




# “Immigration of physicians to Slovakia – case study”

## AUTHORS

Magdaléna Tupá  <https://orcid.org/0000-0003-4532-2292>  
 <https://www.webofscience.com/wos/author/record/AAR-2100-2021>  
Karol Krajčo  <https://orcid.org/0000-0002-7698-6078>

## ARTICLE INFO

Magdaléna Tupá and Karol Krajčo (2019). Immigration of physicians to Slovakia – case study. *Problems and Perspectives in Management*, 17(4), 262-273.  
doi:[10.21511/ppm.17\(4\).2019.22](https://doi.org/10.21511/ppm.17(4).2019.22)

## DOI

[http://dx.doi.org/10.21511/ppm.17\(4\).2019.22](http://dx.doi.org/10.21511/ppm.17(4).2019.22)

## RELEASED ON

Thursday, 19 December 2019

## RECEIVED ON

Monday, 13 May 2019

## ACCEPTED ON

Wednesday, 24 July 2019

## LICENSE



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

## JOURNAL

"Problems and Perspectives in Management"

## ISSN PRINT

1727-7051

## ISSN ONLINE

1810-5467

## PUBLISHER

LLC “Consulting Publishing Company “Business Perspectives”

## FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

40



NUMBER OF FIGURES

3



NUMBER OF TABLES

9

© The author(s) 2025. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"  
Hryhorii Skovoroda lane, 10,  
Sumy, 40022, Ukraine

[www.businessperspectives.org](http://www.businessperspectives.org)

Received on: 13<sup>th</sup> of May, 2019

Accepted on: 24<sup>th</sup> of July, 2019

© Magdaléna Tupá,  
Karol Krajčo, 2019

Magdaléna Tupá, Ph.D., Faculty  
of Social and Economic Relations,  
A. Dubček University of Trenčín,  
Slovakia.

Karol Krajčo, Ing., Faculty of Social  
and Economic Relations, A. Dubček  
University of Trenčín, Slovakia.



This is an Open Access article,  
distributed under the terms of the  
[Creative Commons Attribution 4.0  
International license](https://creativecommons.org/licenses/by/4.0/), which permits  
unrestricted re-use, distribution,  
and reproduction in any medium,  
provided the original work is properly  
cited.

Magdaléna Tupá (Slovakia), Karol Krajčo (Slovakia)

# IMMIGRATION OF PHYSICIANS TO SLOVAKIA – CASE STUDY

## Abstract

The lack of physicians is a serious problem in the Slovak Republic (SR). More than 5,000 physicians will be missing in the health care system in the next two years. From the report on health care status in Slovakia, according to OECD (2017), the state of health care in the country achieves very negative results in the indicators related to the human and financial resources of the monitored sector (mortality of newborns, preventable and avoidable mortality, urgent traffic, and others). The study was based on the analysis of the labor market situation in the health care sector for the profession of physician in the SR to identify the state and future need of physicians working in Slovakia, find possible solutions to the identified situation and determine which pull and push factors are the most important. The contribution of the study will be based on the analysis to suggest the ways to facilitate the employment of foreign doctors in Slovakia. The problem of the lack of specialists was considered in two directions of solving it on account of the flow of specialists from other countries: stimulation in order for the foreign medical students to stay in the country after their studies; engagement of foreign qualified doctors. Real situation with doctor staffing in the Slovak Republic was evaluated, the forecasts until 2022 were made, the proposals on improving the management in solving this problem at the state level were made.

## Keywords

health care, immigration, labor market, migration,  
recognition of health care professional qualifications,  
workforce

## JEL Classification

F66, I11, J18, J44, J81

## INTRODUCTION

Freedom of labor movement as one of the basic pillars of integration processes in Europe caused the deepening mismatch in the labor market in the health care professions. Western European countries have tackled the shortage of health care workers by simplifying the administrative procedures for the employment of foreigners in missing jobs. The jobs of physicians are the most difficult and the longest vacant positions in the rankings of developed countries. The study had focused on the problem of the sustainability of the health care system of the Slovak Republic by physicians in the context of labor migration. In line with the migration theory of pull and push factors, the countries proceeded to create favorable working conditions, wage settings, and training plans for these professions. This situation has made the age structure of doctors in the Slovak Republic unsatisfactory. The increasing number of physicians of retirement age and the low number of medical faculty graduates who will be employed in health care facilities in Slovakia after graduation lead to a situation in which the provision of health care services in the country cannot be ensured. The source of the solution to this situation is to attract a qualified workforce in the health care professions from abroad, especially from third countries. Bureaucracy and changes in the rules on recognition of qualifications often represent an insurmountable barrier for immigrant physicians in the process of employment in health care facilities in Slovakia. After unsuccessful attempts, they are forced

to re-emigrate to neighboring countries with milder administrative obstacles to the medical profession. In this study, the basic imperfections of this system were identified, based on current statistical data, as well as answers of foreign physicians working in Slovakia from the questionnaire survey. The solution to the situation implies the changes in the system of recognition of medical qualifications, possibilities of employment in resident programs and further specialized education, which are summarized as a result of the study.

## 1. LITERATURE REVIEW

The migration of physicians is a global problem, which attracts the attention of the researchers since the mid-20th century (Valiani, 2012; Yeats, 2009; Bach, 2010; Connell, 2012). Positive changes in state policies began to take effect only after several decades, and the burning problem subsided. Scientific studies dealing with the issue have focused their attention on the geographical area of Africa and the poorer parts of Asia. But the integration processes of the early 21st century have a significant impact on the deepening of the problem, even in the developed countries. The free movement of labor as one of the fundamental freedoms in the European Union countries is exacerbating this deteriorating trend (Dagiliene, Leitonienė, & Grenčíková, 2014; Favell, 2014; Bradby, 2014; Buchan et al., 2014; Havierníková, Kordoš, & Navickas, 2018; Jędrzejowska-Schiffauer & Schiffauer, 2017). The highly developed countries of the EU were very well aware of the urgency of addressing the staffing in the health care sector. Their policies focused on creating the favorable conditions for the recruitment of qualified health care workers, despite the adoption of the so-called transition period (3 + 2 + 2 years), which they tried to protect their labor markets (Buchan, 2015). However, each of the countries applying the transitional arrangements has granted derogations to health care professionals. The simplified process of admitting the working immigrants in scarce professions was also valid for third-country nationals (Drinkwater, Eade, & Garapich, 2009; Ognyanova et al., 2012; Vdovtsova, 2008). Correct adjustment of push factors, specifically for health care professionals (Kroezen et al., 2015) by the developed countries, along with a positive-oriented presentation of the positive experiences of migrants who have been already active in the country, has increased the interest of health care workers from accession countries (A8 countries, which joined the EU on May 1, 2004) for work abroad.

Potential migrants in the decision-making process compared the future revenues from migration with costs (invested time, finance, and others), on which several migration theories are built (Bahna, 2011). This implies that it is necessary to monitor the security of the health care system with the necessary workforce and to manage it to a certain extent by creating pull and push factors, otherwise, the consequences for the health care systems of the countries and the health of the population (Glinos, 2012). International migration of European Union citizens as well as third-country nationals in the European Union's geopolitical area, is regulated through the European Union's Migration Policy (Kordoš, 2017; Danaj, Lazányi, & Bilan, 2018; Gallardo, Korneeva, & Strielkowski, 2016). The need for an external migration policy arose from the creation of a Schengen system within which there are no longer borders between the member states. This implies that the direct regulation of migration, whether the EU citizens or third-country nationals who have legalized their residence in the EU, is very limited (Lipková, 2011). Internal migration is the result of the abovementioned freedom of movement of persons to make more efficient use of the workforce, thereby promoting the economic development of the whole European Union (Karas & Králik, 2017). On the other hand, the outflow of highly qualified labor and human resources in Central and Eastern European countries for higher wages, better working and material conditions, etc. is a danger. Thus, one can observe the departure of specialists from all areas of the economy (physicians belong to the labor force with the highest demand in all countries of the world) from Slovakia to the Czech Republic, Czech experts leave for work to Germany, pull and push factors continue. V4 countries and Southern European countries are looking for labor force mainly outside the European Union. Immigrants from third countries face the opportunity to legally study and work in the Schengen countries, gaining freedom, higher wages, and better work-

ing conditions. The free market cycle can be seen primarily in the medical profession (for this study, in the profession of physician). Some authors also consider the ethical dimension in their publications, as the occupation is important for society not only for its socio-economic dimension but also for the human. Human health and life are of the highest value in a democratic society with the highest degree of protection and ethical attitude. Does not the competitive struggle for physicians constitute “robbing” the potential of the countries of origin in securing the workforce of health care facilities? (Patel, 2003).

A contradictory argument may be the possibility of immigrant physicians to work in the best facilities, to acquire and expand their qualifications, and, thus, to develop their potential. This progress would not be achieved in the country of origin. In this case, it is important to promote return migration (Parrado & Gutierrez, 2016).

The departure of physicians abroad may not be primarily a negative phenomenon if we can positively influence the causes and motives in the decision-making process with the result of the doctor's return to the country of origin.

In the Slovak Republic, in the context of public discussions, the issue was given little attention concerning the escalated situations in the area of wages and working conditions by physicians and nurses. Relevant issues of human resources in health care facilities are addressed by the Slovak Medical Chamber and some think-tank institutions (e.g., INEKO in the last two years). Still, the information and studies carried out have the nature of collecting the general data processed into time series. From the point of view of health care workers' migration, there is no access to the data, as there is no obligation for the physician to report work abroad. The only source reflecting, at least in part, the emigration of these workers is the application for recognition of qualifications, but this has become irrelevant through measures to approximate the EU recognition systems since 2013. Similarly, immigration by physicians is not processed in publicly accessible databases. The statistics of working immigrants can be found at the Center for Labor of Social Affairs and Family of the Slovak Republic in the section on employment of foreigners in the

Slovak Republic for the relevant period. In more detailed breakdown, it is not possible to find the data on the number of immigrants employed in health care or in the health care professions – physicians, nurses, and others. The only partial data is ESCO's international breakdown of professions, where they include health care professionals as specialists, but are managed alongside science and technology professionals, teachers, business and administration professionals, ICT and lawyers, social and cultural professionals. These data are of little use for the analyses.

## 2. RESEARCH METHODS

For the study, the following methods were used:

- analysis of the current situation on the labor market of the Slovak Republic;
- development of time series for the development of the employment of physicians in the Slovak Republic;
- mathematical-statistical methods to determine the development and future needs of physicians in the health care system in the Slovak Republic;
- analysis of subjective data obtained by the questionnaire among the physicians;
- Chi-square test to assess the attitudes of doctors.

Chi-square test is the most commonly used method for testing the hypothesis of independence of the investigated phenomena. The statistical hypothesis is a statement about the shape or characteristics of one or more statistical features. For this article, it is a claim that the two selected factors are independent. The tested statistical hypothesis is a null hypothesis, which is always considered an alternative hypothesis, which denies the validity of zero. For this article, it is argued that the factors examined statistically depend on each other. At the same time, we count on errors of two kinds. Chi-square test verifies whether the frequency of statistical features expresses the independence between the factors or whether there

is a statistically significant dependency between the frequencies. The case of factor independence means that knowing the abundance of one factor will not help improve the estimate of the second factor. If two factors are statistically dependent, then there may be a dual type of dependence: two factors support or suppress each other. The prerequisite for using the Chi-square test is that the expected abundance must not be less than 5. The Chi-square test is based on the calculation of the Chi-value, which we compare with the table values of the critical values for the Chi-square distribution with two parameters, which are the degree of freedom and the significance level. The value of the parameter level of significance was chosen by the most used value of 5%, i.e., the risk of error of rejection, event, the null hypothesis is 5%. Critical value of Chi-square for parameters significance level = 5% and degree of freedom = 1 is  $K = 3,841$ . The research sample consisted of 104 physicians from abroad who carry out their professional activity in Slovakia on a voluntary basis and availability. Their country of origin was most often Czech Republic, Ukraine, Kuwait, Iraq, Iran, United Arab Emirates, Afghanistan. Physicians were between 25 and 51 years old.

### 3. EMPIRICAL RESULTS

Labor migration became the most rapidly developing of all migration flows to Slovakia in the 2000–2016 period (Divinský, 2017). As for the growth of the number of physicians, we see a drop in the period (see Table 1). Alarming is the situation of a large drop in physicians in each of the productive ages. There is a growing number of physicians only in pre-retirement and retirement age, which compromises the staffing of physicians in the health care sector. Over the next two years, almost 5,000 physicians will be missing from the health care system in Slovakia. But today we are talking about personnel undersizing, which is reflected in the quality of services provided. From the report on health care status in Slovakia, according to OECD (2017), the state of health care in the country achieves very negative results in indicators related to the human and financial resources of the monitored sector (mortality of newborns, preventable and avoidable mortality, urgent traffic, and others). Population growth in post-produc-

tive age, increasing life expectancy and pressure on preventive health care are increasing the pressure on staffing of the system with physicians. The fundamental goal of health care sector is added value for patients (Ciarniene, Viemazindiene, & Vojtovic, 2017).

Demand for this profession can be fulfilled not only by educating new physicians at medical faculties of universities but also by immigrating medical staff from abroad. Although the number of physicians under the age of 29 dropped from 3,139 to 2,094 in the reporting period, we cannot say that young people have lost their interest in studying the medical disciplines. On the contrary, last year, the Ministry of Education created a program for increasing the number of students admitted to the medical faculties of the Slovak universities. It will be possible to evaluate the effectiveness of this measure only after some time has elapsed. However, one can already assume that the situation is unlikely to change, as can be seen from the scientific studies and surveys conducted among medical faculty graduates. The results show that up to 8 out of 10 graduates want to live and work abroad in medicine (Reichová, Hanzelová, & Kostolná, 2006). The Dean of the Faculty of Medicine of the Charles University in Bratislava also expressed his preference for the departure of medical students from Slovakia to practice as a physician. The second option is the arrival of physicians from abroad for work in Slovakia.

Anyone who has a higher professional qualification can apply for a blue card in the Slovak Republic. It is possible to apply for a blue card at the relevant representative office of the Slovak Republic in the state in which the foreigner has a permanent residence. The price of the confirmed blue card varies from EUR 165 to EUR 170.

Every asylum seeker who is in the asylum facility attends a language course where he/she learns the Slovak language. Migrants who come to Slovakia usually attend a language course for one year, where they learn Slovak. It is also important that migrants still communicate in Slovak during the day-to-day communication. This means making contact with people in the neighborhood, in shopping malls, and so on.



**Table 1.** Number of physicians by age in Slovakia in 2000–2017 (in persons)

Source: National Center of Health Information (NCZI, 2004–2016).

Year	Number of physicians	20-29	30-39	40-49	50-59	60-64	65+
2000	19,894	3,139	4,022	7,030	4,528	1,098	628
2001	19,489	2,379	4,155	6,390	5,081	9,17	567
2002	19,205	1,942	4,286	5,949	5,450	1,034	544
2003	16,211	1,477	3,957	4,687	4,672	9,62	456
2004	16,707	1,336	4,145	4,428	5,048	1,179	571
2005	16,318	1,207	3,970	4,009	5,280	1,198	654
2006	17,040	1,402	4,191	3,862	5,529	1,321	735
2007	18,219	1,597	4,361	4,031	5,808	1,497	925
2008	18,121	1,816	4,142	3,881	5,676	1,563	1,043
2009	17,798	1,794	4,003	3,753	5,483	1,591	1,174
2010	18,110	2,065	3,908	3,844	5,273	1,755	1,265
2011	17,849	2,091	3,594	3,968	5,056	1,842	1,298
2012	18,193	2,128	3,501	4,188	4,844	2,083	1,449
2013	18,355	2,180	3,479	4,397	4,420	2,247	1,632
2014	18,574	2,076	3,613	4,496	4,103	2,498	1,788
2015	18,719	2,067	3,736	4,491	3,824	2,653	1,948
2016	18,864	2,093	3,808	4,502	3,582	2,702	2,177
2017	18,608	2,094	3,834	4,376	3,349	2,588	2,367

According to the Ministry of Education, Science, Research and Sport of the Slovak Republic, the recognition of completed education from abroad for the exercise of a regulated profession of physician is carried out in three modes:

- 1) system for automatic recognition of qualifications – case of qualification of physicians, dentists, pharmacists, nurses and midwives. Qualification was acquired in the territory of a member state after a member state joined the European Union;
- 2) acquired rights acquisition system – applies to a range of health care professions where education has been acquired before a member state joins the European Union, or the title of the diploma has changed, or other changes listed in the appendix to the relevant law;
- 3) general system for the recognition of professional qualifications – it applies to all qualifications acquired in the territory of a non-member state.

The recognition of health care professional qualifications acquired in the territory of non-member countries is carried out in a two-stage process. At the first level, the applicant will apply to the Ministry of Education, Science, Research and

Sport of the Slovak Republic for recognition of a certificate of education. When recognizing the education documents, it is assessed whether the evidence of education was acquired at a state-recognized school and whether the education meets the formal requirements of comparability according to the requirements defined in Government Regulation no. 296/2010 Coll. on professional qualifications for the performance of the medical profession, the way of further education of health care workers, the system of specialized branches and the system of certified work activities.

Upon the recognition of a certificate of education, the applicant is required to carry out a supplementary examination at a secondary or higher education institution providing the same curriculum as completed to verify the actual knowledge of migrants. The applicant for the recognition of professional qualifications is required to know the state language to the extent necessary to exercise the regulated profession, which is verified by testing (the Slovak language graduation is considered a substitute).

### 3.1. Proceedings on the recognition of evidence of education and professional qualifications

The procedure for recognizing a certificate of education starts from the date of receipt of the ap-

plication by the competent authority. The application must include: name and surname of the applicant, address of permanent residence or similar residence of the applicant, name of the regulated profession for which the applicant applies for recognition of the education document, signature of the applicant. Attached to the application are: a copy of an identity document (ordinary copy); certified copies of education documents (notary or certified copy); a copy of the completed subjects and examinations made (notary or certified copy); information or copy of the evidence of prior education completed, which is the subject of the application (ordinary copy), proof of payment of the administrative fee.

The administrative fee is EUR 100 for the recognition of a certificate of education and recognition of professional qualifications to pursue a regulated profession in the Slovak Republic, and the same competent authority decides on the recognition of a qualification and recognition of professional qualification. Annexes to the application for education documents obtained in a non-member country are also: verification of the authenticity of signatures and stamp of the school on the original documents of education by the authorities of the third country competent to verify it, unless otherwise provided in the international treaty (apostille or superlegalization); relevant education, recognition of which the applicant requests, detailed content of the subjects (syllabi of subjects). The time limit for receiving the complete application is three months.

An obligatory part of the application is a legal translation of the submitted documents, in addition to the documents in Czech and Latin. In order to reduce the financial costs of applicants, we accept our translation of documents in the following languages: English, German, French, Russian, and Hungarian. In case of translation concerns, authority has the right to request legal translation.

Slovakia has tightened the system of certification of qualifications in the regulated professions by foreigners from third countries in 2016, which is also a physician by profession. In order to verify the qualification of physicians, the process has become not only bureaucratic but also very expensive. From the experience of physicians from

abroad, it was found out that they would pay EUR 550 for the exam in Slovakia at the University of Košice, in Martin, it was up to EUR 620. The theses for the test contain several hundreds of questions, without a list of the literature used to study the areas, as well as separate areas of transplantology, carotid surgery, and plastic surgery. Many of the Slovak physicians addressed by the media stated that they would not pass the test. Ukrainians have the greatest interest in the profession of physician in Slovakia. Slovakia in the competitive struggle of other Central European countries that are part of the EU does not use its potential to apply for the best physicians from this neighboring country. 19 foreigners applied for recognition of qualifications and examinations last year in Košice. Successful were only 4 foreigners. 4 applicants from 16 were successful in Bratislava and 2 from 23 in Martin. Patient safety was a reason for tightening the conditions. The syllabi of third-country university curricula are often sufficiently formulated to test the expertise and skills of the applicants. The views of physicians in hospitals on the scope and formalities of the exams point to a wide range of tested knowledge, to the lengthy and demanding bureaucracy that will extend the process to one year. In connection with the increasing need of physicians in smaller hospitals, the replacement of outgoing Slovak physicians abroad is too demanding. Invested funds – financial, time, and intellectual – often exceed future returns. This puts Slovakia at a disadvantage as a target country for Ukrainian physicians before the Czech Republic, Poland, or Hungary.

Tomáš Kráľ, spokesman for the Health Network of the World of Health, believes that every physician needs to be assessed individually. “In a situation where there is a shortage of staff at all levels in the Slovak health care sector, we consider it meaningful to open a debate on easing the conditions, for example, for Ukrainian physicians.” Marián Petko, President of the Association of Hospitals in Slovakia, says that interest in medicine is not growing and that Europe needs physicians. This requires a better and more sophisticated concept. Petko sees a solution in opening the doors to Ukrainian physicians and physicians from third countries. Tomáš Kráľ, spokesman for the Health Network of the World of Health, points out that the creation of barriers is ultimately counterpro-

ductive for patients, as hospitals are losing the opportunity to attract the quality physicians and nurses from abroad to whom hospitals offer the opportunities for further development. Currently, there are 1,600 foreign physicians from 60 countries in Slovakia. Most of them are from the Czech Republic and almost 300 from Ukraine.

**Table 2.** Gross wages of novice physicians in the selected countries in 2017

Source: OECD (2017).

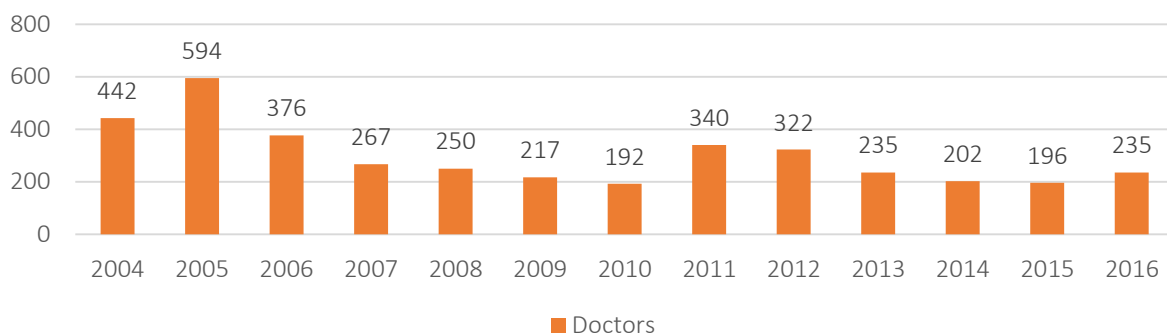
Country	Monthly wage – physician without specialization
Slovakia	1,100
Germany	2,600
Austria	3,500
Czechia	1,900
Hungary	1,450
Russia	300
Ukraine	150
Great Britain	2,100
USA	5,000
Finland	2,200
Switzerland	3,600
Saudi Arabia	2,500

In Table 2, we point out that the salaries of physicians are the lowest in the Slovak Republic within the selected countries of the world. We have used gross wages without supplements for novice physicians without specializations.

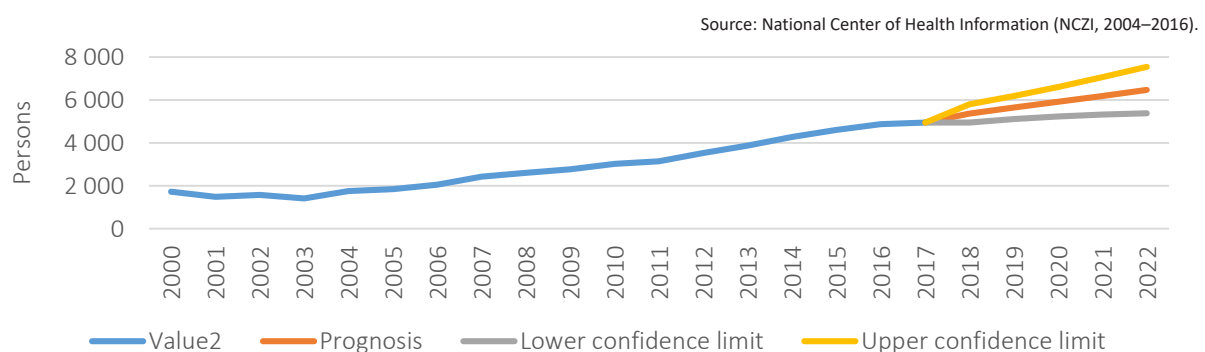
From third countries, 10 physicians have been recognized as having been able to legally practice the profession of physician in Slovakia. Today, there is a deficit of more than 5,000 physicians. The physician is one of the most inadequate professions in all regions.

Fifty-eight point eight percent of the respondents left their home country to study at the University of Medicine in Slovakia. The Slovak Republic saved the costs of their primary and secondary education. On the other hand, the quality of higher education is indisputable. The remaining part of the respondents studied medicine in the country of origin, so Slovakia also saved money for higher education, which is expensive in medicine. Here, however, it is impossible to distrust a foreign higher education institution and question the quality of medical education. In the matters of explorato-

Source: Annual report of Ministry of Health in the SR (2000–2016).



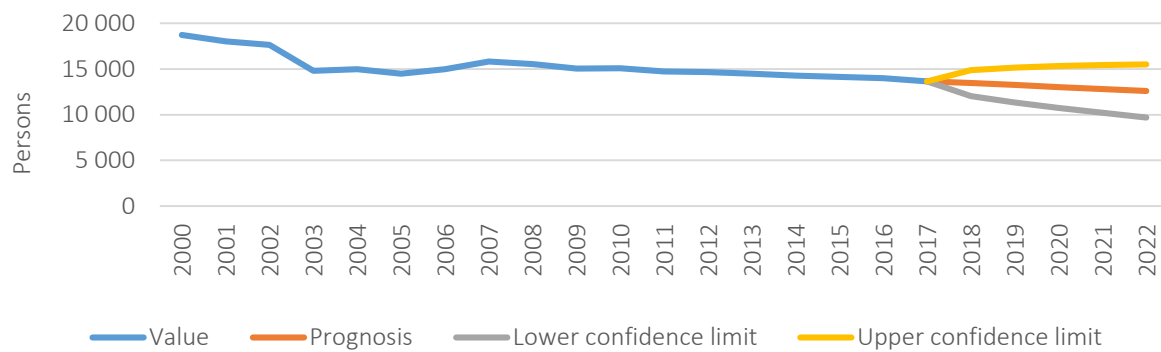
**Figure 1.** Issued proof of equivalence of education in Slovakia (in persons)



**Figure 2.** Prognosis of the development of the number of physicians in post-productive age in the SR until 2022



Source: National Center of Health Information (NCZI, 2004–2016).



**Figure 3.** Prognosis of the development of the number of physicians in productive age in the SR until 2022

ry plans for the future physicians, it showed that only 70.6% of them plan to stay in Slovakia live and work permanently.

In Figures 2 and 3, one follows the expected development of the number of physicians in the Slovak Republic. The unfavorable trend in the development of the number of physicians in both productive and post-productive age is striking. It is precisely the lack of doctors of working age that poses a risk to the future. A physician of post-productive age may terminate his/her practice at any time, and his/her substitutability in the region will be limited.

### 3.2. Assessment of barriers to employment of foreign physicians in the Slovak Republic

The most frequent response of the respondents in the questionnaire was the mistrust of the Slovak health care system in the quality of acquired education in the home country compared to the standards of physicians' education in Slovakia or the EU countries. Medium value is bureaucracy, the administrative and financial burden of recognizing foreign education, the length of the process and the bureaucracy associated with legalizing the employment. The standard deviation we calculated was 0.603. It means that there were only minor deviations from the average and less variance in the question.

*H1: It is assume that foreigners' physicians were initially employed in hospitals in Slovakia as secondary physicians.*

*H0: Physicians from abroad are employed in the health care system in Slovakia, taking into account the practical experience in the workplace, which corresponds to their qualifications and experience.*

Alternative hypothesis: Physicians from abroad are employed in the health care system in Slovakia without taking into account the practical experience of lower secondary physicians.

**Table 3.** Physicians-foreigners according to the first job in the health system after arrival in Slovakia, according to previous experience

Source: Own survey.

Physicians-foreigners	Data	Work as secondary		Total
		NO	YES	
Without practice	Number	10	26	36
	%	27.77	72.22	100
With practice	Number	12	56	68
	%	17.60	82.40	100
Total number		22	82	104
Total, %		22.65	77.35	100

**Table 4.** Observed frequencies for H1

Source: Own survey.

Observed frequencies		
10	26	36
12	56	68
22	82	104

**Table 5.** Expected frequency for *H1*

Source: Own survey.

Expected frequency		
4.56	17.44	34
7.44	29.56	64
24	74	98

The Chi-square value is 0.046. The achieved level of statistical significance is less than 0.05, which implies that we can reject the null hypothesis.

Testing conclusion: When employing the physicians from abroad, their experience and practice are not taken into account by hospitals, as a rule they, are employed at the lowest jobs of physicians – secondary.

The second research problem was that studying abroad for the target country means saving money.

*Null hypothesis: It is assumed that studying at a university in Slovakia affects the physician's decision to migrate permanently.*

*Alternative hypothesis: We assume that university studies in the country of origin affect the physician's decision to return to the country of origin in the future.*

**Table 8.** Observed frequencies for *H2*

Source: Own survey.

Observed		
16	48	64
20	32	40
24	80	104

**Table 9.** Expected frequency for *H2*

Source: Own survey.

Expected		
7.52	24.48	34
4.48	15.52	64
24	74	98

The Chi-square value is 0.648. The level of statistical significance achieved is greater than 0.05, which implies that we cannot reject the null hypothesis.

The conclusion of the test is: the decision to migrate permanently does not depend on whether the physician has studied medicine in Slovakia or in the country of origin.

**Table 6.** State expenditures for one physician study according to OECD data per student and year of study in USD

Source: OECD (2017).

Education	Primary	Secondary	Tertiary	Total	Attestations	Total
Slovakia	6,235	6,453	11,290	150,757	7,542	173,383

**Table 7.** Abundance of physicians-foreigners depending on where he/she studied medicine and by the decision to migrate permanently

Source: Own survey.

Physician foreigner	Data	Migrate permanently		Total
		Yes	No	
Student in Slovakia	Number	16	48	64
	%	25.00	75.00	100
Student in country of origin	Number	8	32	40
	%	20.00	80.00	100
Total number		24	80	104
Total, %		22.50	77.50	100

## CONCLUSION

Immigration is a source of the health care workforce. Again, we can talk about it in two respects. The first is coming to Slovakia to study medicine. As can be seen, the number of foreign graduates since 2008 (for the first time in the statistics is divided by graduates by country of origin) has been steadily increasing. The trend of increasing number of medical students continues. The reason for the growing interest in studying medicine in Slovakia is according to available research in funding. The interest in medical studies in the countries is high, but the capacity of schools is not sufficient. At the same time, the demand on students is high. As most foreign students do not work after their studies in Slovakia, but use the system of automatic recognition of their acquired documents and the free movement of persons in the EU and are leaving, either to their home or other EU countries, Slovakia is losing its medical potential. The human capital is lacking in our hospitals.

The second aspect of immigration in the healthcare sector is to attract the qualified physicians from abroad to live and work in Slovakia. In the competitive environment of the European Union countries, the Slovak Republic is pulling for a shorter end; therefore, the attention is directed to doctors from third countries. Opportunity to fill the lack of jobs is exactly through physicians from abroad. Bureaucratic difficulty is the second obstacle for most foreign physicians. High difficulty in recognizing the education of physicians from third countries is a primary problem, although it is necessary to realize that this profession is about human life. Based on the findings, we suggest: education continued to be reviewed for quality; many diplomas are falsified in third countries; to test approach responsibly, in good time, providing the study literature, eventually provide an opportunity for consultation, verify the basic knowledge, skills, and abilities to work as second physician; to consider the practice with which the physician comes, confirmation from former employer in home country, verification; if the healthcare facility offers a job to a particular foreign physician, the facility should assign him/her a senior physician responsible for supervision; to include a physician according to his abilities, skills, and knowledge after the adaptation process, the year of training, and the language course; the bureaucratic complexity should be reduced.

Although it is a higher cost for the state, it is appropriate that the state make a non-repayable contribution to the test if the applicant is successful. Also, language courses could be reimbursed by the state. The advantage is also the geographical position of the Slovak Republic. Third-country physicians choose their place of work by distance from their country of origin. This issue is highly topical and will require further investigation within our project.

## ACKNOWLEDGMENT

This publication was created within the frame of the project funded by the Scientific Agency of Slovak Ministry of Education VEGA "Balance of economic gains and losses from labor migration" [reg.n.: 1/0679/17].

## REFERENCES

1. Bach, S. (2010). Managed migration? Nurse recruitment and the consequences of state policy. *Industrial Relations Journal*, 41(3), 249-266. <https://doi.org/10.1111/j.1468-2338.2010.00567.x>
2. Bahna, M. (2011). *Migrácia zo Slovenska po vstupe do EU* (2019 p.). Bratislava: Veda. Retrieved from <https://www.martinus.sk/?uItem=120816>
3. Bilan, Y. (2014). Migration aspirations on the outskirts of Europe: Social and economic dimensions. *Transformations in Business and Economics*, 13(2B), 606-614. Retrieved from [https://www.researchgate.net/publication/279093090\\_Migration\\_aspirations\\_on\\_the\\_out-](https://www.researchgate.net/publication/279093090_Migration_aspirations_on_the_out-)

- skirts\_of\_Europe\_Social\_and\_economic\_dimensions
4. Bradby, H. (2014). International medical migration: A critical conceptual review of the global movements of doctors and nurses. *Health*, 18(6), 580-596. <https://doi.org/10.1177/1363459314524803>
  5. Buchan, J. (2015). Nurse workforce sustainability: the United Kingdom. In *International Council of Nurses Conference, Seoul, South Korea*.
  6. Buchan, J., Wismar, I. A., Gli-nos, & Bremner, J. (Eds.) (2014). *Health professional mobility in a changing Europe: new dynamics, mobile individuals and diverse responses* (387 p.). World Health Organization. Retrieved from [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0006/248343/Health-Professional-Mobility-in-a-Changing-Europe.pdf?ua%201#page=33](http://www.euro.who.int/__data/assets/pdf_file/0006/248343/Health-Professional-Mobility-in-a-Changing-Europe.pdf?ua%201#page=33)
  7. Chiswick, B., & Miller, P. (2010). The effects of educational-occupational mismatch on immigrant earnings in Australia, with international comparisons. *International Migration Review*, 44(4), 869-898. <https://doi.org/10.1111/j.1747-7379.2010.00829.x>
  8. Ciarniene, R., Vienazindiene, M., & Vojtovic, S. (2017). Process Improvement for Value Creation: a Case of Health Care Organization. *Inzinerine Ekonomika-Engineering Economics*, 28(1), 79-87. <https://doi.org/10.5755/j01.ee.28.1.16601>
  9. Connell, R. (2012). Gender, health and theory: conceptualizing the issue, in local and world perspective. *Social Science and Medicine*, 74(11), 1675-1683. <https://doi.org/10.1016/j.socs-cimed.2011.06.006>
  10. Dagilene, L., Leitonienė, S., & Grenčíková, A. (2014). Increasing business transparency by corporate social reporting: development and problems in Lithuania. *Engineering economics*, 25(1), 54-61. <https://doi.org/10.5755/j01.ee.25.1.2356>
  11. Danaj, A., Lazányi, K., & Bilan, Y. (2018). Perceptions and Implications of Immigration in France – Economic, Social, Political and Cultural Perspectives. *Economics and Sociology*, 11(3), 226-247. <https://doi.org/10.14254/2071-789X.2018/11-3/14>
  12. Daugeliene, R. (2007). The position of knowledge workers in knowledge-based economy: migration aspect. *European Integration Studies*, 1, 103-112.
  13. Divinský, B. (2017). *Slovakia. Country Profile*. Bratislava, DRIM. Retrieved from [https://www.researchgate.net/publication/332010077\\_SLOVAKIA\\_Country\\_Profile](https://www.researchgate.net/publication/332010077_SLOVAKIA_Country_Profile)
  14. Drinkwater, S., Eade, J., & Garapich, M. (2009). Poles Apart? EU Enlargement and the Labour Market Outcomes of Immigrants in the United Kingdom. *Journal of International Migration*, 47(1), 161-190. <http://dx.doi.org/10.1111/j.1468-2435.2008.00500.x>
  15. Dustman, C., & Glitz, A. (2011). Migration and education. *Handbook of the Economics of Education*, 4, 327-439. <https://doi.org/10.1016/B978-0-444-53444-6.00004-3>
  16. Favell, A. (2014). The fourth freedom: Theories of migration and mobilities in 'neo-liberal' Europe. *European Journal of Social Theory*, 17(3), 275-289. <https://doi.org/10.1177/1368431014530926>
  17. Gallardo, G. L., Korneeva, E., & Strielkowski, W. (2016). Integration of migrants in the EU: lessons and implications for the EU migration policies. *Journal of International Studies*, 9(2), 244-253. <https://doi.org/10.14254/2071-8330.2016/9-2/19>
  18. Glinos, I. A. (2012). Worrying about the wrong thing: Patient mobility of health care professionals. *Journal of Health Services Research and Policy*, 17(4), 254-256. <https://doi.org/10.1258/jh-srp.2012.012018>
  19. 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. <https://doi.org/10.1016/j.health-pol.2015.08.010>
  20. Grenčíková, A., & Španková, J. (2016). Labour migration trends in the Slovak republic. *Economics and Sociology*, 9(2), 158-167. <https://doi.org/10.14254/2071-789X.2016/9-2/11>
  21. Havierníková, K., Kordoš, M., & Navickas, V. (2018). The Motivation of Slovak Small and Medium Entrepreneurs towards Cluster Cooperation. *Transformation in Business and Economics*, 17(3), 91-101. Retrieved from <http://www.transformations.knf.vu.lt/45/article/them>
  22. Jędrzejowska-Schiffauer, I., & Schiffauer, P. (2017). New constraints on mobility in Europe: Policy response to European crises or constitutional ambiguity? *Journal of International Studies*, 10(3), 9-23. <https://doi.org/10.14254/2071-8330.2017/10-3/1>
  23. Karas, V., & Králik, A. (2017). *Európske právo* (503 p.). Bratislava: Wolters Kluwer. Retrieved from <https://www.preskoly.sk/p/372540-europske-pravo/>
  24. Kordoš, M. (2017). Aspects of International Trade on the US Economy and Labor. In *2nd International Conference on Education, Management and Systems Engineering (EMSE 2017)* (pp. 161-172). Destech Publications Inc., USA. <https://doi.org/10.12783/dtssehs/emse2017/12762>
  25. Krajnakova, E., & Vojtovic, S. (2017). Struggles of Older Workers at the Labour Market. *Economics and Sociology*, 10(1), 319-333. <https://doi.org/10.14254/2071-789X.2017/10-1/23>
  26. Kroezen, M., Dussault, G., Craveiro, I., Dieleman, M., Jansen, C., & Sermeus, W. (2015). Recruitment and retention of health professionals across Europe: A literature review and multiple case study research. *Health Policy*, 119(12), 1517-1528. <https://doi.org/10.1016/j.health-pol.2015.08.003>
  27. Lipková, L. (2011). *Európska únia* (448 p.). Bratislava: Sprint. Retrieved from <https://www.martinus.sk/?uitem=180177>

28. Massey, D., & Bartley, K. (2005). The Changing Legal Status Distribution of Immigrants: A Caution. *International Migration Review*, 39(2), 469-484. <https://doi.org/10.1111/j.1747-7379.2005.tb00274.x>
29. National Center of Health Information (NCZI). (2004–2016). *Edícia zdravotnícka štatistika 2004–2016*. Retrieved from [http://www.nczisk.sk/Statisticke\\_vystupy/Publikacie\\_statisticke\\_prehlady/Edicia\\_Zdravotnicka\\_statistika/Pages/default.aspx](http://www.nczisk.sk/Statisticke_vystupy/Publikacie_statisticke_prehlady/Edicia_Zdravotnicka_statistika/Pages/default.aspx)
30. OECD. (2016). *Zdravie a zdravotníctvo na Slovensku v Európskom porovnaní v roku 2016. (Analýzy a komentáre založené na údajoch správy OECD: Health at a Glance: Europe 2016)*. Retrieved from <http://cpldz.sk/wp-content/uploads/2017/01/OECD-anal%C3%BDza-zdravia-2016-final-1.pdf>
31. OECD. (2017). *Where should Slovakia look for workers?* Retrieved from <https://oecdoscope.blog/2017/09/06/where-should-slovakia-look-for-workers/>
32. Ognyanova, D., Maier, C. B., Wismar, M., Girasek, E., & Busse, R. (2012). Mobility of health professionals before and after the 2004 and 2007 EU enlargements: evidence from the PROMeTHEUS. *Health Policy*, 108(2-3), 122-132. <https://doi.org/10.1016/j.healthpol.2012.10.006>
33. Parrado, E., & Gutierrez, E. Y. (2016). The Changing Nature of Return Migration to Mexico, 1990–2010. Implications for Labor Market Incorporation and Development. *Sociology of Development*, 2(2), 93-118. <https://doi.org/10.1525/sod.2016.2.2.93>
34. Patel, V. (2003). Recruiting doctors from poor countries: the great brain robbery? *BMJ*, 327(7420), 926-928. <https://doi.org/10.1136/bmj.327.7420.926>
35. Ravenstein, E. (1885). The Laws of Migration. *Journal of the Statistical Society*, 48(2), 167-235. Retrieved from <http://www.jstor.org/stable/2979181>
36. Reichová, D., Hanzelová, E., & Kostolná, Z. (2006). *Sprístupnenie trhov práce vo vybraných krajinách EÚ a vývojové trendy natrhupráce v SR [Liberalization of labor markets in selected EU countries and trends at the labor market in the Slovak Republic]* (105 p.). Bratislava: Institute for Labor and Family Research (in Slovak).
37. Valiani, S. (2012). *Rethinking unequal exchange: The global integration of nursing labour markets* (208 p.). University of Toronto Press. Retrieved from <https://utoronto-press.com/us/rethinking-unequal-exchange-4>
38. Vdovtsova, S. (2008). Motivation mechanisms of youth behavior on Ukrainian labour market. *Economics and Sociology*, 1(1), 105-108. Retrieved from <https://www.economics-sociology.eu/files/16.pdf>
39. World Health Organization (WHO). (2010). *Global Code of Practice on the International Recruitment of Health Personnel* (Resolution WHA63.16). Geneva: World Health Organization. Retrieved from [http://apps.who.int/gb/ebwha/pdf\\_files/WHA63/A63\\_R16-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/WHA63/A63_R16-en.pdf)
40. Yeats, N. (2010). The globalization of nurse migration: Policy issues and responses. *International Labour Review*, 149(4), 423-440. <https://doi.org/10.1111/j.1564-913X.2010.00096.x>