from other countries who received a publicly funded medical education and then migrated to Germany after graduation. This could be in the form of a payroll tax levied by the German government on salaries of foreign physicians (similar to a social insurance contribution) and then remitted to their countries of origin (Serbia, Croatia, or North Macedonia).¹⁰¹ Over time, the system would enable Croatia, Serbia, and North Macedonia to offer loans to its medical students who would repay those loans after they graduate when they earn more than a threshold income. The German government could also match this repayment amount (as is done with social insurance contributions) and include that matching amount in the revenue amount transferred to Serbia, Croatia, or North Macedonia to help to cover the costly provision of tertiary medical education in those countries.

Our findings show that, to sustain a growing international health workforce, it will be beneficial for Germany to support high quality public education in other countries

This case study has examined the magnitude of health workforce migration to Germany from Croatia, Serbia, and North Macedonia and how it affects Germany's health sector and education system. We have found that Germany has deemed it necessary to recruit health professionals from other countries because of the country's growing population, an aging health workforce, inadequate health workforce planning, its study quotas for medical education in public universities, its limited spending on tertiary education, and the limited number of young people enrolling in the health profession. The German government has introduced legislative reforms and programs to actively recruit health personnel from abroad and eased their entry into the German health workforce. Not all migration is permanent, and some physicians return to their home countries and apply their acquired skills. However, this model of outsourcing high-cost health education to other countries at almost no cost to the recipient government will not be sustainable over time if recipient countries such as Germany do not help source countries to finance the provision of high-quality medical education.

The obvious response would be for Germany to train more nurses and physicians, but this could be difficult to achieve in a federally managed and financed system and given the country's aging workforce. Therefore, Germany will continue to hire foreign-trained health professionals. To ensure that Germany's future health workforce can be maintained at full strength, the government will have to modernize health workforce planning and explore innovative ways to help to finance high-quality medical education in the countries of origin of its foreign medical workers. One option might be to help nursing schools and medical faculties in these countries to reform their procedures to conform with EU requirements as was done by the government of Croatia, for example. German universities could also partner with foreign universities in countries like Serbia and North Macedonia to develop and fund medical research programs and positions in origin countries and attract international funding. In all cases, more detailed data and analysis on health migration, education, and the health workforce will be needed to inform the government as it makes these decisions.

¹⁰¹ Barr (2001).

Expand ongoing education and health workforce reforms in Germany (*Ministries of Health and Education*)

- **Medical and nursing education.** Expand capacity for training physicians and nurses in Germany. Update the curriculum for nursing education and increase professional training for geriatric care and other fields where there are staff shortages. Provide clinical training in underserved German regions and increase the number of health professionals in rural areas.
- **German students at foreign universities.** Expand partnerships with accredited universities in other countries to extend the number of study places that they make available to German medical and nursing students and ensure that German students pay full-cost tuition when studying abroad.
- **Health workforce planning.** Modernize health workforce planning to take account of Germany's aging population and health workforce, changes in epidemiology, the need for flexible working arrangements, the increased mobility of the health workforce, and regional differences in vacancies, staffing, and unemployment. The planning process should take into account current reforms that facilitate task-shifting across health professions (for example from nurses to nurse assistants) and create new care structures in outpatient settings to ease the workload on nurses.¹⁰² Future planning scenarios should also factor in any significant potential drops in health workforce migration from other countries to Germany by considering projected trends in international health workforce mobility and should explore options for recruiting foreign professionals into the German health sector. The health workforce and health education budgets should be defined in accordance with the results of this annual planning exercise.
- **Integration.** Provide foreign nationals who arrive in Germany with support regarding the acquisition of language skills, education, employment practices, and career development to maximize their contribution to the German health sector. Apply diversity management (using best practices with proven results to create a diverse and inclusive workplace) within healthcare institutions and training institutions and provide applicants with more realistic information about the German health sector during recruitment to facilitate the entry of foreign physicians and nurses into the German health workforce.

Expand partnerships with source countries to enable them to sustain their high-quality medical education and to manage health workforce mobility to the benefit of both Germany and the countries of origin (*Ministries of Health and Education and GIZ*)

- **Global health policy.** Expand well-functioning programs such as the Triple-Win program and the current active recruitment of nurses from countries with high nurse unemployment.
- **High-quality health education.** Support medical and nursing education reforms in countries of origin (Serbia and North Macedonia) to ensure that their medical training meets EU standards and that their degrees are recognized by EU countries. Partner with foreign universities and nursing schools to ensure the high quality of training for nurses and physicians in countries with high rates of migration to Germany, while at the same time strengthening the quality of teaching and

¹⁰² Conference of Health Ministers and the Conference of Ministers of Education (2015).

medical research in these institutions. Encourage universities in Serbia and North Macedonia to introduce reforms to join the Erasmus exchange program. Collaborate with centers of excellence in source countries through staff exchanges and joint training to improve the quality of their health care provision and management.

- **Medical research and practice.** Partner with universities and public and private hospitals in source countries to create opportunities for migrant physicians and nurses to return home either temporarily or permanently to teach, practice medicine, or conduct research in their home countries. Help these medical faculties to enter international partnerships, such as the Erasmus Program, and to access research and science fellowship programs funded by, for example, the EU (such as the Marie Curie research fellowship program) or Germany's private and public sector.
- **Efficient repayment schemes.** Introduce a repayment mechanism for physicians who benefit from subsidized public medical programs in their own countries and then migrate to Germany after they graduate. This could be in the form of a payroll tax levied by the German government on the salaries of foreign physicians (similar to a social insurance contribution) and then remitted to their countries of origin (Serbia, Croatia, or North Macedonia). Over time, the system would enable Croatia, Serbia, and North Macedonia to offer loans to its medical students who would repay those loans after they graduate when they earn more than a threshold income. The German government could also match this repayment amount (as is done with social insurance contributions) and include that matching amount in the revenue amount transferred to Serbia, Croatia, or North Macedonia to help to cover the costly provision of tertiary medical education in those countries.
- **Facilitate data collection and monitoring and evaluation.** Collect more data on detailed aspects of health workforce mobility including circular migration, the length of time that migrants stay in Germany, and their next destination. Use GIZ to build the capacity of other countries where data collection and monitoring and evaluation are still limited. Support the collection of data on returnees' reintegration into the health workforce in their countries of origin to analyze how their newly acquired skills affect their career development and the quality of health care delivery. Support the collection of data on the current context and the future dynamics of the sector as a basis for health workforce planning in origin countries. Support the collection and analysis of data on learning quality, outcomes, the cost and efficiency of medical faculties and nursing schools, and the entry of graduates into the health workforce to inform health and education policy.

References

- Barr, Nicholas (2001). *The Welfare State as Piggy Bank: Information, Risk, Uncertainty, and the Role of the State*. Oxford: Oxford University Press.
- Boeckmann, Melanie, Rebecca Runte, Miriam Düsterhöft, and Heinz Rothgang (2016). *One handbook for diverse needs? A feasibility study at state-level within Germany's self-governed healthcare system*. University of Bremen/ The Joint Action Health Workforce Planning and Forecasting, EU.
http://healthworkforce.eu/wp-content/uploads/2016/07/D054_Specific_Report_FS_DE.pdf
- Britton Jack, Laura van der Erve, and Tim Higgins (2019). "Income contingent student loan design: Lessons from around the world." *Economics of Education Review* 71; 65-82
- Chapman, Bruce (2014). "Income-contingent loans in higher education financing." *IZA World of Labor* 2016: 227.
- Conference of Health Ministers and the Conference of Ministers of Education (2015). "Securing skilled workers in the healthcare sector: Joint report of the Conference of Health Ministers and the Conference of Ministers of Education." June.
https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2015/2015_06_12-Fachkraeftesicherung-im-Gesundheitswesen.pdf
- Eurostat (2019). *Key Figures on Enlargement Countries (2019 Edition)*.
<https://ec.europa.eu/eurostat/documents/3217494/9799207/KS-GO-19-001-EN-N.pdf/e8fbd16c-c342-41f7-aaed-6ca38e6f709e>
- Federal Agency for Civic Education (2019). "Facts and Figures: Population Development and Age Structure." September. <https://www.bpb.de/nachschlagen/zahlen-und-fakten/soziale-situation-in-deutschland/61541/altersstruktur>
- Federal Statistical Office of Germany (2019). *Recognition statistics for professions regulated under federal and state law*. <http://destatis.de/>
- German Federal Employment Agency (2020). "Effects of Demographic Change on the Labor Market." March. <https://statistik.arbeitsagentur.de/Statischer-Content/Statistik-nach-Themen/Demografie/Generische-Publikationen/Bericht-Demografie.pdf>
- German Federal Employment Agency (2019). "Labor Market Situation in the Care Sector." May.
- Glinos, I. A. (2015). "Health professional mobility in the European Union: exploring the equity and efficiency of free movement." *Health Policy*, 119(12), 1529-1536.
- Humar, L. and J. Sansoni (2017). "Bologna Process and basic nursing education in 21 European countries." *Ann Ig*, 29(2), 561-571.
- Klingler, C. and G. Marckmann (2016). "Difficulties experienced by migrant physicians working in German hospitals: a qualitative interview study." *Human resources for health*, 14(1), 57.
- Lazarevik, V., A. Kongjonaj, M. Krstic, M. Malowany, T. Tulchinsky, and Y. Neumark (2016). "Physicians Migration from Western Balkan." *European Journal of Public Health*, 26(suppl_1).
- OECD (2019). *State of Health in the EU: Germany 2019*. Organization for Economic Co-operation and Development, Paris.

- OECD (2015). *Trends in the supply of nurses and doctors in OECD countries*. Organization for Economic Co-operation and Development, Paris. <https://www.oecd.org/health/health-systems/OECD-Trends-in-education-and-training-November2015.pdf>
- Santric-Milicevic, M.M., Z.J. Terzic-Supic, B.R. Matejic, V. Vasic, and T.C. Ricketts III (2014). "First-and fifth-year medical students' intention for emigration and practice abroad: a case study of Serbia." *Health Policy*, 118(2), 173-183. <https://www.ncbi.nlm.nih.gov/pubmed/25458972>.
- Schwörer, B. and F. Wissing (2018). "Medizinische Studienangebote privater Träger in Deutschland." *Bundesgesundheitsblatt-Gesundheitsforschung-Gesundheitsschutz*, 61(2), pp.148-153. <https://link.springer.com/article/10.1007%2Fs00103-017-2667-x>
- Tommasini, C., B. Dobrowolska, D. Zarzycka, C. Bacatum, A.M.G. Bruun, D. Korsath, S. Roel, M.B. Jansen, T. Milling, A. Deschamps, S. Mantzoukas, C. Mantzouka, and A. Palese (2017). "Competence evaluation processes for nursing students abroad: findings from an international case study." *Nurse education today*, 51, 41-47
- WHO (2017). *A dynamic understanding of health worker migration*. World Health Organization, Geneva.
- WHO (2019). *European Health for All database (HFA-DB)*. World Health Organization, Geneva. Date Month Year Published. Web. Date Month Year Accessed. <https://gateway.euro.who.int>
- Wismar, M., C.B. Maier, I.A. Glinos, G. Dussault, and J. Figueras (eds) (2011). *Health professional mobility and health systems. Evidence from 17 European countries* (Prometheus Study). WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies, Copenhagen.
- World Bank (2019). *World Development Indicators*. <https://data.worldbank.org/>
- Zander, B., M. Blümel, and R. Busse (2013). "Nurse migration in Europe—Can expectations really be met? Combining qualitative and quantitative data from Germany and eight of its destination and source countries." *International Journal of Nursing Studies*, 50(2), 210-218.

ANNEX: PEOPLE INTERVIEWED BY PHONE FOR THE GERMAN CASE STUDY

Mr. Ulrich Dietz, Referatsleiter, Referat Z 24 - Migration, Integration, Demographie und Gesundheit
Bundesministerium für Gesundheit, Rochusstraße 1, 53123 Bonn

Ms. Helena Schulte to Bühne, Referatsleiterin, Referat 412 - Studium und Lehre, Bundesministerium für
Bildung und Forschung, Kapelle-Ufer 1, 10117 Berlin

Mr. Domen Podnar, Referent/ Policy Advisor Dezernat Internationale Angelegenheiten/ Department for
International Affairs Bundesärztekammer / German Medical Association, Herbert-Lewin-Platz 1 D-10623
Berlin

Mr. Franz Wagner MSc, RbP Chief Executive Officer, German Nurses Association - Deutscher
Berufsverband für Pflegeberufe - Bundesverband e.V. Alt-Moabit 91, 10559 Berlin

Prof. Dr. med. Dirk Stengel, MSc(Epi), Leiter Forschung – Ressort Medizin BG Kliniken – Klinikverbund der
gesetzlichen Unfallversicherung GmbH

CASE 2: CROATIA

Introduction

This case study examines the magnitude of health workforce migration from Croatia and how it affects the Croatian health sector and the education system. The case study is one of four produced for a World Bank study on health workforce mobility that also includes Germany, Serbia, and North Macedonia. The objective of this World Bank study is to provide policy-relevant recommendations aimed at ensuring the sustainable training of each country's health workforce and improving the management and planning of the health workforce. For each case study, many key informants were interviewed including health and education experts, and data were collected from the government, from medical and nursing schools, and from hospitals (Annex 1). The interviews for this case study were conducted in Croatia in December 2019. The case studies are not meant to be representative of the entire region.

Because the 2011 Prometheus study on health workforce mobility in the EU did not include Croatia,¹⁰³ this is the first comprehensive analysis of health workforce mobility in Croatia. A key finding of the Prometheus study was that, when Estonia, Hungary, Poland, Slovakia, and Slovenia joined the EU in 2004 and Romania in 2007, increasing numbers of professionals left those countries in search of jobs in wealthier EU states. Although these numbers were not as high as anticipated and they subsequently decreased, they remained at a higher overall level than before the countries joined the EU.

In this case study, we have found a similar trend in Croatia. Health workforce migration coupled with staff moving into the private sector and the aging of the health sector workforce is resulting in shortages of personnel in rural areas and in some specialties. Inadequate health workforce planning, unsatisfactory working conditions and low pay are contributing to these developments. So far, these shortages do not appear to have negatively affected access to care, but they are likely to increase in the medium term because of the impending retirement of about one-third of physicians over the next decade. We also found that today's data and methods for health personnel planning in the sector are inadequate for managing the future health workforce because they are still based on trends from previous years instead of on future trends such as anticipated changes in demographics, mobility, health expenditures, medical technology, and new healthcare models. A lack of data and analysis on the health workforce and its mobility and the lack of a central registry at the Croatian Ministry of Health (MOH) severely limit the ability of managers to address growing shortages.

Based on our findings, we offer some recommendations to the Croatian authorities on how to manage health workforce mobility and to ensure that the country's medical education system is adequately financed in the future and can meet the needs of the health workforce and the population as a whole. Health and education reforms that have been introduced in other new EU members states may be relevant to Croatia too.

¹⁰³ Wismar et al (2011).

Since Croatia joined the EU, a growing number of Croatian nationals emigrated, but this has slowed down in recent years

Since Croatia joined the EU in 2013, emigration to Germany has increased but stabilized more recently. By 2015, more than 70,000 Croats were moving to OECD countries every year, and most of them – roughly 60,000 a year – were going to Germany (Figure 20). About 80 percent of all Croatian emigrants now live in Germany (Figure 21), which by 2018 amounted to 400,000 people.

Figure 20. Annual outflows of Croatian nationals to OECD countries, 2000-2017

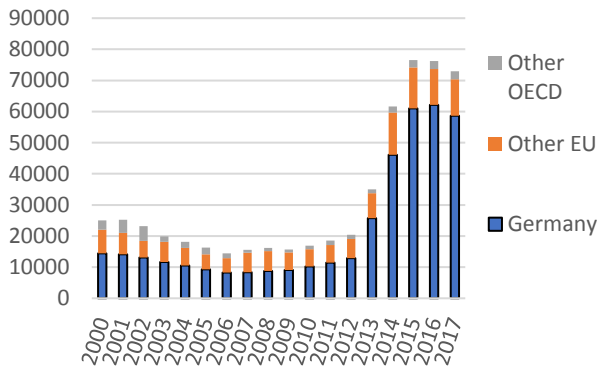
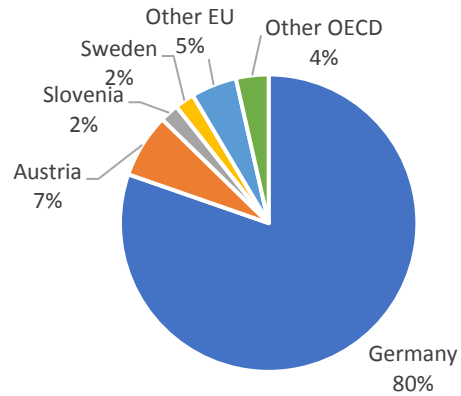


Figure 21. Share of total outflow of Croatian nationals to OECD countries, by country of destination, 2017

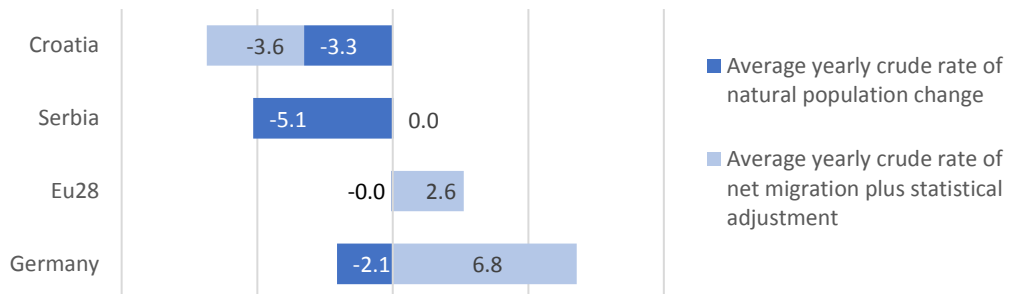


Source: OECD.

Note: The data include all Croatian nationals, not just health professionals.

This emigration combined with a drop in fertility rates has meant that Croatia’s population has been shrinking, especially in rural areas. Croatia’s total population declined from 4.31 million in 2006 to 4.07 million in 2019. This was driven by below replacement fertility rates of 1.42 children per woman, while net migration contributed another 3.3 percent drop annually as emigration was higher than immigration. Meanwhile, Germany’s population grew by 6.8 percent as a result of net migration (Figure 522). In Croatia, only the city of Zagreb and the Istria region have had increases in population since 2011.¹⁰⁴

Figure 22. Crude rate of total population change, 2012-2018 yearly average



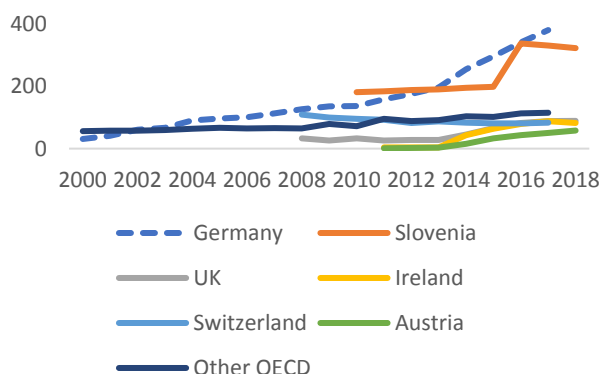
Source: Eurostat

¹⁰⁴ Croatian Bureau of Statistics

Outmigration of health professionals has slowed down too but is still above pre-EU levels

After an initial peak when Croatia joined the EU, the outmigration of medical doctors to Germany has stabilized at a lower level. The Croatian Medical Chamber estimates that between 2014 and 2018 about 650 physicians left Croatia. This number peaked in 2014 at 154 and decreased to 108 physicians in 2018. This trend is comparable to the trends observed in other new EU members states, including Hungary, Poland and Slovenia, where outflows decreased after an initial peak but remained at a higher level than before joining the EU. Most of the Croatian physicians went to Germany and Slovenia (Figure 23). By 2018, the Government of Germany reported that around 500 Croatian physicians were working in Germany, with the majority working in hospitals (Figure 24). Since 2012, Germany has introduced several legal changes to facilitate the recruitment of physicians and nurses from new EU member states, European enlargement countries, and from countries with high unemployment rates as shown in the German case.

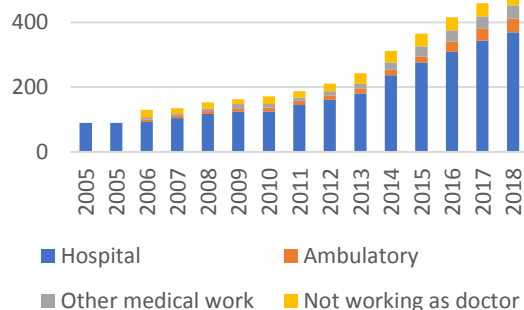
Figure 23. Croatian MDs working in OECD countries, total numbers, 2008-2018



Source: OECD.

Note: Croatian-trained doctors have completed at least their first medical degree in Croatia

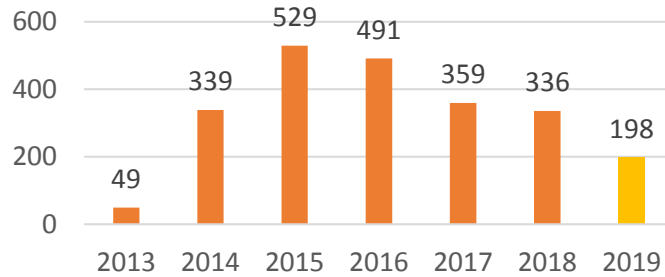
Figure 24. Croatian MDs in Germany, total numbers, 2008-2018



Source: German Medical Association

Outmigration of nurses has slowed down too but remains high compared to pre-EU levels. There is not as much comprehensive information available about nurses as there is for physicians. The Croatian Chamber of Nurses estimates that, since 2013, about 1,100 nurses have left to work abroad, but the actual number could be higher. Since 2014, the Chamber has issued 2,250 certificates of good standing for nurses, which are needed to be able to apply for a work permit from the German authorities. More recently, fewer nurses have requested this certificate (Figure 25), suggesting that outmigration of nurses has slowed down too, though it is still higher than before Croatia joined the EU. German statistics confirm these trends.

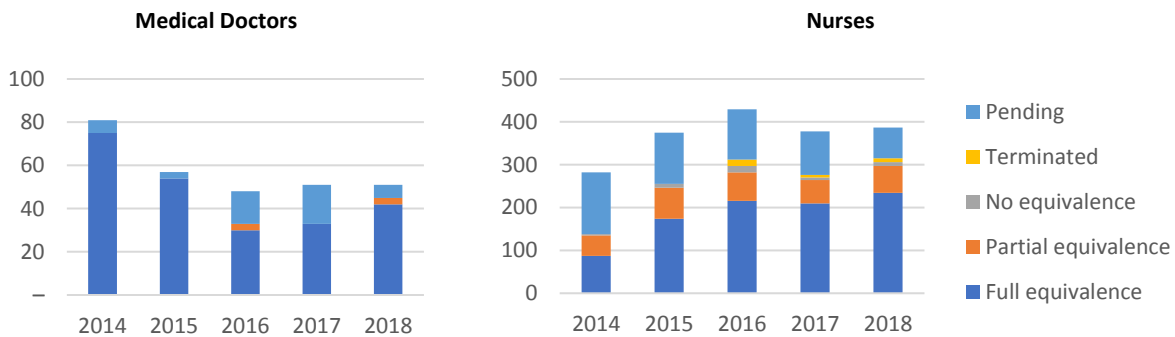
Figure 25. Nurse applications for certificates to work abroad, estimated annual number, 2013-August 2019



Source: Croatia Chamber of Nurses.
 Note: Annual numbers are incomplete. Data for 2019 include only the first eight months.

Applications for health degree recognition in Germany have stabilized too. Degree recognition is required to enter the German health workforce, and applications for degree recognition by Croatian physicians have stabilized at about 50 per year, of which 42 medical degrees were fully recognized in 2018. Since 2015, about 400 Croatian nurses have applied to the German authorities for degree recognition every year (Figure 26). These trends are similar as in the countries included in the Prometheus study, where the highest numbers of certificates of mutual recognition of qualifications were issued directly in the years of accession or one year later, with decreasing tendency afterwards.

Figure 26. Applications for degree recognition by Croatian professionals in Germany, annual number by outcome, 2014-2018



Source: Federal Statistical Office of Germany.
 Note: the number of nurses who applied for recognition in Germany is higher than the number of certificates issued as reported by the Croatian Nursing Chamber as these numbers are incomplete.

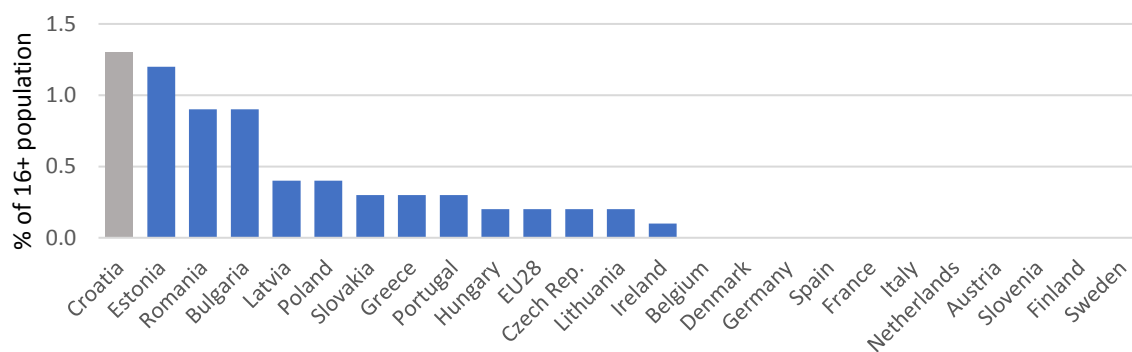
Shortages of health care professionals and limited unemployment point to health management issues, but so far, access to care has not been affected

The health workforce is at almost full employment and there are some shortages among health personnel in certain specialties and in rural areas. The Croatian Employment Agency reported that only 50 physicians and 472 nurses were unemployed in October 2019. Larger hospitals can still easily attract staff, but some medical specialists such as anesthesiologists, radiologists, and emergency services personnel are in short supply, and smaller hospitals in rural areas are finding it increasingly difficult to fill their vacancies. Of the 21 vacancies for specialists in 2019, 14 remained unfilled, and 33 of 153 advertised

positions for general practitioners (GP) remained vacant.¹⁰⁵ Some GP practices in rural areas are understaffed. To ensure service delivery, physicians have to work in different clinics and frequently work overtime.¹⁰⁶

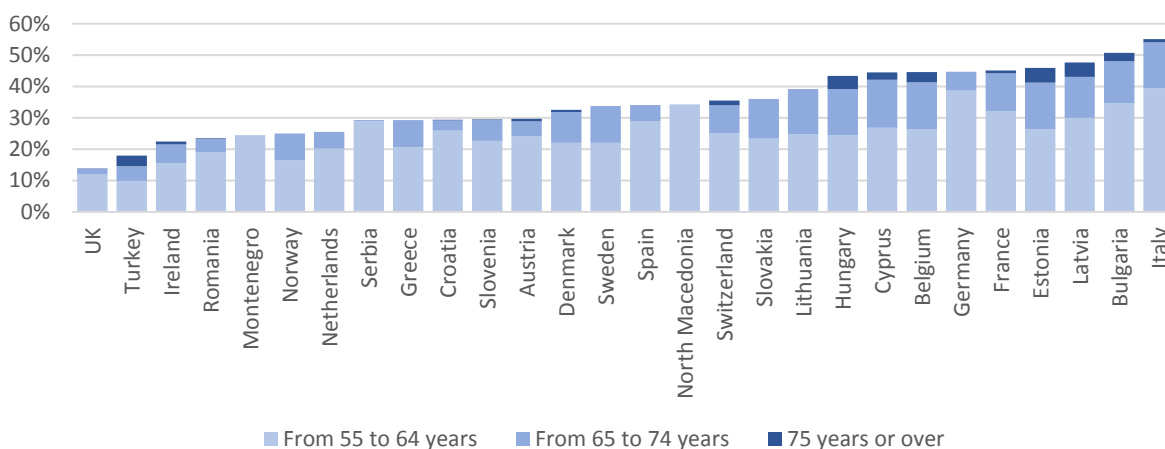
Access to health care is not affected but an aging health workforce could increase future shortages. The Prometheus study found that intra-country misallocation of health staff exists in all countries, and health professional outmigration can exacerbate problems in service provision. Despite understaffing in Croatia’s rural areas, only 1.3 percent of the population in rural areas report an unmet need for medical care caused by being too far away from a medical facility (Figure 27). However, this figure is higher than in other EU countries. Personnel shortages are likely to increase in the near future because about 30 percent of Croatia’s physicians are 55 or older (Figure 28) and will retire within the next decade. The Croatian Medical Chamber estimates that this will amount to about 4,000 physicians, which will exacerbate the current shortages.

Figure 27. Self-reported unmet needs for medical examinations in rural areas because of travel, 2018



Source: Eurostat

Figure 28. Percentage of medical doctors aged 55 or older, 2017



Source: Eurostat

¹⁰⁵ GPs in Croatia are either self-employed and contract directly with the health insurer or they work as salaried staff.

¹⁰⁶ The law permits 180 to 250 overtime hours per doctor per year.

Physicians and nurses are leaving to find better working and living conditions

Dissatisfaction with working conditions, low salaries and weak human resource management are motivators for migration. Citing stress and dissatisfaction with their jobs in Croatia, many health professionals are leaving to work in other countries, particularly Germany. In 2017, the Croatian Medical Chamber found high rates of emotional exhaustion and depersonalization at work among young physicians. Almost all young physicians (92 percent) were not content with their work, and 77 percent expected no improvement. The Chamber also found frequent complaints about nepotism and political cronyism in the health sector.¹⁰⁷ A 2014 study found that final year medical students who planned to emigrate gave their main reasons as to find a better quality of life, to work in a better organized health sector, to have more interesting professional opportunities, or simply to find a job.¹⁰⁸ Only 10 percent left for salary reasons. Similarly, in 2017, the main reasons that nurses gave for leaving Croatia were dissatisfaction with working conditions, low salaries, and a lack of recognition of higher degrees,¹⁰⁹ all of which contributed to low job satisfaction among nurses.^{110,111} Similar reasons to leave were identified in the Prometheus study, including higher income, health budget and staff cuts at home, dissatisfaction with working conditions, and low professional recognition.¹¹²

Younger health professionals are more likely to leave to Germany. Over the next 10 years, about 6,000 new medical students are expected to graduate and enter the physicians' workforce, which suggests that there will be enough physicians to staff the Croatian health sector. However, these young health professionals are more mobile than their predecessors. The Croatian Medical Chamber has found that young physicians with no families or contractual obligations are more likely to emigrate than their older colleagues. Similarly, the Croatian Coalition of Nursing Associations has found that younger nurses are more likely to emigrate, whereas nurses with family obligations and permanent employment are more likely to stay.

Physicians and nurses also leave in search of more job opportunities and better paying jobs

Croatia employs fewer physicians and nurses for its population than the EU average and fewer than Germany where the number of nurse positions has almost doubled since 2006. The public health sector is the main employer, with only about 11 percent of physicians and nurses working in private practice. Hiring in the public health sector is centrally managed by the MOH, which approves the creation of positions within the government's wage budget. Public hospitals have other sources of revenue to hire contractual staff, such as health insurance and user fees, but these funds are limited as they are also used to finance non-wage recurrent expenditures in the sector. When Croatia joined the EU in 2013, the government introduced a hiring freeze in the public sector to manage public expenditure. As a result, the number of physicians per 1,000 population has remained steady since 2013 and at a low level, whereas

¹⁰⁷ Unpublished data provided by Dr Danko Relić, head of the Zagreb Medical School's Center for the Planning of Professions in Biomedicine and Health.

¹⁰⁸ Kolcic et al (2014).

¹⁰⁹ In Croatia, nurses with Masters' degrees have the same compensation and responsibilities as those with a Bachelors' degree. for nurses.

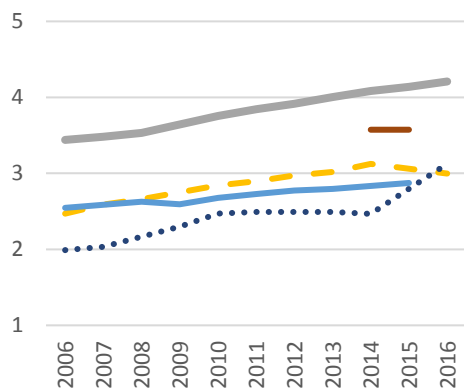
¹¹⁰ Vlacic (2017).

¹¹¹ Skalec (2018).

¹¹² Wismar et al (2011).

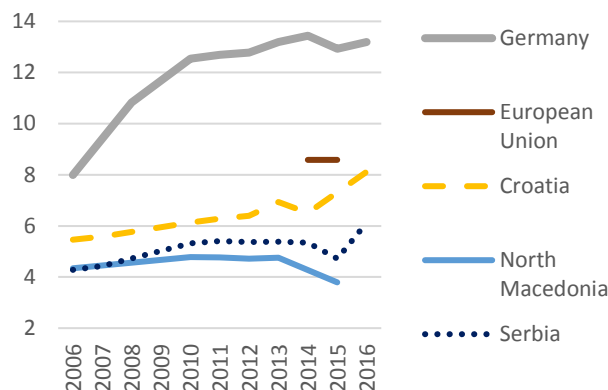
an increasing number of nurses per 1,000 population has been hired (Figure 29 and Figure 30). This low level of physician positions available explains why Croatia currently has few vacancies to fill and thus has only limited staff shortages in public health facilities.

Figure 29. Physicians per 1,000 population, 2006-2016



Source: World Bank

Figure 30. Nurses per 1,000 population, 2006-2016



Source: World Bank

Relative wages are higher in Germany. Nominal wages for health professionals are considerably higher in higher-income countries with higher government health spending than in Croatia, which increases the attractiveness of working abroad. In 2017, Croatia’s total health expenditures reached 6.8 percent of GDP, which was less than the 11.2 percent of GDP spent by Germany and the EU average of 9.9 percent of GDP. Given these large differences in per capita income and health spending, large differences in public sector wages – including those of nurses and doctors – are likely to persist for years to come. The Prometheus study found that health professionals from Estonia, Poland and Lithuania were returning home as a result of government reforms that led to salary increases and better working conditions in the health sector.

The Government has introduced some measures to mitigate shortages including task-shifting and hiring physicians from neighboring countries

In response to the growing shortages of staff in certain areas of the health sector, the government adopted the Strategic Plan for Human Resources in Health Care for 2015-2020. Under the current plan, the Ministry of Health has introduced task-shifting in emergency medicine with nurses replacing physicians in emergency vehicles and is planning to shift less complex tasks from nurses to nurse assistants. In an attempt to increase the number of GPs, the European Social Fund is co-financing training in primary care, and the European Fund for Regional Development is sponsoring primary care services in four of Croatia’s 20 counties.

The number of foreign physicians working in Croatia has been increasing, although without an active government recruitment strategy. In early 2017, the Croatian Medical Chamber recorded about 500 foreign physicians working in Croatia’s health sector (4 percent of the sector’s workforce), most of whom were from neighboring Bosnia & Herzegovina or Serbia. By the end of 2019, this number had grown to roughly 600 physicians. However, there are no statistics available on their medical degrees, where they studied, or their practical experience prior to moving to Croatia. A similarly small number of foreign nurses works in Croatia, most of whom are from Serbia and Bosnia & Herzegovina, although there are no official

statistics on their exact number or characteristics.¹¹³ The number of government-issued employment permits for foreign doctors increased from 11 in 2017 to 55 in 2019. During the same year, the government issued 50 work permits for foreign nurses. However, annual government quotas for temporary employment for foreign health professionals are seldomly reached, and the government is not actively recruiting abroad to fill vacant positions in the health sector.

Health workforce planning and mobility management also need to be reformed and better data and analysis are needed on health workforce mobility

Alleviating shortages will also require a reform of the current system of health workforce planning.

Health workforce planning is still based on numbers from previous years, which manifests current shortages and imbalances. A modern health workforce planning process takes into account regional differences in vacancies, staffing, and unemployment, and future demographic trends in both the population and the health workforce. It should also include projections on the trends of outmigration and options to recruit foreign professionals to the Croatian health sector. The health workforce budget should be defined in accordance with the results of this annual planning exercise.

The government might consider actively recruiting foreign physicians trained in primary health care and other specialties where there are growing shortages (such as emergency care and anesthesiology).

Administrative reforms would be needed to accelerate the hiring process for foreign physicians, while foreign nationals might also need additional support with language skills, education, employment practices, and career development to maximize their contribution to the Croatian health sector. Applying diversity management (using best practices with proven results to create a diverse and inclusive workplace) within healthcare institutions and training courses and providing realistic information about the Croatian health sector during recruitment could also facilitate the entry of foreign physicians and nurses into the Croatian health workforce.

There is lack of data and analysis on the health workforce and mobility, which needs to be addressed.

The Prometheus study already found that the lack of data and analysis severely restricted any conclusions on health workforce mobility, in particular for nurses. Still, the EU does not require member states to collect data on this topic. In Croatia, the Institute of Public Health (CIPH) collects employment and demographic data on all physicians and nurses in the health system in accordance with WHO, OECD, and Eurostat guidelines. The Croatian Medical Chamber collects and analyzes data on physicians employed in the health system. In 2017, the Chamber published a “Demographic Atlas of Croatian Doctors/Physicians,” an overview of the profession by geographic distribution, age, gender, and workload (including overtime) across all medical specialties.¹¹⁴ These data are shared with the CIPH. But more is needed to ensure that health workforce planning can be based on the current context and the future dynamics of the sector. Better data are needed on learning quality, outcomes, the cost and efficiency of medical faculties and nursing schools, and the entry of graduates into the health workforce. Analysis on health vacancies and mobility will be helpful to inform health and education policy.

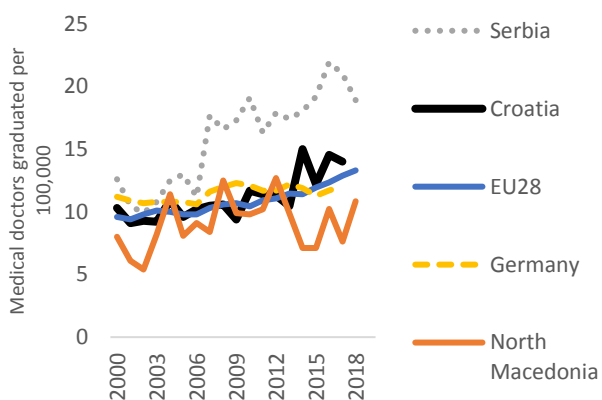
¹¹³ Croatian Medical Chamber (2017).

¹¹⁴ Demographic Atlas <https://www.hlk.hr/digitalni-atlas-hrvatskog-lijecnistva.aspx>

Government spending on tertiary medical education is already high resulting in more medical graduates than the EU average and Germany

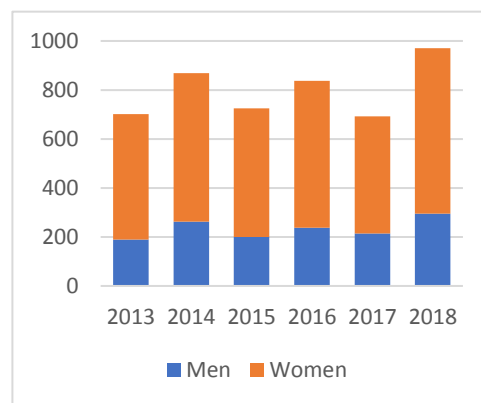
Health education is offered by a network of public training institutions in both Croatian and English. Croatia has four autonomous medical faculties (in Zagreb, Split, Osijek, and Rijeka), all of which offer courses in Croatian and in English. Zagreb University has 1,900 medical students enrolled in the Croatian language program and another 300 students in the general medicine program taught in English. The university’s Medical School has been severely damaged in a recent earthquake, along with several hospitals in Zagreb, which could limit the extent to which it can continue to provide medical training in the coming years. Nursing education is offered by 23 secondary schools, 11 undergraduate, and 9 graduate programs. About 60 percent of undergraduate nursing students graduate from the University of Applied Health Science in Zagreb. Recently, the Ministry of Science and Education (MSE) established the Centers of Competence (with four secondary nursing schools in Zadar, Bjelovar, Varaždin, and Zagreb) supported by EU funding. There are no private medical faculties or private nursing schools in Croatia.

Figure 31. Annual number of medical doctors graduated per 100,000 population, 2000-2018



Source: WHO-HFA DB (2000-2014) and authors’ calculations using Statistical Office and World Bank data (2015-2018)

Figure 32. Graduates in medicine and university-level nurse, annual numbers by gender, 2013-2018



Source: Croatian Bureau of Statistics

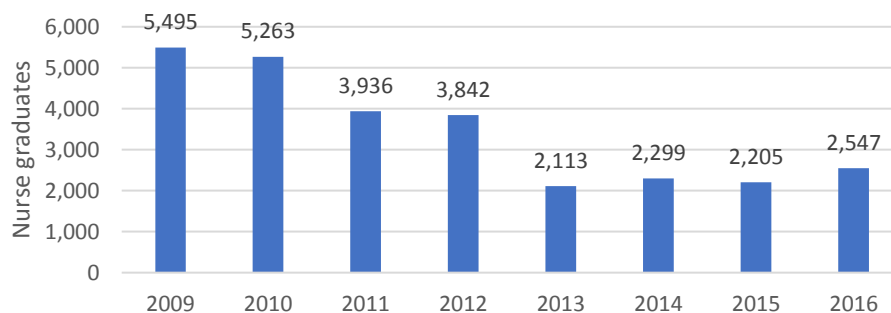
Government spending on tertiary education is already high, and it will be difficult to expand the financial envelope to train more physicians and nurses. In 2017, the Government of Croatia spent 4.7 percent of its GDP on education, similar as the EU average of 4.6 percent of GDP. As a proportion of general government expenditure, education spending (10.5 percent) in Croatia is also close to the EU average (10.2 percent). Croatia invests heavily in tertiary education, spending 21.5 percent of its total education budget on tertiary education, which is considerably above the EU average of 15 percent.¹¹⁵ In 2017, the number of medical graduates was 14 per 100,000 population, which surpassed Germany and the EU28 average (Figure **Error! Reference source not found.**31). Women represent more than half of all medical students and nurses enrolled at the university level (Figure 32). The curriculum for secondary nursing schools was restructured to be aligned with more challenging EU requirements¹¹⁶ to enable the

¹¹⁵ EC Education and Training Monitoring. 2019 https://ec.europa.eu/education/sites/education/files/document-library-docs/et-monitor-report-2019-croatia_en.pdf

¹¹⁶ Directive 2005/36/EC of the European Parliament and the Council.

schools to be EU accredited. This led to a drop in the number of nurse graduates by half compared to a decade ago (Figure 33). The Croatian Employment Agency¹¹⁷ has recommended further increasing the number of study places for both medical students and nurses, but this would require tertiary education spending to be increased to even higher levels.

Figure 33. Nurse graduates from nursing schools in Croatia, annual numbers, 2009-2016



Source: Eurostat

To raise additional revenues, medical faculties offer preclinical courses in English to paying students

Medical students who come to Croatia from other countries to enroll in general medicine courses have to pay tuition fees. The University of Zagreb general medicine program in English was accredited by the EU in 2015 and started to enroll international students. The Israeli Ministry of Health also accredited the Zagreb medical faculty, which caused a spike among Israeli students in 2018/19 (Figure 34). Currently the medical faculty enrolls students from more than 30 countries. Students pay €12,000 per year for the English-language medical program.¹¹⁸ In 2016, the University of Split signed a cooperation agreement with Bavaria (Germany) to enroll medical students from Germany for general medicine courses.¹¹⁹ The University of Rijeka started its general medicine program in English in 2017.¹²⁰ In 2019, the Osijek health faculty in collaboration with a German private hospital network started a pre-diploma and diploma-level nursing degree at the university level in the German language. Tuition is €8,000 per student per year.¹²¹ Hence, Croatia is already raising revenues for education through tuition fees, though there may be scope to expand this revenue stream in the future based on a cost and revenue analysis. However, there is potential to raise more revenue if medical education were no longer to be provided free of charge to Croatian students but instead they were charged tuition fees and were provided with loans on favorable terms to fund their studies.

¹¹⁷ https://www.azvo.hr/images/stories/novosti/HZZ%20preporuke_2018.pdf

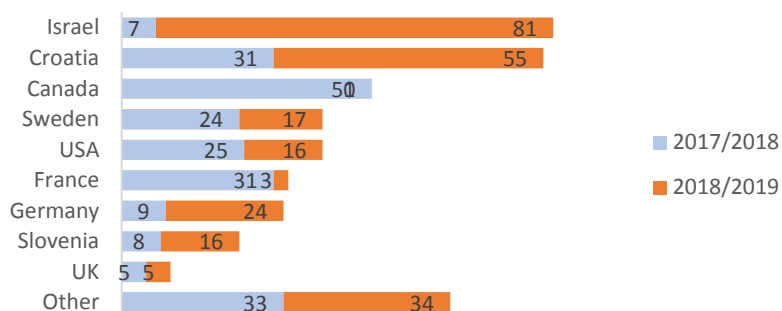
¹¹⁸ <https://www.eu-medizinstudium.de/medizinstudium-in-kroatien#zagreb>

¹¹⁹ During the first year, 25 German students attended the preclinical program in Split. After finishing their training in Croatia, the students return to Germany to continue their clinical training.

¹²⁰ The program has attracted foreign students from Austria, the UK, Germany, France, Portugal, Slovenia, Switzerland, Serbia. About 36 students were enrolled in the first cohort, which then increased to 50 students enrolled in both 2018 and 2019.

¹²¹ Admissions are capped at 60 students per year. The program is in partnership with a German private hospital (owning 35 clinics across Switzerland, Austria and Germany). Practical training is taught by German physicians.

Figure 34. Enrollment in the English-taught general medicine course at the University of Zagreb, by nationality of students, 2017/18 and 2018/9



Source: University of Zagreb

EU reforms in nursing education improved quality, but medical education quality will still need to be improved to ensure that medical graduates are ready for the workforce

Reforms in nursing education have already improved education quality and outcomes. The nursing curriculum was restructured based on EU requirements and schools accredited. Criteria for enrollment and graduation became stricter, which resulted in better education quality and fewer students (Figure 33) as non-accredited schools had to close. Outcomes improved too: since 2015, a higher percentage of Croatian nurses receive “full equivalency” when applying for degree recognition in Germany, as shown above in Figure 34.

Current trends in study completion rates suggest that the admission process into tertiary education is not efficient. Admission to Croatian medical schools requires passing the State exam as well as a competitive entrance exam for medical faculties. While no separate data are available for each medical school, the overall attainment rate for all tertiary education study fields was 34.1 percent of the adult population in 2018, well below the EU average of 40.7 percent.¹²² Furthermore, low completion rates in tertiary education is an indication that there are issues in terms of the quantity and quality of applicants and the quality of general education. Therefore, there is a need to improve the quality of the science curriculum in the general education system to produce better educated and more qualified candidates for university medical programs.

Newly graduated medical doctors need guidance in their clinical work and regular follow-up to help them build professional experience, but they do not currently receive adequate preparation or assistance. In 2018, only 26 percent of newly graduated physicians from the Zagreb Medical School felt adequately prepared for clinical work.¹²³ Despite these concerns, in 2019 the Ministry of Health abolished the mandatory five-month internship program for new medical graduates, raising concerns about the adequacy of clinical training for medical students. The Zagreb Medical School conducts regular surveys among their graduates to solicit their feedback on the study program. These surveys could be expanded to solicit feedback from young physicians about their clinical work. The data from these surveys could

¹²² European Commission: Education and Training Monitor 2019: Croatia.

¹²³ Unpublished data from the Center for Career Planning in Biomedicine and Health, School of Medicine, University of Zagreb.

then be used by policymakers as the basis for introducing measures to improve the study and clinical practice experience.

Innovative financing mechanisms are needed to sustain education funding and ensure the development of the future health workforce

Medical education at the tertiary level is very expensive to provide, which requires innovative financing mechanisms. Despite high cost, medical education is provided free of charge to all Croatian students except for some low-performing students who have to pay a small fee. The Ministry of Education issues scholarships to Croatian students, which they can use to study either at home or abroad. Local governments also offer grants to students although there are no available data on them. The Government of Croatia will need to explore innovative ways to finance the necessary expansion of tertiary medical education needed to fill the growing shortages caused by an aging and experienced workforce and emigration.

Providing Croatian students with income-contingent student loans (ICLs) to fund their studies at the tertiary education level might be one way to raise additional revenues to expand the number of medical school places. These loans have been successfully used in some countries that charge tuition for tertiary education to finance study costs over time, including the Netherlands, Ireland, the United Kingdom, and Hungary. In these ICL schemes, students only have to start repaying their loan once they earn an income above a certain threshold amount. In the United Kingdom, graduates earning over £25,000 (EUR 28,466) per year pay 9 percent of their gross earnings towards the repayment of their loan. New Zealand has a lower threshold than the UK of £10,000 (EUR 11,386) and a higher repayment rate of 12 percent of earnings. Hungary has no income threshold and a 6 percent repayment rate on full earnings. The United States requires graduates to repay 10 percent of their income above a threshold set at 150 percent of the poverty guideline, which is US\$24,360 (EUR 20,134) for a two-person household.¹²⁴ These ICL repayments are withheld from wages by the employer as is done with social insurance taxes.

If such a scheme were adopted in Croatia, it would be essential to set up efficient repayment mechanisms that take account of international workforce mobility. If Croatian graduates migrated to another country, their ICL repayments would be collected by the government of the host country, which would then transfer the revenue back to Croatia.¹²⁵ Alternatively, as happens in New Zealand, the repayment system might involve putting a legal obligation on the migrating debtor to repay an annual minimum amount of their ICL.¹²⁶ Yet another option might be to follow the UK example and require graduates with an ICL who move abroad to work to make monthly direct transfers to the Croatian government based on an agreed repayment scheme.¹²⁷

¹²⁴ Britton et al (2019).

¹²⁵ Barr (2001).

¹²⁶ Chapman (2016).

¹²⁷ <https://www.gov.uk/repaying-your-student-loan/how-you-repay>

Health workforce mobility and shortages of physicians and nurses in Croatia are not yet alarming, but current data and methods for managing the future health workforce are inadequate, and new approaches to funding medical education are needed

In this case study, we have found that the outmigration of physicians and nurses from Croatia to Germany peaked when Croatia joined the EU in 2013 but has since decreased. This migration coupled with staff moving into the private sector and the aging of the health sector workforce is resulting in shortages of personnel in rural areas and in some specialties. Inadequate health workforce planning, unsatisfactory working conditions and low pay are contributing to these developments. So far, these shortages do not appear to have negatively affected access to care, but they are likely to increase in the medium term because of the impending retirement of about one-third of physicians over the next decade.

We also found that today's data and methods for health personnel planning in the sector are inadequate for managing the future health workforce because they are still based on trends from previous years instead of on future trends such as anticipated changes in demographics, mobility, health expenditures, medical technology, and new healthcare models. A lack of data and analysis on the health workforce and its mobility and the lack of a central registry at the MOH severely limit the ability of managers to address growing shortages. One option in the short term might be to recruit more physicians from abroad to fill vacancies, including those from the Croatian diaspora.

Looking ahead, improving working conditions in Croatia's health sector and investing in medical research and science could further reduce the outflow of health professionals, as happened in other new EU member states such as Slovakia, Bulgaria, and Poland. Increasing investments in medical research might also make Croatia a destination country for foreign health professionals as has happened in Slovenia. And the return of highly qualified Croatian health professionals to work in Croatia's health care system and medical research facilities would improve the quality of health care in the country.

Training more medical doctors and nurses would be one way to fill future vacancies in the health sector, but this might prove to be difficult as Croatia's spending on tertiary education is already higher EU average. Therefore, to ensure that the country's future health workforce can be maintained at full strength, the government will have to explore innovative ways to finance the necessary expansion of medical training in its universities. Foreign students taking general medical courses are required to pay higher tuition fees than those paid by Croatian students, and, as their numbers have been increasing, this might be a revenue stream that could be expanded. In addition, the government might want to consider introducing tuition and income-contingent loans for Croatian nationals wishing to study at the country's tertiary institutions. In all cases, more detailed data on health migration, education, and the health workforce will be needed to inform the government as it makes these decisions.

Policy recommendations to the Government of Croatia

Continue to invest in medical and nurse's education:

- **Quality medical and nursing education.** Continue to modernize nursing education to improve the status of the profession in line with EU best practice. Facilitate collaboration among institutions and with nursing associations elsewhere in the EU and with the International Nurses Association to strengthen the quality of programs and teaching in Croatia. Continue to invest in high-quality

medical education. Participate in international medical school rankings. Invest in infrastructure and expand classes offered outside major cities to extend opportunities into underserved areas. Collaborate with diaspora professors who teach at foreign universities and medical centers to attract highly qualified teaching staff to Croatian universities and nursing schools.

- **General education.** Improve the quality of the science curriculum and the general education system to be able to produce candidates for university medical programs. Set high quality standards for university entrance exams to improve the quality of applicants and to raise student completion rates up to the EU average.
- **Medical research.** Support medical research at Croatian universities and hospitals with a focus on science, technology, and innovations in health fields that could be supported by European funding and increase the practical and clinical experiences of students. Encourage Croatian researchers to return from abroad to help to advance medical research, including with EU support to foster research and science.¹²⁸

Explore innovative ways to finance tertiary education investments:

- **Medicine courses in English.** Expand pre-clinical courses in English at universities and charge full-cost tuition to foreign students to raise revenues for Croatia's medical programs. Continue existing partnerships with OECD countries such as Germany and Israel who send foreign students to Croatia and develop other similar relationships to recruit students from other countries.
- **Income-contingent student loans with efficient repayment.** Design an ICL system for Croatia with an efficient repayment mechanism, based on the experience of other countries, such as Hungary, the Netherlands and Ireland. Define a legal framework and design features for the ICL and set up efficient repayment mechanisms that take account of international workforce mobility. Destination country governments, including Germany and Slovenia, would then collect the ICL repayment from the wages earned by Croatian physicians and transfer the amount back to the Croatian government. Alternatively, following the UK experience, the Croatian government could also request graduates to make monthly direct transfer repayments to the government. As happens in New Zealand, the Croatian government could put a legal obligation on the migrating debtor to repay an annual minimum amount of their ICL.

Reform health workforce management and mobility:

- **Health workforce management and clinical practice.** Re-introduce a clinical practice program for medical students and graduates to work in rural areas and facilitate their entry into the workforce. Increase the number of nurses working in health facilities, starting in rural areas. Shift tasks from physicians to nurses and from nurses to nursing assistants to alleviate some of the pressure currently put on highly qualified physicians.
- **Modernize human resource management in health facilities.** A motivated health workforce is crucial to ensure good quality care. To address staff concerns about poor working conditions and nepotism, Croatia could modernize human resource management in health facilities. This would involve developing effective employee promotion policies and a process for managers to follow, improving working conditions, offering employees opportunities for continuous medical education and opportunities to conduct medical research, and ensuring that health professionals

¹²⁸ The Marie Curie Research Fellowship Program. <https://ec.europa.eu/research/mariecurieactions/>

can fully apply their knowledge by providing them with appropriate health infrastructure and medical equipment. Best practice is to encourage managers to conduct exit interviews with staff to determine the reasons for leaving and their destinations in terms of future employment. These data can then help current HR management to improve staff satisfaction and retention strategies.

- **Health workforce planning.** Conduct analysis on the productivity and dynamics of the health workforce in the public and private sector. Modernize health workforce planning based on an analysis of future trends, including to take account of increased mobility across borders, Croatia's aging population and disease burden, an aging health workforce, and flexible working arrangements. Like New Zealand, the Croatian MOH could develop a comprehensive workforce forecasting model to identify medical specialties' ability to meet demand within the current model of health care, and identifying increased investments to reduce future shortages and maldistributions.¹²⁹ To reduce urban-rural disparities, provide training to nurses and physicians in rural areas and assign young physicians to work in rural areas. Invest in primary care to reduce the burden on emergency care.
- **Circular migration.** Collaborate with the German government to facilitate temporary migration of Croatian physicians to expand their clinical skills in Germany and then return to work in Croatia. The return of highly qualified Croatian health professionals into health care and research will contribute to better quality of health care in Croatia.
- **Foreign physicians.** Facilitate the recruitment of physicians from bordering countries with unemployed physicians, including Serbia and Bosnia & Herzegovina by accelerating the hiring process and providing foreign nationals with support with language skills, education, and career development.
- **Data collection and analysis.** Collect data and conduct analysis on the financial and teaching performance of nursing schools and medical faculties, including quality and learning outcomes. Use these findings to inform decisions about financing for medical faculties. Collect data on the health workforce and analyze vacancies for health professionals by health facility, level of education, and specialty. Use analysis on health professionals in health workforce planning and recruitment. Collect data and conduct analysis on the migration of nurses and physicians by specialty, the length of time they worked abroad, their return migration, their educational achievement, and their professional expertise. Use results in health workforce management and planning. Follow international directives for data collection and reporting. Partner with OECD countries on data collection to follow international standards in collection, management and reporting.

¹²⁹ Rees (2019).

References

- Barr, Nicholas (2001). *The Welfare State as Piggy Bank: Information, Risk, Uncertainty, and the Role of the State*. Oxford: Oxford University Press.
- Britton Jack, Laura van der Erve, and Tim Higgins (2019). "Income contingent student loan design: Lessons from around the world." *Economics of Education Review* 71; 65-82.
- Chapman, Bruce (2016). "Income contingent loans in higher education financing." *IZA World of Labor* 2016: 227
- Croatian Medical Chamber (2017). *Demographic Atlas of Croatian Doctors*. Zagreb.
- Kolčić Ivana, Mihaela Čikeš, Kristina Boban, Jasna Bućan, Robert Likić, Goran Ćurić, Zoran Đogaš, and Ozren Polašek (2014). "Emigration-related attitudes of the final year medical students in Croatia: a cross-sectional study at the dawn of the EU accession." *Croatian Medical Journal*, Oct;55(5):452-8.
- OECD (2019). *International Migration Outlook 2019*. OECD Publishing, Paris, 2019. <https://doi.org/10.1787/c3e35eec-en>.
- Puljak, L., J.B. Kraljevic, V.B. Latas, and D. Sapunar (2007). "Demographics and motives of medical school applicants in Croatia." *Medical teacher*, 29(8), pp.e227-e234.
- Rees, G. (2019). "The evolution of New Zealand's health workforce policy and planning system: a study of workforce governance and health reform." *Human Resources for Health*, 17:51
- Šćukanec, N. (2013). "Overview of higher education and research systems in the Western Balkans." Country Report, Croatia.
- Šimunović, V.J., M. Županović, F. Mihanović, T. Zemunik, N. Bradarić, and S. Janković (2010). "In search of a Croatian model of nursing education." *Croatian Medical Journal*, 51(5), pp.383-395.
- Skalec, K. (2018). "Emigration intent among nursing students at the Croatian Catholic University - Nursing Department." Zagreb, October. https://bib.irb.hr/datoteka/957804.Kristina_kalec_-_diplomski_rad-konana_verzija.docx
- Vlacic, A. (2017). "Opinions of nurses on professional careers and migration abroad." Bachelor of Science thesis. Osijek. <https://repozitorij.mefos.hr/islandora/object/mefos%3A670/datastream/PDF/view>
- Wismar, M., C.B. Maier, I.A. Glinos, G. Dussault, and J. Figueras (eds) (2011). *Health professional mobility and health systems. Evidence from 17 European countries (Prometheus Study)*. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies.
- World Bank (2019a). *National Development Strategy Croatia 2030 Policy Notes*. Washington, D.C., World Bank Group.
- World Bank (2019b). *World Development Indicators*. <https://data.worldbank.org/>
- World Bank (2019c). Croatia - Country Partnership Framework for the Period of FY19-FY24 (English). Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/501721557239562800/Croatia-Country-Partnership-Framework-for-the-Period-of-FY19-FY24>
- World Bank (2018). Croatia - Systematic Country Diagnostic (English). Washington, D.C., World Bank Group. <http://documents.worldbank.org/curated/en/452231526559636808/Croatia-Systematic-Country-Diagnostic>

ANNEX: LIST OF PEOPLE INTERVIEWED IN CROATIA

Ministry of Health: Mr. Zeljko Plazonic, the State Secretary, Ms. Marija Pederin (Department for Healthcare facilities)

Ministry for Science and Education: Ms. Branka Ramljak (State Secretary) and Mr. Prskalo (Assistant Minister); Ms. Marina Crncic Sokol (Dept. for Higher Education) and Ms. Vesna Hrvoj Sic (Dept. for Vocational Education- medical nurses)

Ministry of Labor and Pension System: Mr. Vicko Mardesic (Advisor to the Minister); Ms. Nada Trgovčević Letica (Head, Dept. for EU funds); and three additional staff members

Croatian Medical Chamber: Dr. Kresimir Luetic (President), Dr. Ivan Raguz, (President of Committee for International Cooperation)

Croatian Chamber of Nurses: Mr. Mario Gazic, President

Zagreb Medical School: Dr. Marijan Klarica, Dean of the University of Zagreb Medical School, Mr. Drago Horvat (Head of International Affairs), Mr. Darko Bosnjak (Medical School Zagreb, Head of Administration and Legal Expert)

World Bank: Mr. Ivan Drabek, Senior Social Protection Specialist and Ms. Lucija Brajkovic, Education Specialist

State Institute for Public Health: Mr. Mario Troselj, WHO designated Authority

Doctor's Union: Dr. Renata Culinovic Cajic (President) and Dr. Igor Tripalo (Vice President)

Clinical Hospital Centre Zagreb: Ms. Kristina Mardjetko Kelemenic, Assistant to the Director General for Legal Issues, Mr. Ivan Horvat, Chief Coordinator for Analytics and Reporting, and Ms. Marija Gregurić Stajčić, Head of Sector for Legal Affairs

University of Applied Health Studies: Dr. Snježana Čukljek (Vice Dean for teaching activities and students)

KOHOM (Association of general medicine doctors and family medicine specialists): Dr Jelena Rakić Makić (president)

Ogulin General Hospital: Dr Igor Tripalo (Head of Surgery Department)

High school for nurses Ante Kuzmanic Zadar: Mr. Davor Vidakovic (Principal)

University of Rijeka Medical School: Dr. Tomislav Rukavina (Dean) and Ms. Paola Car (Head for student affairs)

University of Split Medical School: Dr. Zoran Dogas (Dean) and Dr. Leandra Vranjes Markic (Vice Rector, University of Split)

University of Zadar, Department of Health studies (Dr. Dijana Vican, Rector and Josip Faricic, Vice Rector)

Croatian Agency for Higher Education (Dr. Jasmina Havranek, Head)

CASE 3: SERBIA

Introduction

This case study examines the magnitude of health workforce migration in Serbia and how it affects the Serbian health sector and the medical education system. It is one of four case studies produced for a World Bank study on health workforce mobility that also includes studies of Germany, Croatia, and North Macedonia. The objective of this World Bank study is to provide policy-relevant recommendations aimed at ensuring the sustainable training of each country's health workforce and improving health workforce management and planning. For each case study, many key informants were interviewed, including health and education experts, and data were collected from the government, from medical and nursing schools, and from hospitals (Annex 1). The case studies are not meant to be representative of the EU and Balkan region.

The Prometheus study included an analysis of Serbia.¹³⁰ The study found that, between 2004 and 2011, high unemployment among Serbian medical doctors and nurses and low salary levels were the main motivations driving outmigration. It argued that permanent migration could undermine the returns to Serbia's investments in education and training and recommended that the government reduce unemployment among health professionals by enacting stricter requirements to study at medical schools and by basing medical education planning on the needs of the health care system. It also suggested basing health workforce planning on current and future population dynamics and the needs of the health sector. The authors expected emigration of Serbian health professionals to EU countries to increase, which would reduce the oversupply in Serbia and provide career opportunities elsewhere for unemployed health workers. It recommended that the government should monitor health workforce migration and develop policies to mitigate any negative effects that it might have on health care provision in Serbia.

This case study presents findings on the growing numbers of health workers migrating from Serbia to Germany based on data collected and interviews conducted in Serbia in November 2019. Our findings show that, since 2011, Serbia's health professionals have continued to migrate to other countries, most commonly to Germany, because of persistently high and long-term unemployment in Serbia's health sector, especially among young graduates. Despite this high unemployment rate, the Serbian government continues to spend a substantial amount on tertiary education to train large numbers of medical doctors and nurses at very low cost to the students. Furthermore, the medical education system is not aligned with EU requirements, which results in low-quality learning outcomes and low degree recognition rates in Germany. This high level of investment is costly for the government and is inefficient and unsustainable over time.

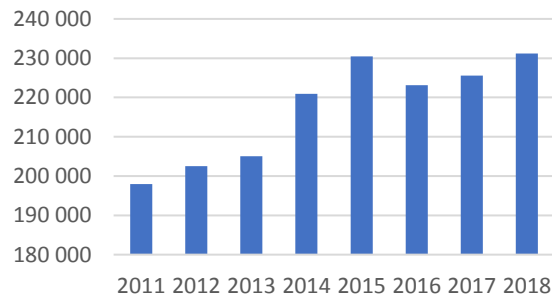
Based on our findings, we offer some recommendations to the Serbian government on how to manage health workforce mobility and to ensure that the country's medical education system is adequately financed and can meet the needs of the health workforce and the population as a whole.

¹³⁰ Jekic et al (2011).

Serbia's population is shrinking as a result of emigration and declining fertility rates

During the past decade, emigration from Serbia to Germany has been increasing, but has stabilized in recent years. On average, about 41,700 Serbian nationals move to OECD countries every year,¹³¹ and around half of them go to Germany.¹³² In 2018, the Federal Foreign Office of Germany granted 10,153 work permits to Serbians, up from 9,918 in 2017.¹³³ By 2018, about 230,000 Serbians lived in Germany, a similar number as in the previous years (Figure 35).¹³⁴ According to the 2019 Balkan Barometer Survey, this level of emigration is likely to continue as about 36 percent of Serbians are considering living abroad.¹³⁵

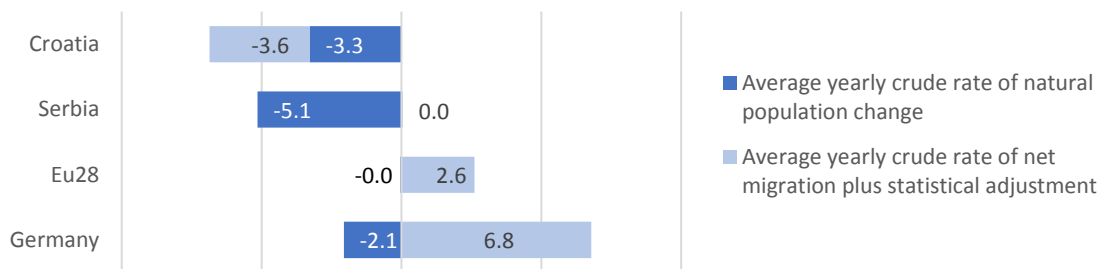
Figure 35. Serbian nationals living in Germany, total numbers 2011-2018



Source: Federal Statistical Office of Germany

Emigration combined with a drop in fertility rates has meant that Serbia's population has been shrinking and aging. Serbia's total population declined from 7.3 million in 2010 to 6.9 million in 2019. This decrease was driven by a below replacement fertility rate of 1.5 children per woman and by net migration as emigration was higher than immigration. Meanwhile, Germany's population grew by 6.8 percent as a result of net migration (Figure 536). As a result of these population changes in Serbia, the share of the population aged 65 years and over increased from 18.7 percent in 2015 to 20.2 percent in 2018.¹³⁶

Figure 36. Crude rate of total population change, 2012-2018 yearly average



Source: Eurostat

¹³¹ The OECD's data include temporary migration.

¹³² OECD (2019).

¹³³ German Federal Foreign Office, 2019.

¹³⁴ The Central Register of Foreigners (AZR) reports data on foreigners who are living in Germany for longer than three months.

<https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Migration-Integration/Methoden/Erlauterungen/auslaendische-bevoelkerung.html?nn=208952>

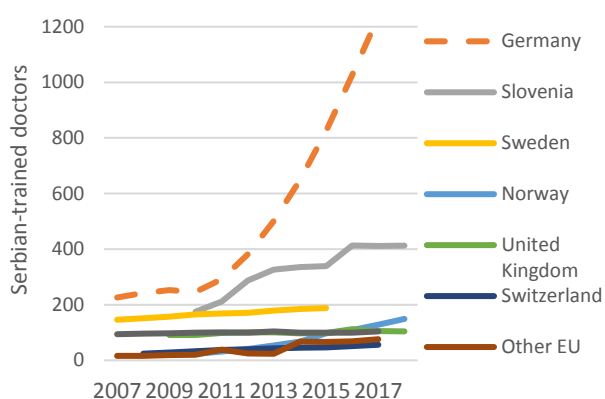
¹³⁵ Regional Cooperation Council, 2019

¹³⁶ Statistical Office of the Republic of Serbia (SORS), 2019

Already before joining the EU, outmigration of health professionals from Serbia to Germany has been consistently high as Germany opened up its health labor market

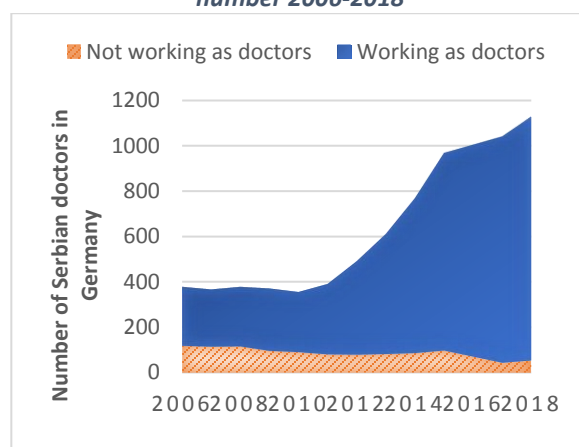
Germany is the most popular destination for Serbian health professionals, with Slovenia in second place. During the past decade, a growing number of Serbian doctors have moved to Germany (Figures 37 and 38). By 2017, there were 1,236 Serbian-trained physicians in Germany with most of them working in clinical practice. Slovenia is another common destination for Serbian doctors. Serbia does not have reliable statistics on the outmigration of nurses; however, data from Germany on degree recognition suggest that their numbers have increased too. No data are collected on how long migrant physicians and nurses stay, if and when they return home, or if they move to a different foreign country.

Figure 37. Serbian physicians in OECD countries, total number 2007-2017



Source: OECD

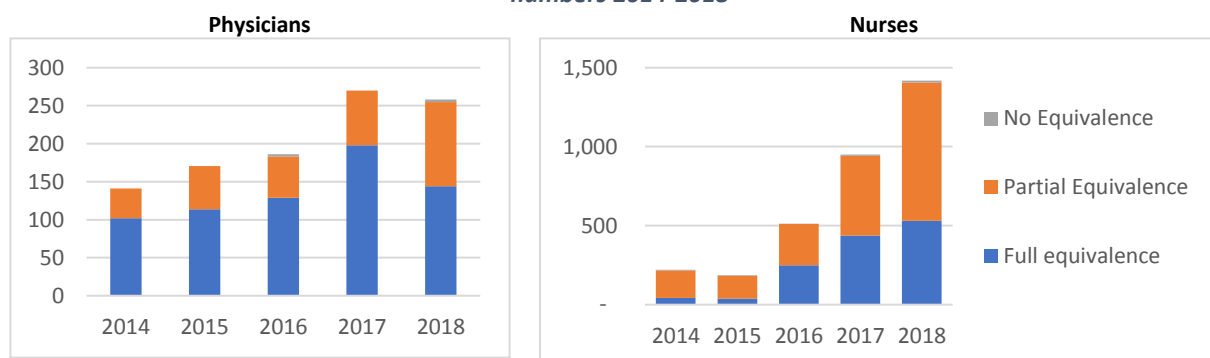
Figure 38: Serbian physicians in Germany, total number 2006-2018



Source: German Medical Association

There has been a steady increase in the applications for health degree recognition in Germany, but outcomes have been weak. Germany does not automatically recognize Serbian medical and nursing degrees but assesses them for equivalency with German degrees on a case-by-case basis, taking into account the applicant's professional experience and language skills. Experienced specialists who speak German tend to get hired immediately. According to the Federal Statistical Office of Germany, there was a substantial increase in processed applications for the recognition of medical and nursing degrees from Serbia since 2014 (Figure 38). However, the low rates of degree recognition for Serbia's physicians and nurses indicate that the quality of the country's medical education is poor. Germany has provided full recognition to only about two-thirds of Serbian medical degrees and fewer than half of Serbian nursing degrees. Serbian nurses with partial degree recognition usually take up lower-paid nurse assistance jobs when they move to Germany. These low degree recognition rates can be attributed not only to poor education quality but also to the lack of any accreditation system for education in Serbia.

Figure 39. Applications for recognition of Serbian professional qualifications in Germany, by outcome, annual numbers 2014-2018



Source: Federal Statistical Office of Germany.

Note: The number of nurses who applied for recognition in Germany is higher than the number of certificates issued as reported by the Serbian health authorities as the latter numbers are incomplete.

Germany actively recruits nurses from countries with high unemployment, including Serbia. Germany has become a popular destination for health professionals because it has opened up its health labor market to foreign health professionals through various legislative reforms and programs. “Triple Win” is a program jointly established by the German Federal Employment Agency’s International Placement Service and the German Development Agency¹³⁷ (GIZ) to recruit qualified foreign nurses to work for German employers. The program focuses on countries with too many nurses, including Serbia, Bosnia & Herzegovina, the Philippines, and Tunisia. Since its inception in 2013, about 5,700 nurses have participated. The program assesses and selects nurses, provides them with language and professional courses, and matches them with employers. It also offers administrative and logistic support for nurses with their move to and arrival in Germany and with their stay (for example, paperwork, housing, and travel). By September 2019, about 1,150 Serbian nurses had been interviewed under the Triple Win program, 941 had been successfully matched with employers, and 800 had moved to Germany (Table 1). The program has a high satisfaction rate (98 percent) and a low dropout rate. Demand has continued to grow both from Serbian nursing staff and German employers. However, the Serbian government decided to stop participating in the Triple Win program as of February 2020, despite high unemployment rates among nurses, and over concerns that too many nurses migrating to Germany might lead to shortages in Serbia in the future.¹³⁸

Table 1. Serbian Nurses in the Triple Win Program, 2013 - September 2019

Year(s)	Interviews	Placements	Arrivals
2013 to 2016	593	548	464
2017	263	166	151
2018	182	125	117
2019 (up to September)	112	102	68
Total	1150	941	800

Source: Embassy of Germany in Belgrade

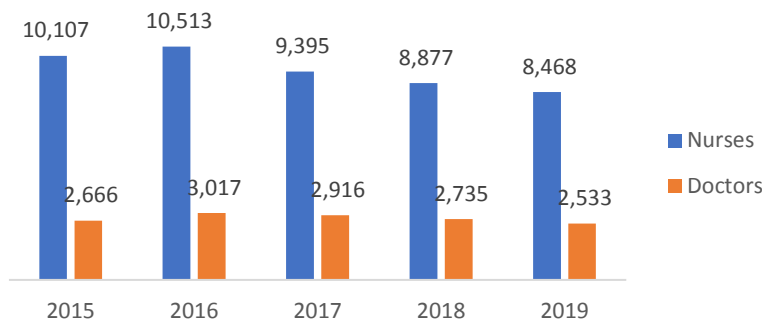
¹³⁷ Gesellschaft für Internationale Zusammenarbeit.

¹³⁸ <https://www.zeit.de/wirtschaft/2020-02/migration-serbien-pflegekraefte-deutschland-fachkraefte-kooperation>

Persistently high unemployment among health professionals point to health management issues, but so far, access has not been affected

Unemployment among Serbian nurses and physicians has remained persistently high, and because it is so hard to find work, some physicians are working as volunteers. The Prometheus study already identified high unemployment as a main reason for Serbian health professionals to emigrate. A large number of Serbian health professionals are still unemployed, although the situation has improved somewhat in recent years (Figure 40). By September 2019, the Serbian National Employment Service (NES) reported 8,468 unemployed nurses and 2,533 unemployed physicians. The average duration of unemployment is long: 37 months for nurses and 25 months for medical doctors. In 2019, general practitioners were unemployed for an average of 90 months, while specialists in internal medicine were unemployed for 34 months.¹³⁹ This can be detrimental for the career development of physicians who need clinical practice. No part-time employment or job-sharing currently exists in the Serbian health sector, which would add more personnel to the health workforce. To maintain their clinical practice, it is common for unemployed health professionals to work as volunteers in hospitals.

Figure 40. Unemployed doctors and nurses in Serbia, annual numbers 2015-2019



Source: National Employment Service (NES)
Note: The figures for 2019 are for September 30, 2019

High unemployment coupled with some shortages in rural areas point to weaknesses in health workforce management. Despite these high unemployment rates, health facilities in rural areas still find it difficult to fill vacancies, which points to weaknesses in workforce planning, recruitment, and personnel management within Serbia's health system. An aging health workforce could contribute to future shortages. About 30 percent of medical doctors are older than 55 and will retire in the next decade.¹⁴⁰

The outmigration of health professionals has not affected health care provision in Serbia. Any vacant positions in the health sector can be easily filled by unemployed and volunteer health professionals, although this can take longer in rural areas. However, any attrition creates administrative costs and is disruptive as it takes time to hire new staff. Generally, experienced staff and highly trained specialists are more difficult than others to replace. While Serbian health professionals perceive migration as an

¹³⁹ Based on data for 2019 reported by the National Employment Service (NES): Unemployment, Reported Needs, and Employment of Persons Registered in the NES.

¹⁴⁰ EUROSTAT and Serbian Medical Chamber, 2017

opportunity to develop their professional experience, this may change as Serbia's demographics evolve and the government's fiscal priorities change.

Unemployment and unsatisfactory working conditions are causing many Serbian physicians and nurses to leave to find work in other countries

Physicians and nurses are migrating for their professional development and for better working conditions. About 30 percent of doctors and nurses employed in the public sector plan to either find work in the private health sector or in the non-health sector or to move abroad. They leave for different reasons, including for better career opportunities, more professional development and recognition, better working conditions, a better work-life balance, more stable contractual arrangements, greater transparency and rule of law, or to work with modern hospital infrastructure and equipment.¹⁴¹

Younger health professionals are more likely to move abroad. The Prometheus study already found that young physicians and nurses are more likely to emigrate to find work. This trend is continuing. In 2014, about 80 percent of first-year and fifth-year medical students in Serbia intended to work abroad.¹⁴² Students were more likely to leave if they were from lower-income groups, spoke two foreign languages, and already had contacts in another country. In the same year, about 70 percent of final-year nursing students in 2014 were considering working abroad, and 13 percent had a definite plan to emigrate.¹⁴³ Single nurses and those with friends or relatives abroad were the most likely to leave.

Health professionals also leave to find better jobs as the fiscal context defines overall health spending, the number of health positions and wages

The Serbian government cannot afford to increase the number of positions in the health sector to absorb the large numbers of unemployed physicians and nurses. Fiscal constraints currently limit the number of health professional positions in Serbia. The health sector employs about 5.5 percent of the population, which is below the EU average of 10.4 percent. The public health sector is the main employer, whereas about 7 percent of physicians and roughly 25 percent of nurses work in private practice.¹⁴⁴ Hiring in the public health sector is centrally managed by the Ministry of Health (MOH), which sets the number of jobs in the sector in accordance with the government's wage budget. Therefore, the number of positions available in the public health sector depends on the government's health spending and the overall fiscal context. The Serbian government spent about 5 percent of its GDP on health in 2017, considerably less than the 11.2 percent of GDP spent by Germany and the EU average of 9.9 percent of GDP.¹⁴⁵ As can be seen in Figures 41 and 42, Germany also has considerably higher numbers of physicians and nurses than Serbia. Thus, increasing the number of positions to reduce unemployment would require health spending to be increased, which is not likely to be feasible given the country's fiscal constraints. Furthermore, fiscal pressures caused the Serbian government to institute a public sector hiring freeze in 2014.

¹⁴¹ Santric-Milicevic et al (2015).

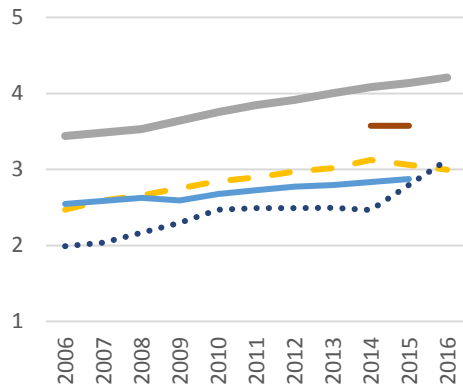
¹⁴² Santric-Milicevic (2014a).

¹⁴³ Santric-Milicevic (2014b).

¹⁴⁴ In 2018, about 36 percent of 28,224 medical doctors in Serbia worked in Belgrade (Serbian Medical Chamber, 2018). The Chamber of Nurses and Medical Technicians of Serbia (CNMTS) reported 67,472 registered nurses in Serbia in October 2019. Most of them (88.3percent) are women.

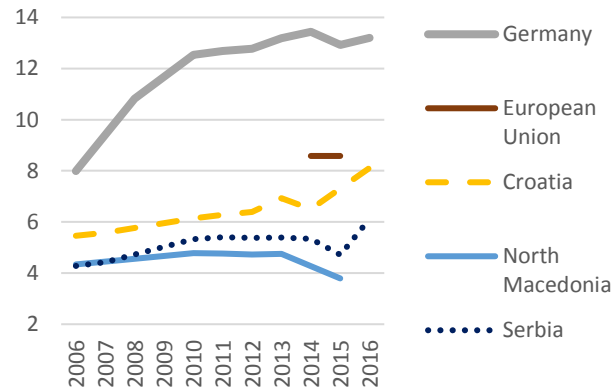
¹⁴⁵ <https://apps.who.int/nha/database/ViewData/Indicators/en>

Figure 41. Physicians per 1,000 population, 2006-2016



Source: World Bank

Figure 42. Nurses per 1,000 population, 2006-2016



Source: World Bank

Relative wages are higher in Germany. Nominal wages for health professionals are considerably higher in higher-income countries than in Serbia, which increases the attractiveness of working abroad. The Serbian government has recently increased public sector wages for medical doctors by 10 percent and for nurses by 15 percent to try to keep health professionals from leaving. An additional 15 percent is planned in the future. However, given that so many unemployed physicians are currently volunteering to work with no salary to maintain their clinical practice and that the pool of unemployed physicians is large, the government is not under any real pressure to increase wages in the health sector. Thus, in order to find better-paid jobs, many physicians and nurses are leaving Serbia to work in Germany.

The government still needs to modernize health workforce planning to take account of high unemployment and outmigration, and better data and analysis are needed

In order to reduce high unemployment among health professionals in Serbia, it will be necessary to reform the current health workforce planning process. The Prometheus study already recommended new approaches to health workforce planning to reduce unemployment. However, health workforce planning is still based on trends in staff-to-population ratios in previous years. The Serbian National Employment Service (NES) does not automatically analyze unemployment data and report their findings to the Ministry of Health to inform workforce planning and recruitment or to the Ministry of Education to inform tertiary education planning. The health workforce planning process needs to be coordinated with medical education planning and take into account regional differences in staffing, unemployment and vacancies, and future demographic trends in both the population and the health workforce. It should also take into account projections of trends in outmigration and options for managing health workforce mobility to reduce unemployment in Serbia’s health sector. The health workforce budget should be defined in accordance with the results of this annual planning exercise.

Data collection and analysis is inadequate to inform health workforce planning and mobility, which needs to be addressed. The Serbian Institute of Public Health collects some data on all physicians and nurses in the public health system, but more is needed to ensure that health workforce planning can be based on the current context and the future dynamics of the sector. Hardly any data and analysis exist on education quality and outcomes, unemployment, and mobility, and even when they are available, they are not necessarily used to inform policy. Better data are needed on learning quality, outcomes, the cost

and efficiency of medical faculties and nursing schools, and the entry of graduates into the health workforce. These expanded efforts should follow WHO, OECD, and Eurostat guidelines on collecting health workforce data.

Government expenditures on tertiary education are high but inefficient as they produce too many medical graduates who are unable to find work in Serbia

Health education in Serbia is offered by a network of public medical faculties and public and private nursing schools. Medical faculties are autonomous institutions within public universities. There are no private universities, but the number of private nursing schools has been increasing. By 2019, Serbia had 36 public and 15 private nursing schools. Two public universities – the University of Belgrade and the University of Novi Sad – offer general medical courses in English. This program attracts international students from countries where study places are limited and where students would otherwise have had to pay high tuition fees for courses offered by private universities in their own countries.¹⁴⁶

Government spending on tertiary education is high, which means that the sector turns out too many medical graduates who therefore have difficulty finding work. In 2017, the Government of Serbia spent 4 percent of GDP on overall education, less than the EU27 average of 4.6 percent.¹⁴⁷ However, at 30 percent of total education spending, the government invests heavily in tertiary education, considerably more than Germany and other EU countries (15 percent). The Ministry of Education approves the number of publicly funded study places for potential medical doctors and nurses. Recently, about 1,400 medical doctors have graduated from Serbian universities every year, and this number has increased since 2006. By 2018, Serbia produced 18.9 medical graduates per 100,000 population, which is considerably higher than the EU average of 13.3 per 100,000 (Figure 43). In addition, about 1,000 nurses graduate annually from universities and 3,500 from nursing schools (Figure 44). Women constitute the majority of both medical and nursing graduates.¹⁴⁸ Despite ongoing high ongoing unemployment among physicians and nurses, health workforce planning and policy has not been adjusted to take this into account.¹⁴⁹ Planning for medical and nurse education has also remained unchanged, which means that there are always more medical and nursing graduates than there are jobs available. Because Serbia carries out no tracer surveys of graduates, there are no available data on their circumstances after graduating, such as their entry into the job market, the length of any periods of unemployment, or their outmigration.

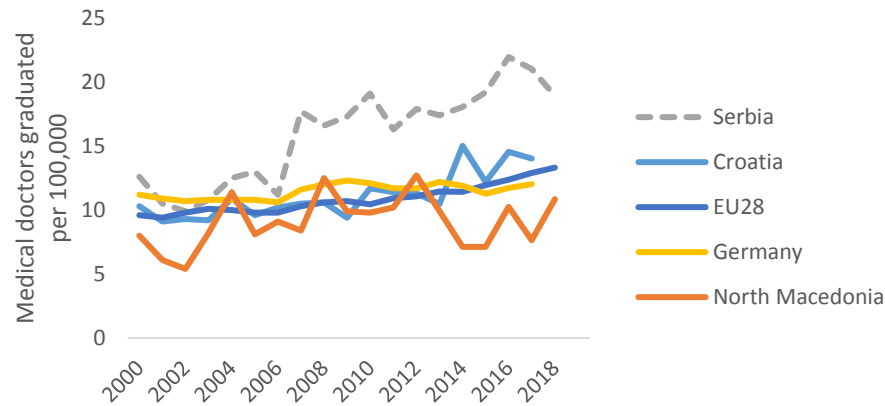
¹⁴⁶ Schwörer and Wissing (2018).

¹⁴⁷ Eurostat, 2019.

¹⁴⁸ In 2018, women constituted 63 percent of medical graduates, 77 percent of nursing school graduates, and 89 percent of nursing graduates from universities.

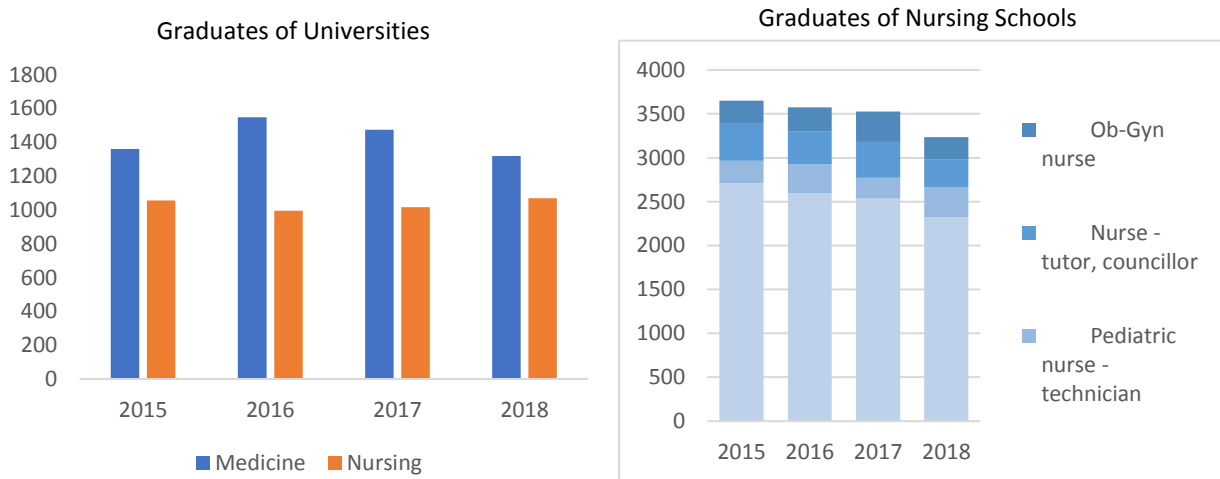
¹⁴⁹ Santric-Milicevic et al (2013).

Figure 43. Annual number of medical doctors graduated per 100,000, 2000-2018



Source: WHO-HFA DB (2000-2014) and authors' calculations using MoESTD and World Bank data (2015-2018)

Figure 44. Graduates of Universities and nursing schools in Serbia, annual number 2015-2018



Source: MoESTD.

Medical education is expensive to provide and mainly government funded, but information on cost is not available to calculate tuition fee. The government fully finances about 48 percent of all medical students enrolled in public universities, and the rest pay only a small tuition fee. Students enrolled in general medical courses taught in English at the universities of Belgrade and Novi Sad pay annual tuition fees of €5,500 to €7,000.¹⁵⁰ Nursing education in public schools is free of charge for students. The government also finances housing and transport for nursing students and gives stipends to promising students from lower-income groups. Private nursing schools charge tuition fees. There is no information available on the full cost of educating a medical student in Serbia because data on tertiary education financing is reported at the institution level and is not disaggregated by faculties. If it were possible to calculate the cost-recovery rate of these study places, the government could charge a full-cost tuition fee for courses taught in English and a partial-cost tuition fee for all other courses.

¹⁵⁰ <http://www.mf.uns.ac.rs/en/paymentdetails.php>

Medical and nurse education quality are major concerns and education financing not linked to outcomes and research

Improving the quality of tertiary medical education would increase the efficiency of learning and open up possibilities for international collaboration in research. With the aim of improving quality in higher education, Serbia has created the National Accreditation and Quality Assurance Entity in line with the EU's Bologna reform agenda for harmonizing tertiary education.¹⁵¹ However, so far there is no entity that assesses learning quality and outcomes, pass rates, or completion rates. If the Serbian government were to follow Croatia's example and reform its medical and nursing education to be aligned with EU standards, this would likely result in stricter admission rules and curriculum reforms, which could reduce the number of medical and nursing graduates. In Croatia, the nursing curriculum was restructured based on EU requirements, and nursing schools had to be accredited. The criteria for enrollment and graduation became stricter, which improved the quality of nursing education and reduced the number of nursing students as all non-accredited schools had to close. If Serbia were to introduce similar reforms, the resulting savings could be spent on fostering medical research opportunities within the country. Education financing could be designed to reward better quality universities. The improved quality of tertiary medical education in Serbia would make it more likely that applications to EU countries for degree recognition by Serbian health professionals would be successful and that Serbian researchers would find interesting research opportunities at their own universities.

The government might consider collaborating with Serbian health professionals overseas to create teaching and medical research opportunities in Serbia and private sector investment. While Serbia has a large diaspora, the government maintains no active links with health professionals who have left Serbia.¹⁵² However, about one-quarter of highly educated Serbian professionals in the diaspora would consider returning home if there were more science and research opportunities, more adherence to the rule of law, less nepotism and corruption, better living conditions, and a stable economy and political situation in Serbia.¹⁵³ With the support of EU initiatives, such as the Marie Curie research program, Serbian medical researchers and specialists could be actively recruited for joint collaboration on research projects in Serbia. The government might want to encourage Serbian professionals working abroad to return to work at home by increasing the number of medical research and teaching opportunities at Serbian universities and by making it easier to set up private medical practices.

Serbia needs to explore innovative financing mechanisms to sustain tertiary education funding and increase cost recovery from its mobile health workforce

New financing approaches are needed to sustain the provision of medical education in Serbia and to improve its quality. As government spending on tertiary education is already high, additional revenues for tertiary education will have to be raised from other sources. This will require new thinking and innovative financing approaches.

¹⁵¹ The Bologna Process seeks to harmonize higher education systems across Europe by introducing a three-cycle higher education system consisting of bachelor's, master's, and doctoral studies, ensuring the mutual recognition of qualifications and learning periods abroad completed at other universities, and implementing a system of quality assurance to improve the quality and increase the relevance of learning and teaching.

¹⁵² The Serbian medical chamber facilitates communication with the diaspora.

¹⁵³ Government of Serbia (2018).

Providing Serbian students with income contingent student loans (ICLs) to fund their studies at the tertiary level might be one way to raise additional revenues to improve the quality of medical education. These loans have been successfully used in some countries that charge tuition for tertiary education to finance study costs over time, including the Netherlands, Ireland, the United Kingdom, and Hungary. In these ICL schemes, students only have to start repaying their loan once they start earning an income above a certain threshold amount. In the United Kingdom, graduates earning over £25,000 per year pay 9 percent of their gross earnings towards the repayment of their loan. New Zealand has a lower threshold than the UK of £10,000 and a higher repayment rate of 12 percent of earnings. Hungary has no income threshold and a 6 percent repayment rate on full earnings. The United States requires graduates to repay 10 percent of their income above a threshold set at 150 percent of the poverty guideline, which is US\$24,360 for a two-person household.¹⁵⁴ These ICL repayments are withheld from wages by the employer as is done with social insurance taxes.

If such a scheme were adopted in Serbia, it would be essential to set up efficient repayment mechanisms that would take account of international workforce mobility. If Serbian graduates migrated to another country, their ICL repayments would be collected by the government of the host country, which would then transfer the revenue back to Serbia.¹⁵⁵ Alternatively, as happens in New Zealand, the repayment system might involve putting a legal obligation on the migrating debtor to repay an annual minimum amount of their ICL.¹⁵⁶ Yet another option might be to follow the UK example and require graduates with an ICL who move abroad to work to make monthly direct transfers to the Serbian government based on an agreed repayment scheme.¹⁵⁷

Our findings show that the migration of physicians and nurses from Serbia to Germany is a direct result of Serbia's medical and nursing education being disconnected from conditions in the health labor market

In this case study, we find that health migration in Serbia is mainly driven by an unemployment problem triggered by high tertiary spending and not enough health jobs for physicians and nurses. Many of Serbia's health professionals migrate to other countries because of persistently high and long unemployment in Serbia's health sector, with most of them moving to Germany. This outmigration is not affecting health service provision because there is an over-supply of qualified medical professionals in Serbia. The few shortages in rural areas are not alarming and combined with high unemployment point to a health workforce planning issue. Despite this high unemployment, the Serbian government continues to train a large number of medical doctors and nurses at very low cost to the students. Furthermore, the medical education system is not aligned with EU requirements, which results in low-quality learning outcomes and low degree recognition rates by other countries. The system is also not aligned with current conditions in the labor market. As a result, young graduates cannot find jobs so they leave to work abroad. This high level of education investment is costly for the government and is inefficient and unsustainable over time.

The obvious response would be to hire more medical doctors and nurses to reduce the number of unemployed and prevent them from leaving the country, but Serbia does not have the fiscal space to increase the number of jobs in the health sector. Another option might be to improve the quality of medical and nursing education, thereby substantially reducing the number of graduates as was done by

¹⁵⁴ Britton et al (2019).

¹⁵⁵ Barr (2001).

¹⁵⁶ Chapman (2016).

¹⁵⁷ <https://www.gov.uk/repaying-your-student-loan/how-you-repay>

Croatia. Another option would be to negotiate bilateral agreements with specific countries to hire Serbia's migrant health professionals but with options to allow for temporary migration and for joint medical research programs between Serbian universities and their equivalents in the host country.

Looking ahead, there are signs that health workforce migration from Serbia may accelerate further. Germany has already opened its health labor market to non-EU professionals, which is why Germany is one of the main destination countries for Serbian health professionals. If other EU health labor markets open up to non-EU health professionals, then this outmigration from Serbia could increase. Alternatively, outmigration could slow down if more paid health positions become available in Serbia, if working conditions improve, and if health education reforms result in fewer graduates as was the case in Croatia after the government introduced EU-related reforms in education.

Policy recommendations to the Government of Serbia

Reform the training of health professionals based on EU standards:

- **Quality medical and nursing education.** Introduce relevant reforms in medical and nursing education to comply with EU legislation to ensure the recognition of Serbian health care degrees by EU governments. Based on EU requirements, restructure the nursing curriculum, introduce stricter criteria for enrollment and graduation, introduce an accreditation program for nursing schools, and close all non-accredited schools. Monitor and evaluate learning outcomes in public and private nursing schools. Assess the quality and outcome of medical education to rank medical faculties and allocate government funding to universities based on these rankings. Participate in international medical school ranking (the 500 top universities for medicine). Collaborate with diaspora professors who teach at foreign universities and medical centers to attract highly qualified teaching staff to Serbian universities and nursing schools.
- **Medical research.** Support medical research with a focus on science, technology, and innovations in health fields that could be supported by European funding and increase the practical and clinical experiences of students and medical graduates. Encourage Serbian researchers to return from abroad to help to advance medical research with EU support.¹⁵⁸ Offer university-level teaching opportunities to Serbian medical professors who are currently teaching at foreign universities and medical centers.
- **Education financing.** Conduct a cost analysis of tertiary education by faculty. Reduce government spending on tertiary education. Increase tuition fees for all medical students to at least 50 percent of full cost and charge full-cost fees for courses taught in English. Consider setting higher tuition fees for professions with higher unemployment and migration rates. Provide income contingent student loans (ICL) and means-tested stipends to high-performing students from low-income backgrounds.

Explore innovative ways to finance tertiary education investments:

- **Medicine programs in English.** Expand preclinical courses in English at Universities and charge full-cost tuition fees to foreign students to raise revenue for Serbia's medical and nursing programs. Develop partnerships with OECD countries to recruit students from other countries to study in Serbia.

¹⁵⁸ For example, the Marie Curie Research Fellowship Program. <https://ec.europa.eu/research/mariecurieactions/>

- **Income-contingent student loans with efficient repayment.** Design an ICL system for Serbia with an efficient repayment mechanism, based on the experience of other countries, such as Hungary, the Netherlands and Ireland. Define a legal framework and design features for the ICL and set up efficient repayment mechanisms that take account of international workforce mobility. Destination country governments, including Germany and Slovenia, would then collect the ICL repayment from the wages earned by Serbian physicians and transfer the amount back to the Serbian government. Alternatively, following the UK experience, the government could also request graduates to make monthly direct transfer repayments to the government. As happens in New Zealand, the Serbian government could put a legal obligation on the migrating debtor to repay an annual minimum amount of their ICL.

Manage health workforce planning and mobility:

- **Management reforms.** Reform the management of public hospitals, including personnel management. Develop an effective employee promotion policy with a process for managers to follow. Invest in continuous medical education and medical research in collaboration with the private sector and with well-managed health systems in other countries. Ensure that health professionals can fully apply their knowledge by providing relevant modern health infrastructure and medical equipment.
- **Health workforce planning.** Conduct analysis on the productivity and dynamics of the health workforce in the public and private sector and develop a human resources strategy for health. Modernize health workforce planning based on an analysis of future trends, including to take account of increased mobility across borders, Serbia's aging population, a changing disease burden, an aging health workforce, unemployment among health professionals, and flexible working arrangements. Like New Zealand, the Serbian MOH could develop a comprehensive workforce forecasting model to identify medical specialties' ability to meet demand within the current model of health care, and identifying increased investments to reduce unemployment and mal-distributions.¹⁵⁹ To reduce urban-rural disparities, provide training to nurses and physicians in rural areas and assign young physicians to work in rural areas and in primary care.
- **Unemployed health professionals.** Collaborate with the National Employment Service to facilitate the recruitment of unemployed physicians and nurses in rural areas where there are shortages. Consider developing alternative work arrangements for the health sector (such as part-time work and job-sharing) to increase the number of health staff that can be employed within the current budget constraints.
- **Manage migration.** Collaborate with other governments (including with low-income countries with shortages) to facilitate: (i) the international recruitment of unemployed health professionals from Serbia to enable them to maintain their professional expertise and (ii) the return migration of health professionals who plan to work and invest in Serbia in either the public or private health sector. Collaborate with the German government to facilitate temporary migration of Serbian physicians to expand their clinical skills in Germany and then return to work in Serbia. The return of highly qualified Serbian health professionals into health care and research will contribute to better quality of health care at home.

¹⁵⁹ Rees (2019).

- **Data collection and analysis.** Follow the WHO, EU, and OECD directives governing the collection and reporting of data. Collect detailed data on the migration of physicians by specialty and of nurses (disaggregated by university and nursing school graduates), the duration of time worked abroad, any return migration, their educational achievements, and their professional expertise. Collect data and conduct analysis of government expenditures by medical faculties and use the results to define the number of study places and to set tuition fees. Analyze the extent and duration of unemployment among health professionals by level of education and specialty. Use these unemployment data in health workforce planning and recruitment and in determining tertiary education budgets.

References

- Barr, Nicholas (2001). *The Welfare State as Piggy Bank: Information, Risk, Uncertainty, and the Role of the State*. Oxford University Press, Oxford.
- Britton Jack, Laura van der Erve, and Tim Higgins (2019). "Income contingent student loan design: Lessons from around the world." *Economics of Education Review* 71; 65-82.
- Chapman, Bruce (2016). "Income contingent loans in higher education financing." *IZA World of Labor* 2016: 227
- Eurostat (2019). *Key Figures on Enlargement Countries (2019 Edition)*.
<https://ec.europa.eu/eurostat/documents/3217494/9799207/KS-GO-19-001-EN-N.pdf/e8fbd16c-c342-41f7-aaed-6ca38e6f709e>
- Gacevic, M., M.S. Milicevic, M. Vasic, V. Horozovic, M. Milicevic, and N. Milic (2018). "The relationship between dual practice, intention to work abroad, and job satisfaction: A population-based study in the Serbian public healthcare sector." *Health Policy*, 122(10), pp.1132-1139.
<https://www.ncbi.nlm.nih.gov/pubmed/30244823>
- GIZ (2019). *Sustainable recruitment of nurses (Triple Win): Project Description*.
<https://www.giz.de/en/worldwide/41533.html>
- Government of Serbia (2018). <http://www.mdpp.gov.rs/doc/Dijaspora-i-povratnici-tekst-naslovna-impresum-CIP.pdf>
- Institute of Public Health of Serbia (2018). *Analysis of employee satisfaction in public health institutions of the Republic of Serbia: 2018*. <http://www.batut.org.rs/index.php?content=1897>
- Jekic, I.M., A. Katrava, M. Vučković-Krčmar, and V. Bjegović-Mikanović (2011). "Geopolitics, economic downturn and oversupply of medical doctors: Serbia's emigrating health professionals," Chapter 19 in M. Wismar, C.B. Maier, I.A. Glinos, G. Dussault, and J. Figueras (eds). *Health professional mobility and health systems. Evidence from 17 European countries*. WHO Regional Office for Europe, Copenhagen on behalf of the European Observatory on Health Systems and Policies.
- OECD (2019). *International Migration Outlook 2019*. OECD Publishing, Paris.
<https://doi.org/10.1787/c3e35eec-en>.
- Regional Cooperation Council (2019). *Balkan Barometer 2019: Public opinion survey*. Sarajevo.
<https://www.rcc.int/pubs/89/balkan-barometer-2019-public-opinion-survey>
- Santric-Milicevic, M., B. Matejic, Z. Terzic-Supic, V. Vasic, U. Babic, and V. Vukovic (2015). "Determinants of intention to work abroad of college and specialist nursing graduates in Serbia." *Nurse education today*, 35(4), pp.590-596. <https://www.ncbi.nlm.nih.gov/pubmed/25623630>
- Santric-Milicevic, M.M., Z.J. Terzic-Supic, B.R. Matejic, V. Vasic, and T.C. Ricketts III (2014a). "First-and fifth-year medical students' intention for emigration and practice abroad: a case study of Serbia." *Health Policy*, 118(2), pp.173-183. <https://www.ncbi.nlm.nih.gov/pubmed/25458972>.
- Santric-Milicevic, M., B. Matejic, Z. Terzic, V. Vasic, and U. Babic (2014b). "Nursing students' intention to work abroad-a public health policy issue in Serbia" *European Journal of Public Health*, 24(suppl_2), cku161-147.
- Santric-Milicevic, M., V. Vasic, and J. Marinkovic (2013). "Physician and nurse supply in Serbia using time-series data." *Human resources for health*, 11(1), 27.

Schwörer, B. and F. Wissing (2018). "Medical Courses Offered by Private Providers in Germany." *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz*, 61(2), pp.148-153.
<https://link.springer.com/article/10.1007%2Fs00103-017-2667-x>

Statistical Office of the Republic of Serbia (2019). *Statistical Yearbook 2019*.
<https://publikacije.stat.gov.rs/G2019/PdfE/G20192052.pdf>

Wismar, M., C.B. Maier, I.A. Glinos, G. Dussault, and J. Figueras (eds) (2011). *Health professional mobility and health systems. Evidence from 17 European countries* (Prometheus Study). WHO Regional Office for Europe, Copenhagen on behalf of the European Observatory on Health Systems and Policies.

WFD (2019). "Cost of Youth Emigration." Westminster Foundation for Demography
<https://www.wfd.org/wp-content/uploads/2019/05/Cost-of-yoth-emigration-Serbia.pdf>

World Bank (2019). *World Development Indicators*. <https://data.worldbank.org/>

ANNEX: LIST OF PEOPLE INTERVIEWED IN SERBIA

Ministry of Health

Prof. Berislav Vekić, State Secretary

Ms. Danijela Urošević, Assistant Minister for EU Integration and International Cooperation

Ms. Ljubica Paković, Legal Department

Mr. Nebojša Jokić, Head of Human Resources Department

Ministry of Education, Science and Technological development

Mr. Viktor Nedović, State Secretary

Institute of Public Health "Batut"

Ms. Verica Jovanović, Acting Director

Ms. Maja Krstić

Ms. Jelena Brcanski

Mr. Miljan Ljubičić

Clinical Center of Serbia

Prof. Jovica Milovanović, Assistant Director

Institute of Social Medicine, University of Belgrade, Faculty of Medicine

Ms. Milena Šantrić Milićević,, Professor

National Employment Service

Ms. Snežana Nekvasil, Head of the Legal Department

Medical school "Nadežda Petrović"-Zemun

Ms. Radica Stojanović, Director

Ms. Biljana Jovanović-Glavonjić, Assistant Director

Union of health workers

Mr. Zoran Savić, President

Mr. Mihailo Govedarica, Secretary

Serbian Medical Chamber

Mr. Milan Dinić, Director

Serbian Chamber of nurses and medical technicians

Ms. Maja Arsenijević-Đukić, Advisor to the Director

Serbian Chamber of Health Care Institutions

Prof. Georgios Konstantinidis, Chair of the Management Board

Association of Serbian Private Healthcare Providers

Ms. Nataša Čorbić, Executive Director

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Mr. Siniša Djurić, Project Manager, Migration for Development Program

Ms. Snežana Antonijević, Project Manager, Migration for Development Program, DIMAK,

Ms. Nevena Zdravković, Project Assistant, Triple Win Project.

German Embassy in Serbia

Ms. Anne Kristin Piplica, Chief of the Economic Department

CASE 4: NORTH MACEDONIA

Introduction

This case study examines the magnitude of health workforce migration from North Macedonia and how it affects the North Macedonian health sector and health education system. The case study is one of four produced for a World Bank study on health workforce mobility that also includes Germany, Serbia, and Croatia. The objective of this World Bank study is to provide policy-relevant recommendations aimed at ensuring the sustainable training of each country's health workforce and improving the management and planning of the health workforce. For each case study, many key informants were interviewed including health and education experts, and data were collected from the government, from medical and nursing schools, and from hospitals (Annex 1). This case study was conducted in North Macedonia in November 2019. The case studies are not meant to be representative of the EU and Balkan region.

Because the 2011 Prometheus study on health workforce mobility in the EU did not include North Macedonia,¹⁶⁰ this case study is the first comprehensive analysis on health workforce mobility in the country. Our findings show that, although North Macedonia is not an EU member state, the outmigration of health professionals has continuously increased over the past decade, with most going to Germany. They leave because of unemployment among young physicians and nurses and to find better working and living conditions. At the same time, the health sector faces current and future staff shortages in rural areas due to the country's aging health workforce. The health workforce management and planning system in North Macedonia has not been used to address these challenges. Furthermore, the medical and nurse education system in North Macedonia is underfunded and is not aligned with the EU's standards, which is resulting in low-quality learning outcomes and research and low recognition rates for the country's medical degrees in Germany. The lack of investment in education quality is costly for the government and is inefficient and not sustainable over time.

Based on our findings, we offer some recommendations to the North Macedonian government on how to manage health workforce mobility and to ensure that the country's medical education system is adequately financed in the future and can meet the needs of the health workforce and the population as a whole.

North Macedonia's population is shrinking as a result of outmigration

Emigration from North Macedonia to Germany has increased, and this trend is likely to continue. Roughly 2 million people lived in North Macedonia as of the most recent census in 2002, and another 500,000 North Macedonians lived abroad.¹⁶¹ According to OECD data, by 2017, almost 30,000 North Macedonians were moving to OECD countries every year, and most of them – roughly 18,000 annually – had moved to Germany (Figure 45). About 64 percent of all North Macedonian emigrants now live in Germany (Figure 46). Outmigration from North Macedonia combined with a low fertility rate of 1.5 births per woman is causing the country's population to shrink and its mean age to rise, especially in rural

¹⁶⁰ Wismar et al (2011).

¹⁶¹ World Bank (2019b).

areas.¹⁶² This trend is likely to continue in the future. The 2019 Balkan Barometer Survey suggested that 45 percent of North Macedonians were considering living abroad, up from 37 percent in 2015.¹⁶³

Figure 45. Annual outflows of North Macedonian nationals to OECD countries, 2007-2017

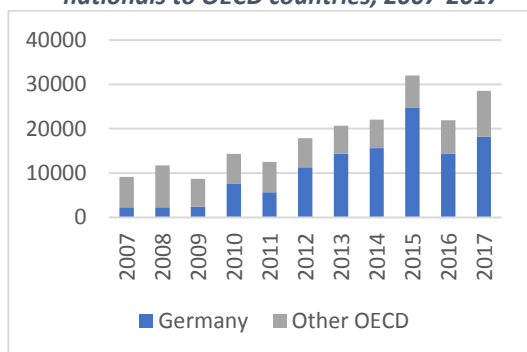
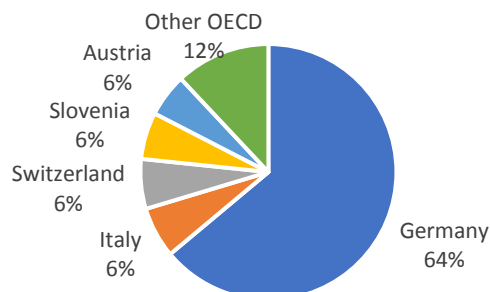


Figure 46. Share of total outflow of North Macedonian nationals to OECD countries, by country of destination, 2017



Source: OECD.

Note: The data include all North Macedonian nationals, not just health professionals.

Outmigration of physicians and nurses has increased too, mostly to Germany even though North Macedonia is not yet an EU member

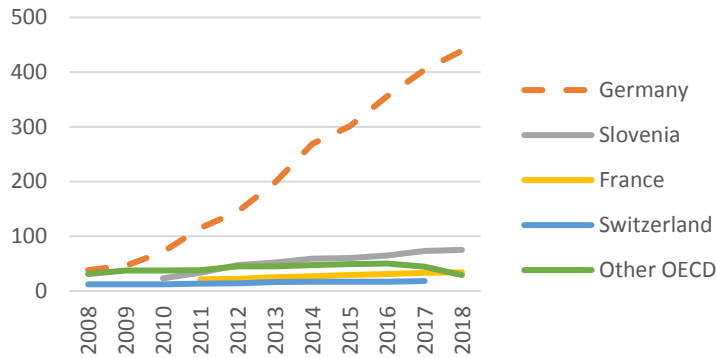
The outmigration of North Macedonian physicians and nurses to Germany has continued to grow steadily. By 2018, about 470 physicians from North Macedonia lived in Germany (Figure 47) and most of them worked in a hospital (Figure 48). Germany has become the most popular destination for health professionals because it has opened up its health labor market to non-EU nationals, as was discussed in the German case study. In 2019, a total of 180 physicians left North Macedonia, which is the same as the number of students who graduated from medical schools in that year, suggesting that the country’s universities produce enough graduates to replace those who leave. Not enough data exist on the mobility of nurses.¹⁶⁴ The newly established Chamber of Healthcare Workers has estimated that about 300 nurses left North Macedonia to work abroad in 2018. However, German statistics on the number of North Macedonian degrees that are recognized suggest that the actual number could be much higher.

¹⁶² Šelo Šabić and Kolar (2019).

¹⁶³ Regional Cooperation Council (2019).

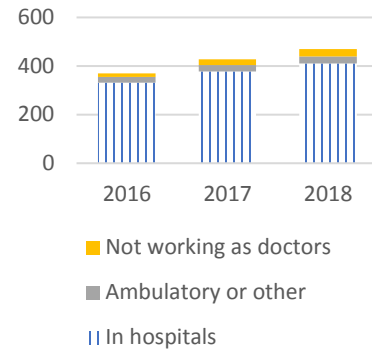
¹⁶⁴ OECD (2019a).

Figure 47. North Macedonia-trained physicians in OECD countries, total number, 2008-2018



Source: OECD and German Medical Association

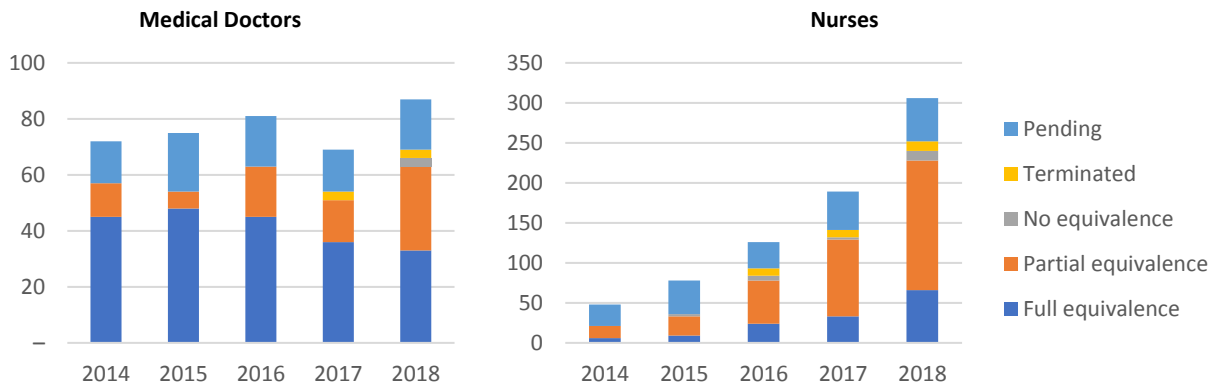
Figure 48. North Macedonian physicians in Germany, total number, 2016-2018



Source: German Medical Association

The number of applications from North Macedonian health personnel to have their medical and nursing degrees recognized in Germany has increased too, but many are not successful. Degree recognition is required to enter the German health workforce. German statistics show that 306 nurses from North Macedonia applied for degree recognition in 2018, a substantial increase over the 189 nurses who had applied in the previous year (Figure 49). The number of applications from physicians surpassed 80 in 2018. However, the German system accorded full recognition to only about 50 percent of the medical doctors' applications and 28 percent of the nurses' applications. North Macedonia has one of the lowest recognition rates for its medical and nursing degrees in the region, which indicates that the quality of its health education is poor.

Figure 49. Number of North Macedonian applications for degree recognition in Germany, by outcome, 2014-2018



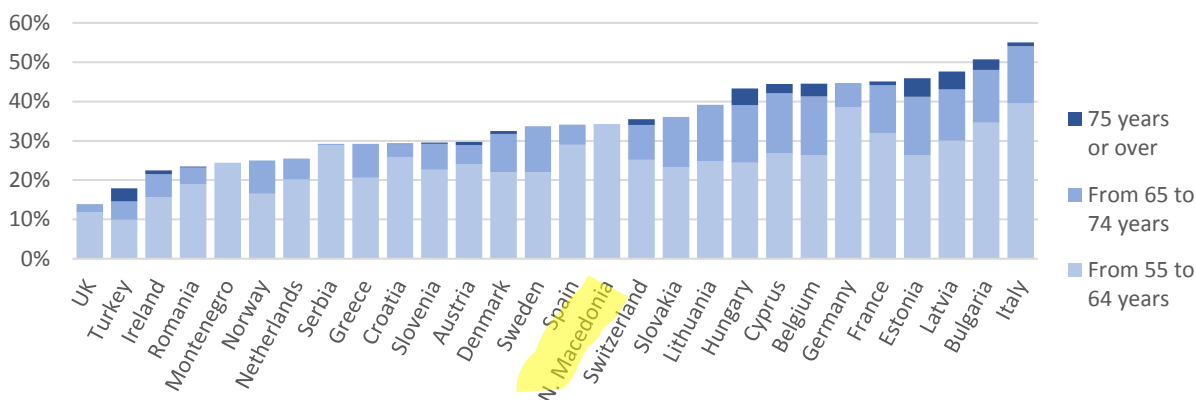
Source: Federal Statistical Office of Germany

Although there is some unemployment among medical personnel, rural areas need more physicians and nurses, but access to care has not yet been negatively affected

Some staff shortages exist in rural areas and in certain specialties, and these are likely to increase as about one-third of physicians are due to retire in the next decade. In 2019, the Ministry of Health (MOH) reported that 33 of 153 positions for general practitioners (GP) and 14 of 21 positions for specialists

remained vacant around the country. Vacancy rates are highest in emergency services and anesthesiology. Some hospitals in rural areas have had to close their operating rooms because of a lack of anesthesiologists, and some specialists have to work in more than one hospital to fill in for missing specialists, particularly in anesthesiology, nephrology, pediatrics, and emergency care. So far, only two foreign medical doctors and two nurses currently work in North Macedonia, though an additional 27 highly specialized foreign physicians work on a short-term basis in North Macedonian hospitals to perform complex procedures. These current personnel shortages are likely to increase in the future as about 35 percent of physicians are 55 or older and are due to retire in the next decade (Figure 50).

Figure 50. Share of medical doctors aged 55 years old and over, 2017

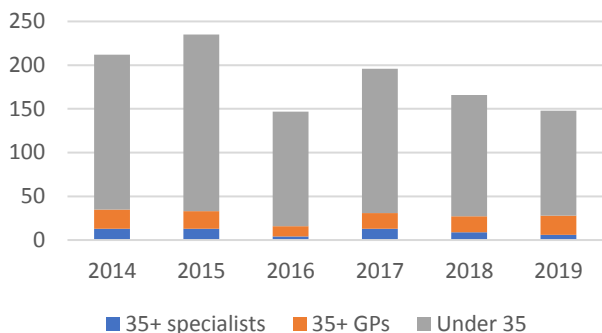


Source: Eurostat.

Note: Data for Denmark and Sweden are from 2016

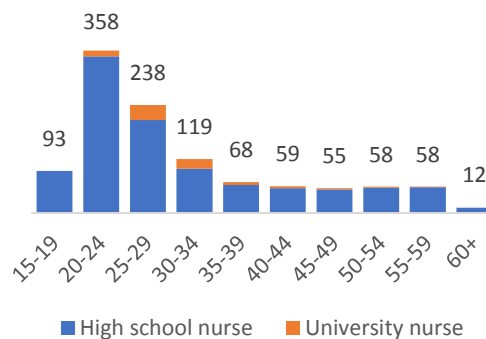
Despite shortages, unemployment among medical personnel is highest for young physicians and nurses, a problem which the government is aiming to solve with a new residency program. Unemployment among all physicians decreased from a total of 196 in 2017 down to 150 in 2019, but the vast majority of unemployed physicians are younger than 35 years old (Figure 51), which indicates that they find it difficult to enter the health workforce. The reasons for these difficulties are unclear and should be investigated further. One explanation could be inefficient health workforce management with a lengthy bureaucratic process for becoming employed in a health facility. To maintain their clinical practice, some young physicians work as unpaid private residents and register as unemployed to receive some benefits from the government. As for nurses, 1,118 were registered as unemployed in 2019, with most being younger than 30 (Figure 52). To reduce unemployment among young physicians and to increase staffing in hard-to-serve areas, the Ministry of Health has drafted a new law that will require new medical graduates to do six-month residencies in rural areas in either general medicine or emergency services.

Figure 51. Unemployed physicians, annual average number 2014-2019



Source: National Employment Agency

Figure 52. Unemployed nurses, by age group, 2019



Source: National Employment Agency

Several factors contribute to personnel shortages, including inefficient service delivery and personnel management and a finance system that favors hospital care, but they have not yet reduced access to care. A recent Bank study on primary health care found that geographic access to care seems relatively widespread, although there are some pockets of low provider density in small municipalities.¹⁶⁵ Another World Bank Review found a high number of unnecessary hospital admissions of patients who sought costly emergency care instead of being treated by general practitioners in a primary care setting.¹⁶⁶ These unnecessary admissions are one of the reasons why hospitals report not having enough emergency care staff to take care of the growing numbers of patients. High hospital admission rates can partly be attributed to shortages of primary care doctors in some areas, but they are also a consequence of the low quality of primary care and of the planning and management of health staff. It is also a result of the financial incentives created by the payment method, which pays more for hospital care and thus leads to higher hospital admissions. The Review concluded that health service delivery in North Macedonia has not adapted to the emerging challenges in the sector, and recommended an analysis of staffing across medical specialties.

Physicians and nurses leave the country in search of better job opportunities and working and living conditions

Dissatisfaction with working conditions and weak human resource management motivate many health professionals to seek work in other countries, especially younger medical graduates. Available data on the underlying reasons for this migration and on the demographics of the migrating health professionals are paltry at best, but a 2019 study concluded that physicians leave the country (i) because they want to work with modern equipment and infrastructure and (ii) because they want to obtain specialist training as residency programs in North Macedonia are poorly managed.¹⁶⁷ Another study found that political instability, poor quality of life, and inadequate public services are additional factors that cause health professionals to leave North Macedonia. Young health professionals are more mobile as they are more likely than older cohorts to be unemployed and to need to gain practical experience. Male physicians

¹⁶⁵ World Bank (2019c).

¹⁶⁶ World Bank (2018a).

¹⁶⁷ Šelo Šabić and Kolar (2019).

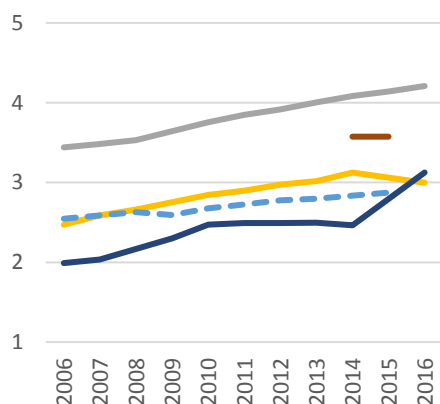
under 40 are the most likely to emigrate, followed by specialists in anesthesiology and internal medicine.¹⁶⁸

The fiscal context limits the number of health jobs and the level of wages in the public health sector

Fiscal constraints limit the number of positions available to health professionals in North Macedonia.

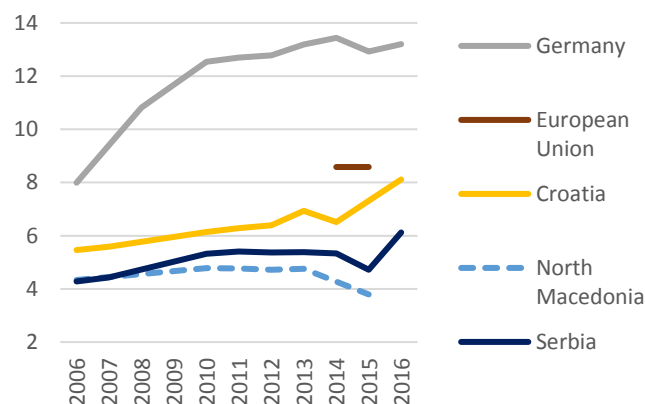
The public health sector is the main employer as the private sector is still small. Therefore, the number of positions available depends on the health budget and on the country's overall fiscal context. In 2017, total health spending in North Macedonia was 6 percent of GDP, which was less than the 11.2 percent of GDP spent by Germany and the EU average of 9.9 percent of GDP.¹⁶⁹ The government employs about 6,350 physicians and 9,130 nurses, which is lower per capita than the numbers of physicians and nurses employed by Serbia, Croatia, and especially Germany where the number of nurse positions has almost doubled in recent years (Figure 53 and Figure 54). Thus, increasing the number of positions in the health sector to reduce unemployment and fill shortages of physicians and nurses would require an increase in health spending, but this may be difficult for the government given the country's tight fiscal situation.

Figure 53. Doctors per 1,000 inhabitants (2006-2016)



Source: World Bank

Figure 54. Nurses per 1,000 inhabitants (2006-2016)



Source: World Bank

Relative wages are higher in Germany. Nominal wages for health professionals are considerably higher in higher-income countries than in North Macedonia, which increases the attractiveness of working abroad for North Macedonian health professionals. In 2020, the government has increased the health budget by 10.5 percent, which includes a 6 percent wage increase for physicians and nurses.¹⁷⁰ The objective of this salary increase is to make the public sector more competitive with the private sector where, for example, nurses reportedly earn about 30 percent more than in the public sector. The Prometheus study found that health professionals from Estonia, Poland, and Lithuania who had migrated to other countries were returning home as a result of government reforms that led to salary increases and better working conditions in the health sector.¹⁷¹

¹⁶⁸ Vavlukis et al (2019a).

¹⁶⁹ World Bank (2019b).

¹⁷⁰ State Statistical Office (2020). The average monthly net wage paid per employee can be found here: http://www.stat.gov.mk/PrikaziSooopstenie_en.aspx?rbrtxt=40.

¹⁷¹ Wismar et al (2011).

While some measures have been taken to address shortages and reduce unemployment, there is a need to modernize health workforce planning and invest in data collection and analysis

To address the growing shortages in rural areas and among some specialties, the government has introduced several reforms. In 2019, the eHealth Directorate at the MoH launched an electronic registry on the health workforce in the public sector. Physicians are now allowed to continue working after their mandatory retirement age of 64 years old.¹⁷² Investments in infrastructure and medical equipment are improving working conditions. Medical residents in private practice will have to be paid. The process for becoming employed in the health sector is being streamlined. Employment contracts now become permanent after only four to six months, which improves job security. Newly trained medical specialists are now required to work for 10 years in the institution where they specialize, or they have to pay a fee if they leave earlier. The Agency for Quality and Accreditation has started to provide additional support to general practitioners working in primary health care, and the newly created Chamber of Health Workers is preparing new regulations on licensing for the nursing profession.

To alleviate shortages and reduce unemployment, it will also be necessary to reform the current system of health workforce planning. Health workforce planning is still based on numbers from previous years, based on existing shortages and regional inequities, instead of on projections of future trends. As a result, the health system is not adequately prepared for the aging of the population or for changes in the country's burden of disease. A modern health workforce planning process would take into account regional differences in vacancies, staffing, and unemployment, changes in the country's epidemiology, and future demographic trends in both the population and the health workforce. The planning process should be based on a staffing analysis that identifies the most efficient allocation of staff as well as any issues related to the quality and efficiency of service provision that need to be addressed. It should also be based on projections of the trends of outmigration and should consider options for recruiting foreign professionals into the North Macedonian health sector and increased government spending on medical education. The health workforce budget should be defined in accordance with the results of this annual planning exercise.

The current data and analysis of the health workforce and its mobility is inadequate and needs to be improved. Several institutions in the health sector collect data, but their separate information systems are not integrated with each other, and very few analyses have been conducted with these data so far.¹⁷³ Some data on physicians have been collected, but the available data on nurses are extremely limited, while there are no data at all on health workforce mobility. As a result, there is little information available on which to base health workforce planning. Public hospitals prepare and submit their annual employment plans, which set out their estimated staffing needs for the year ahead to the Council for Specialization at the Ministry of Health and the Ministry of Education and Science (MoES). Currently no data are collected on the demographics, educational background, or professional experience of physicians and nurses who migrate to work abroad, on how long they stay abroad and whether or not they return, or on their career development. As a result, it is impossible to assess whether the more experienced health professionals stay employed in the public sector, leave to work in the private sector, or migrate to work abroad. In 2019, the government tasked the Emigration Agency with collecting data on North Macedonians working abroad, but considerably more data collection and analysis will be needed to

¹⁷² They are employed as consultants with a narrower job specification, for example, with no prescribing privileges.

¹⁷³ World Bank (2019c).

ensure that health workforce planning can be based on a true picture of the current context and future dynamics of the sector. Better data are needed on the quality of medical education, the cost and efficiency of medical faculties and nursing schools, and the numbers of graduates who enter the health workforce. Analysis of health vacancies and the migration of health professionals will also be helpful to inform health and education policies.

Government expenditures on tertiary education are low and inefficient, which means that North Macedonia turns out fewer medical and nursing graduates than Serbia and Croatia

Government spending on tertiary education is too low to invest adequately in quality and research.

Tertiary education is financed by the central government. In 2016, the government spent 3.7 percent of its GDP on the education sector as a whole, which was below the OECD average of 4.2 percent of GDP. According to the last available figures, in 2015, the government spent about 0.4 percent of its GDP on tertiary education, which was less than the 0.7 percent spent by Croatia and significantly less than the OECD average of 1.1 percent. There are no data on education financing disaggregated by subject. Medical students contribute to the cost of their education as they pay a small annual tuition fee, ranging from €200 per year for local students to €1,500 for foreign students annually, but this constitutes only a small fraction of the total cost of their training.¹⁷⁴ As a result, public universities are underfunded and do not have enough infrastructure and resources (such as buildings, laboratories, and qualified personnel) to invest in quality education and research.¹⁷⁵

North Macedonia produces fewer medical graduates per capita than other countries in the region. The country has three public medicine universities: Skopje, Tetovo, and Shtip. About 200 medical students graduate each year from these three medicine faculties (Figure 55), with most of them (66 percent) graduating from Skopje. In addition, the number of nurses with a university-level degree has been growing in recent years (Figure 56) from just over 100 in 2014 to 237 in 2018. However, only the St. Kliment Ohridski Higher Medical School in Bitola offers nursing courses that meet the EU's standards. In 2018, the number of medical graduates was 8.6 per 100,000 inhabitants, which was considerably lower than the EU average of 12.6. The majority of both medical and nursing students are women. Between 2014 and 2018, most of the students were from North Macedonia, and only about 20 foreign students (from Bulgaria, Turkey, and Serbia) were enrolled in the general medicine course at Skopje. To attract more international students who pay higher tuition fees, Saints Cyril and Methodius University is in the process of obtaining accreditation for an English-taught general medicine course, with the first class of students expected to be enrolled in 2021.

The tertiary education system in North Macedonia is inefficient with high dropout rates and long average times to complete degrees. In 2010, only 38.8 percent of all tertiary students graduated on time from North Macedonia's universities.¹⁷⁶ Higher education funding is not linked to how well universities perform academically, nor do universities have any incentive to invest in research. In order to increase the efficiency and improve the quality of universities, it will be necessary to change the governance and financing of tertiary education.

¹⁷⁴ Specifically, €200 for fully state-funded students, €400 for "co-financing" students (in other words, students with lower entry test results), and €1,500 for foreign students.

¹⁷⁵ World Bank (2018a).

¹⁷⁶ OECD (2019b).

Figure 55. Annual number of medical doctor graduates, 2014-2018

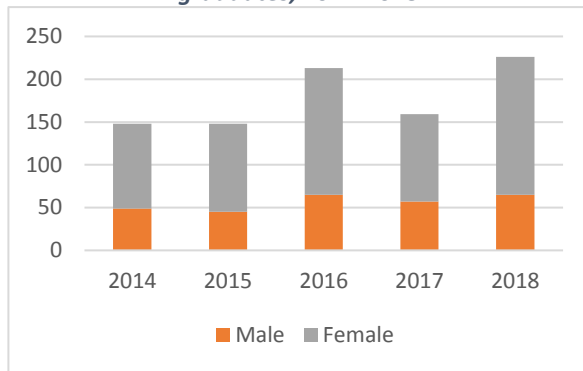
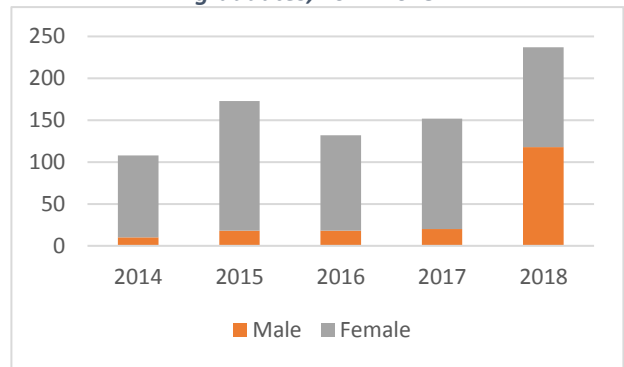
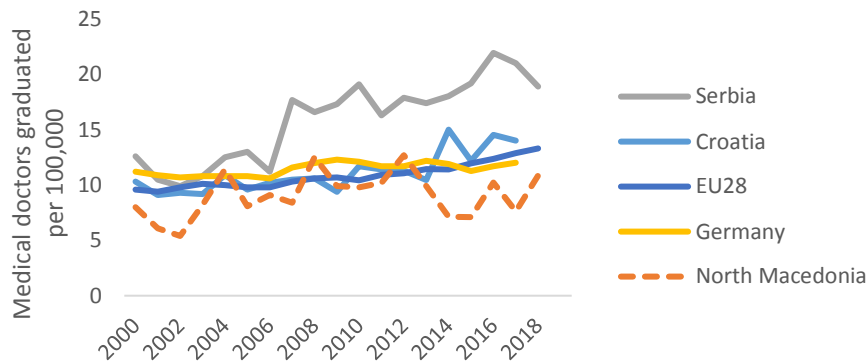


Figure 56. Annual number of university-level nurse graduates, 2014-2018



Source: Statistical Office

Figure 57. Annual number of medical graduates per 100,000, 2000-2018

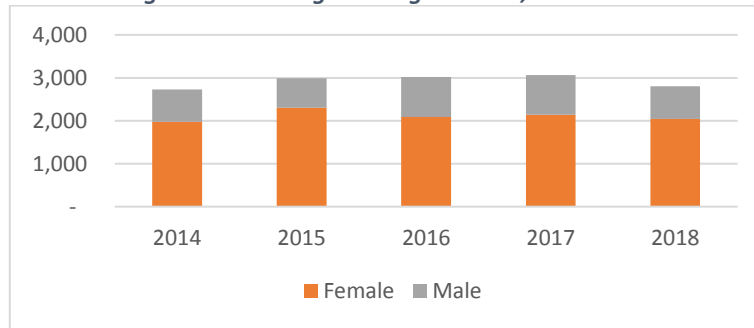


Source: WHO Health for All Database (2000-2014) and authors' calculations using Statistical Office and World Bank

The public sector used to be the only provider of nursing education, but private nursing schools have recently been established to meet the growing demand. Four public vocational schools offer an education in nursing and other health professions (in Skopje, Tetovo, Bitola, and Shtip). An additional 12 general vocational schools offer nursing programs. All of these courses are fully government-funded.¹⁷⁷ About 2,900 nurses graduate from these public sector schools annually (Figure 57). Most students are from North Macedonia, with a very few from neighboring Kosovo. However, the demand for nursing education has been growing, which has resulted in the creation of several new private nursing schools. One of these schools is the St. Lukas medical high school in Skopje, which was established in 2018 and enrolls about 15 students per year. This school also offers intensive German language classes for students.

¹⁷⁷ The government also pays for books, accommodation, and transportation for out-of-town students.

Figure 58. Nursing school graduates, 2014-2018



Source: Statistical Office

Medical education is expensive, but the government’s budget planning process is not aligned with the needs of the health sector. There is no information available on the full cost of educating a medical student in North Macedonia because data on tertiary education financing are not disaggregated by subjects. The Ministry of Education and Science sets the annual budget for medical education institutions based on the number of students that each institution reports having enrolled in the current year and the unemployment rates for medical personnel as reported by the Employment Agency. This way of setting the budget does not take account of the needs of the health workforce. Furthermore, private nursing schools are not considered in the education planning process as they charge tuition fees and are not government-funded. If the data existed to make it possible to calculate the cost-recovery rate of the public sector study places, the government could decide to adjust the number of study places based on health sector needs and charge a partial tuition fee for all courses at public medical faculties.

The low quality of medical and nursing education is a major concern, but the government is taking some steps to improve it with EU support

The quality of medical and nursing education in North Macedonia is poor, particularly in private schools. Medical faculties are adequately staffed, but the quality of teaching varies substantially across medical faculties and nursing schools. A recent survey showed that only 9 percent of 277 medical residents were satisfied with the quality of their education, while 51 percent were partially satisfied, and 40 percent were not at all satisfied and felt insufficiently prepared to work in healthcare. The poor quality of teaching in nursing schools has also raised concerns. Physicians teach the practical training in nursing schools, but these teaching positions are difficult to fill. Schools are not allowed to use their funds to top up salaries to attract good teachers, and there are no regulations governing the nursing curriculum, the length of study, and the graduation criteria. Nursing schools offer “non-attending” degrees for adults (for a low fee), including some public nursing schools.¹⁷⁸ These degrees do not require students to attend classes but are recognized by the government as equivalent to regular nursing degrees. Some nursing schools offer bonuses to teachers for conducting exams for non-attending students. As a result of all of these issues, the quality of nursing education has suffered.

The government has recognized the need to improve the country’s health education and is participating in a higher education reform supported by the EU. In 2018, the six countries in the Western Balkans

¹⁷⁸ About 30 students graduate annually from the two-year “non-attending” nursing program at the Medical Secondary School in Skopje. Students must be at least 17 years old to enroll. Students with some prior nursing education are only required to take “missing” exams to complete their degree. Yearly tuition is around €100. This program does not receive any public financing.

started discussions with the EU to establish common rules for the mutual recognition of professional qualifications. This led to the creation of the Education Reform Initiative of South Eastern Europe (ERI SEE) Joint Working Group for the Recognition of Academic Qualifications. The prime ministers of the region issued a declaration at the Poznan Summit in July 2019 to begin negotiations on the mutual recognition of professional qualifications for medical doctors and dentists. This agreement is expected to be concluded by the end of 2020 and will define the basic conditions for the recognition of qualifications. The second phase will then consist of the development of a joint online system to share information, including on higher education institutions and qualifications, and to strengthen cooperation and exchange of information between quality assurance agencies in the region. These efforts are expected to have a positive impact on the quality of tertiary education in North Macedonia. They are part of the South East Europe 2020 Strategy (SEE 2020),¹⁷⁹ which aims to accelerate socioeconomic reforms, modernize economies, create jobs, and improve living standards.

Innovative financing mechanisms are needed to increase education funding, to invest in improving health education, and to develop the country's future health workforce

New financing approaches are needed to build the future medical education system in North Macedonia and to improve its quality. Given the country's tight fiscal situation, the government will have to find ways to raise additional funds from sources other than the budget. This will require new thinking and innovative financing approaches.

One option for raising additional revenue might be to provide students with income contingent student loans (ICLs) to fund their studies at the tertiary education level. These loans have been successfully used in some countries that charge tuition for tertiary education including the Netherlands, Ireland, the United Kingdom, and Hungary. In these ICL schemes, students only have to start repaying their loan once they earn an income above a certain threshold amount. In the United Kingdom, graduates earning over £25,000 per year pay 9 percent of their gross earnings towards the repayment of their loan. New Zealand has a lower threshold than the UK of £10,000 and a higher repayment rate of 12 percent of earnings. Hungary has no income threshold and a 6 percent repayment rate on full earnings. The United States requires graduates to repay 10 percent of their income above a threshold set at 150 percent of the poverty guideline, which is US\$24,360 for a two-person household.¹⁸⁰ These ICL repayments are withheld from the graduates' wages by their employers as is done with social insurance taxes.

If such a scheme were adopted in North Macedonia, it would be essential to set up efficient repayment mechanisms that take account of international workforce mobility. If graduates migrated from North Macedonia to another country, their ICL repayments would be collected by the government of the host country, which would then transfer the revenue back to North Macedonia.¹⁸¹ Alternatively, as happens in New Zealand, the repayment system might involve putting a legal obligation on the migrating debtor to repay an annual minimum amount of their ICL.¹⁸² Yet another option might be to follow the UK example

¹⁷⁹ Inspired by the European Union's (EU) 2020 Strategy, the SEE 2020 was adopted by the Ministers of Economy of seven South East European (SEE) economies on November 21, 2013 in Sarajevo. The SEE2020 Strategy seeks to boost prosperity, create jobs, and underscore the importance of the EU perspective for the region's future through coordination and cooperation across key policy areas.

¹⁸⁰ Britton et al (2019).

¹⁸¹ Barr (2001).

¹⁸² Chapman (2016).

and require graduates with an ICL who move abroad to work to make monthly direct transfers to the North Macedonian government based on an agreed repayment scheme.¹⁸³

Our findings show that increased health workforce mobility is the result of high unemployment among young health professionals and of poor management of the health workforce

In this case study, we have found that increased outmigration of physician and nurses from North Macedonia to Germany is mainly driven by unemployment stemming from weak health workforce management and by poor working conditions. Shortages of physicians in rural areas combined with unemployment among young health professionals indicate that health workforce planning and management is inadequate. Outmigration in itself is not reducing access to healthcare, but the factors causing so many health professionals to leave, including low morale among physicians and nurses, need to be addressed to ensure that North Macedonia has a well-trained and fully staffed health care system in the future. More data collection and analysis are needed to forecast future trends in the health sector and inform workforce planning within and across health facilities. Furthermore, the education system is inefficient and is not aligned with the EU's standards, which is resulting in low-quality learning outcomes and low recognition rates for the country's medical degrees by other countries. The lack of investment in education quality is costly for the government and is inefficient and unsustainable over time.

The obvious response would be to create more health jobs, train more health professionals, and hire more medical doctors and nurses including to fill existing vacancies. However, North Macedonia has only limited fiscal space to increase the number of study places for medicine and the number of jobs in the health sector. It might be better for the government: (i) to overhaul health workforce planning and management, thereby improving working conditions with the aim of inducing more health professionals to stay in the country and (ii) to invest in the quality of medical and nursing education to ensure that it is producing graduates with the specialties that are in short supply both now and in the future. A further option might be to negotiate bilateral agreements with specific countries to: (i) enable North Macedonian physicians to migrate temporarily to those countries to expand their clinical skills and then return to work in North Macedonia and (ii) set up joint medical research programs between North Macedonia's universities and hospitals and their equivalents in other countries to facilitate investment in science and research.

Looking ahead, there are signs that the migration of health professionals from North Macedonia may accelerate further. Germany has already opened its health labor market to non-EU professionals, which is why it is the main destination for North Macedonian doctors and nurses. If other EU health labor markets open up to non-EU health professionals, then this outmigration could increase. Alternatively, outmigration might slow down if more attractive paid health jobs become available in North Macedonia, if working conditions improve, and if health education reforms result in better qualified graduates as was the case in Croatia after the government introduced EU standards in education.

¹⁸³ <https://www.gov.uk/repaying-your-student-loan/how-you-repay>

Reform nursing and medical education and regulate the nursing profession:

- **Tertiary education reform.** Reform tertiary education as recommended in the 2018 World Bank Public Finance Review.¹⁸⁴ Invest in improving learning quality and outcomes based on EU best practice and participate in international medical school rankings. Collaborate and partner with international medical and learning centers to attract qualified staff, including those from the North Macedonian diaspora, to teach and conduct research in North Macedonian universities, hospitals, and nursing schools. Solicit support from Germany and other countries benefiting from an influx of North Macedonian health professionals to strengthen the quality of health education in North Macedonia, align the curriculum for medical and nursing education with EU standards, provide career counseling to medical students, and attract visiting faculty to North Macedonian education institutions. Join EU student programs such as the Erasmus program to facilitate international collaboration with other universities.
- **General education.** Improve the quality of the science and math curriculum in general education to increase the number of qualified candidates for university medical schools.¹⁸⁵ Set high quality standards for university entrance exams to improve the quality of applicants up to the EU average.
- **Nursing education reforms.** Update the curriculum and graduation criteria for nursing schools and the nursing profession in accordance with EU standards. Facilitate collaboration between different institutions within the country and with nursing associations from other EU countries and with international nursing bodies to improve the quality of teaching in nursing schools through joint work on teacher training, curriculum reforms and teaching.
- **Medical research.** Promote research at North Macedonian universities and hospitals with a focus on science, technology, and innovations in health fields that might be eligible for European funding. Increase students' practical experience with medical research. Encourage North Macedonian researchers to return from abroad to help to advance medical research and science with EU support.¹⁸⁶

Explore innovative ways to finance tertiary education investments:

- **Tertiary education financing.** Conduct a review of current tertiary financing and governance and start rewarding medical institutions based on their academic performance. Conduct a cost analysis of tertiary education disaggregated by subject. Increase tuition fees for all medical students to at least 50 percent of full cost and charge full-cost fees for courses taught in English. Provide income contingent student loans (ICL) and means-tested stipends to high-performing students from low-income backgrounds.
- **Income contingent student loans with efficient repayment.** Design an ICL system for North Macedonia with an efficient repayment mechanism based on the experience of other countries such as Hungary, the Netherlands, and Ireland. Set up efficient repayment mechanisms that take account of international workforce mobility. Agree with destination country governments, including Germany and Slovenia, that they will collect the ICL repayments from the wages earned

¹⁸⁴ World Bank (2018a).

¹⁸⁵ The results of the PISA test (Programme for International Students Assessment) show that North Macedonia's students are weak in science. (https://www.oecd.org/pisa/publications/PISA2018_CN_MKD.pdf).

¹⁸⁶ For example, the Marie Curie Research Fellowship Program. <https://ec.europa.eu/research/mariecurieactions/>

by physicians who were educated in North Macedonia and transfer them to the North Macedonian government. Alternatively, in line with the UK's system, require graduates who have migrated to make monthly direct transfer repayments to the government. Furthermore, in line with New Zealand's system, legally oblige migrating debtors to repay an annual minimum amount of their ICL to the North Macedonian government.

Reform health workforce planning and mobility:

- **Health workforce management and clinical practice.** Reform the management of public hospitals, including personnel management. Introduce modern personnel management practice in health facilities to streamline the recruitment process and to engage health personnel to improve morale. Develop an effective employee promotion policy with a process for managers to follow. Increase the number of residency positions for young physicians in rural areas and expand the clinical practice/residency program that requires medical students and graduates to work in rural areas. Increase the number of nursing jobs in health facilities, starting in rural areas. To reduce urban-rural disparities, provide continuous medical training to nurses and physicians already working in rural areas. Identify opportunities for shifting some physicians' tasks to nurses who hold university degrees. Invest in primary care to reduce the burden on emergency care.¹⁸⁷
- **Health workforce planning.** Conduct a detailed health human resource analysis and use the findings to inform health workforce planning and address inefficient service provision caused by staff shortages. Analyze the productivity and future dynamics of the health workforce in both the public and private sector, taking into account increased mobility across borders, the aging population and health workforce, the changing disease burden, and the possibility of flexible working arrangements. Modernize health workforce planning based on this analysis. As in New Zealand, develop a comprehensive workforce forecasting model based on these variables to identify whether there will be enough graduates of different medical specialties to meet demand within the current model of health care. Based on results, identify the necessary investments in medical and nursing education to ensure health service delivery in the future.¹⁸⁸
- **Unemployed health professionals.** Strengthen career counselling and training for unemployed young nurses, physicians, and medical graduates to help them to strengthen their qualifications and find employment locally or abroad, including outside hospitals and clinics (for example, as nurses or counselors in schools or as private caregivers). Introduce mentoring programs to facilitate the entry of new medical graduates into the workforce. Facilitate the recruitment of unemployed physicians and nurses in rural areas with shortages, by linking unemployed health staff with health facilities. Consider developing alternative work arrangements for the health sector (such as part-time work and job-sharing) to increase the number of health staff that can be employed within the current budget constraints.
- **Circular migration.** Collaborate with the German government to enable North Macedonian physicians to migrate temporarily to Germany to expand their clinical skills and then return to work in North Macedonia. Actively recruit among diaspora physicians for the public and private sector to improve the quality of health care in North Macedonia.

¹⁸⁷ World Bank (2019c).

¹⁸⁸ Rees (2019).

- **Data collection and analysis.** Collect detailed data to be used to analyze the health workforce, the current state of health service delivery, and the migration of physicians and nurses by specialty, the duration of time worked abroad, the extent of any return migration, and the educational achievement and professional expertise of the migrants. Also, analyze the duration of unemployment among health professionals by their levels of education and specialties. Use these data on unemployment to inform health workforce planning and recruitment and to define tertiary education financing. Collect data on the financial and teaching performance of nursing schools and medical faculties, including both quality and learning outcomes. Use these findings to inform budgeting decisions. Follow the WHO, EU, and OECD directives governing data collection and reporting.

References

- Barr, Nicholas (2001). *The Welfare State as Piggy Bank: Information, Risk, Uncertainty, and the Role of the State*. Oxford University Press, Oxford.
- Britton Jack, Laura van der Erve, and Tim Higgins (2019). "Income contingent student loan design: Lessons from around the world." *Economics of Education Review* 71; 65-82.
- Chapman, Bruce (2016). "Income contingent loans in higher education financing." *IZA World of Labor* 2016: 227
- Eurostat (2019). *Key Figures on Enlargement Countries (2019 Edition)*.
<https://ec.europa.eu/eurostat/documents/3217494/9799207/KS-GO-19-001-EN-N.pdf/e8fbd16c-c342-41f7-aaed-6ca38e6f709e>
- Institute for Public Health (2017). *Health Map of the Republic of Macedonia*. North Macedonia.
- Koettl-Brodmann, Stefanie, Gonzalo Reyes, Hermine Vidovic, Mihail Arandarenko, Dragan Aleksic, Calogero Brancatelli, Sandra Leitner, and Isilda Mara (2019). "Western Balkans Labor Market Trends 2019 (English)." Western Balkans Labor Market Trends. World Bank, Washington, D.C.
<http://documents.worldbank.org/curated/en/351461552915471917/Western-Balkans-Labor-Market-Trends-2019>
- Lazarevik, V. (2016). "Migration of health care workers from the Western Balkans—analyzing causes, consequences, and policies. Country report: Macedonia." Health Grouper (RRPP Project).
- OECD (2019a). *International Migration Outlook 2019*. OECD Publishing, Paris, 2019.
<https://doi.org/10.1787/c3e35eec-en>.
- OECD (2019b). *Review of evaluation and assessment in education in North Macedonia : assessment and recommendation*. UNICEF; Skopje.
- Regional Cooperation Council (2019). *Balkan Barometer 2019: Public opinion survey*. Sarajevo.
<https://www.rcc.int/pubs/89/balkan-barometer-2019-public-opinion-survey>
- Rees, G. (2019). "The evolution of New Zealand's health workforce policy and planning system: a study of workforce governance and health reform." *Human Resources for Health*, 17:51
- State Statistical Office (2019). *Statistical Yearbook of the Republic of North Macedonia*.
http://www.stat.gov.mk/PrikaziPoslednaPublikacija_en.aspx?id=34
- Šelo Šabić, Senada, and Nikica Kolar (2019). "Emigration and demographic change in Southeast Europe." https://idscs.org.mk/wp-content/uploads/2019/12/a5_emigration_demographics.pdf
- Schwörer, B. and F. Wissing (2018). "Medical Courses Offered by Private Providers in Germany." *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz*, 61(2), pp.148-153.
<https://link.springer.com/article/10.1007%2Fs00103-017-2667-x>
- Vavlukis, M., K. Stardelova-Grivcheva, L. Zuluz, H. Kostov, and W. Aulitzky (2019a). *Human capital flight: medical doctors as ideal profession for brain drain*. Joint project of the American-Austrian Foundation Open Medical Institute (AAF-OMI) and Doctors Chamber of North Macedonia.
- Vavlukis, M., K. Stardelova-Grivcheva, and H. Hristov (2019b). "Medical Migration in Macedonia: significance of the problem." *Vox Medici* 102: 12-16

- Wismar, M., C.B. Maier, I.A. Glinos, G. Dussault, and J. Figueras (eds) (2011). *Health professional mobility and health systems. Evidence from 17 European countries* (Prometheus Study). WHO Regional Office for Europe, Copenhagen on behalf of the European Observatory on Health Systems and Policies.
- World Bank (2019a). *Country Partnership Framework for the Republic of North Macedonia 2019- 2023*. Washington, D.C.
- World Bank (2019b). *World Development Indicators*. <https://data.worldbank.org/>
- World Bank (2019c). *North Macedonia Strengthening Primary Health Care to Sustain Improvements in Population Health Report*. Washington, D.C.
- World Bank (2018a). *North Macedonia Public Finance Review: Sowing the Seeds of a Sustainable Future*. Washington, D.C.
<https://hubs.worldbank.org/docs/imagebank/Pages/docProfile.aspx?nodeid=31061520>
- World Bank (2018b). *Seizing a Brighter Future for All: Former Yugoslav Republic of Macedonia Systematic Country Diagnostic*. World Bank, Washington, DC. <http://hdl.handle.net/10986/30975>

ANNEX: LIST OF PEOPLE INTERVIEWED IN NORTH MACEDONIA

Ministry of Health

Ms. Bojana Atanasova, Chief of Cabinet for the Minister
Mr. Vladimir Miloshev, State Secretary of Health

Emigration Agency

Mr. Nikola Shalvarinov, Head
Ms. Violeta Sekulova, Head of the Department of Legal, Economic Affairs, and Reintegration of Migrants from Macedonia

Ministry of Education and Science

Ms. Dana Bishkovska, Head of Department of Secondary Education
Mr. Borcho Aleksov, Deputy Head of Department of Higher Education
Ms. Biljana Trajkovska, State Advisor on Strategic Planning

Employment Agency of the Republic of North Macedonia

Ms. Biljana Jovanovska, Head of the Agency
Ms. Biljana Zhivkovska, Head of Department of Communication and International Cooperation
Ms. Biljana Delovska, Head of Department of Research and Analysis of the Labor Market
Ms. Menka Gugulevska, Head of Department of Active Employment Measures and Services
Ms. Frosina Velkova, Head of Department of Legal and Administrative Affairs
Mr. Stojan Shterjev, Head of Department of Financial Matters

Medical Secondary School “Panche Karagjozov”

Ms. Maja Saliu, Director
Ms. Valentina Damcevska, Pedagogist

Medical Faculty, University St. Cyril and Methodius Skopje

Ms. Beti Zafirova Ivanovska, Vice Dean of Education
Ms. Rozalinda Popova Jovanovska, Vice Dean of Science
Mr. Zlatko Jakovski, Vice Dean of Finances

Institute of Public Health

Mr. Shaban Mehmeti, Head of the Institute
Mr. Mome Spasovski, Head of the Institute for Social Medicine at the Medical Faculty Skopje
Mr. Armend Iseni, Software Engineer, Deputy Manager of the Department of Health Statistics
Ms. Gordana Risteska, Head of Food Safety Department, member of the Steering Committee at IPH

The German Embassy

Mr. Thomas Gerberich, Ambassador
Mr. Werner Froer, First Secretary, Head of Legal and Consular Affairs
Ms. Ulrike Hommer, Third Secretary at the Department of Legal and Consular Affairs

Ministry of Labor

Mr. Dejan Ivkovski, Head of Department for Migration, Integration of Refugees and Foreigners and Humanitarian Aid
Ms. Mirjanka Aleksevaska, Head of Labor Department

Chamber of Healthcare Workers

Ms. Violeta Kotevska, Head of the Chamber

Doctor's Chamber of Macedonia

Ms. Kalina Stardelova Grivcheva, Head of the Chamber

Macedonian Association of Medical Students

Mr. Onur Dika, President

Ms. Aleksandra Karanfiliska, Vice President for External Affairs

8th of September General Hospital

Ms. Milka Kapajanovska, Head Nurse

Mr. Dancho Popovski, Head of IT Technical Support

Mr. Tomislav Laktash, Head of the Department for Legal and General Affairs

Acibadem Sistina Clinical Hospital

Mr. Gun Gunsoy, CEO

Ms. Slobodanka Aleksovska, Head of HR

Ms. Nina Pijade, Head of Legal Affairs

Ms. Elena Smilevska, Finance Manager

Association of Medical Residents

Ms. Elena Cvetanovska

Mr. Miralem Jakikj

Clinical Hospital Shtip

Mr. Viktor Vasev – Legal Affairs Advisor, Department for Administrative Legal Affairs, General Affairs and Human Resources

Ms. Mice Pesheva – Independent Officer for HR Affairs, Department for Administrative Legal Affairs, General Affairs and Human Recourses

Ms. Valentina Jovanova – Head Nurse of the Clinical Hospital

General Hospital Kochani

Ms. Lidija Georgieva, Head of the HR Department.