

# What Contribution Can Doctors Trained in Romania Bring in Order to Remedy the Medical Deficit in Germany? Comparison of Medical Studies and Specialist Training between Romania, Germany, and Poland, Using as an Example the Fields of Internal Medicine, General Medicine, and Anesthesia

Anamaria Cudalb, Ursula Gresser

Ludwic Maximilian University of Munich, Munich, Germany

Email: [anamaria.cudalb@gmail.com](mailto:anamaria.cudalb@gmail.com)

**How to cite this paper:** Cudalb, A., & Gresser, U. (2020). What Contribution Can Doctors Trained in Romania Bring in Order to Remedy the Medical Deficit in Germany? Comparison of Medical Studies and Specialist Training between Romania, Germany, and Poland, Using as an Example the Fields of Internal Medicine, General Medicine, and Anesthesia. *Creative Education*, 11, 2424-2442.

<https://doi.org/10.4236/ce.2020.1111178>

**Received:** October 17, 2020

**Accepted:** November 24, 2020

**Published:** November 27, 2020

Copyright © 2020 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

---

## Abstract

**Aim:** The growing shortage of doctors in Germany is a subject that is currently well documented in the mass media. The fields with the biggest deficits are internal medicine, general medicine, and anesthesia. One of the measures to correct this problem is employing doctors who have studied abroad. The objective of this study is to assess the extent to which the deficit of trained medics in Germany can be amended with doctors trained in Romania and Poland. **Subject and methods:** A very good overview of this phenomenon was acquired by putting together a compilation of the educational process which leads to graduating as a medical doctor in Romania, Poland and Germany, the available literature regarding doctors migration and the annual statistical data provided by the German Medical Association. The study included processing the data obtained through two self-made questionnaires addressed to Romanian doctors. The first, with 129 respondents, was addressed to physicians who studied in Romania and were already working in Germany. The second, with 59 respondents, was addressed to Romanian students who wish to come and work in Germany. **Results:** The results of the Romanian survey were compared with similar studies carried out in Poland, revealing great similarities between the selected groups in training, motivation, way of thinking and perceptions of working conditions. The resulting graphics and figures

---

---

provide a visual representation of the phenomenon, strengthening the conclusion. Discussion and conclusion: Taking into account the aging population in Germany, the increasing numbers of females in the medical profession, the growing trend of part-time work, the difficult medicine admission process and the unabated emigration of German doctors to the US, UK, Austria, and Switzerland, it is safe to conclude that Germany needs foreign-trained doctors. It became evident that not all the information regarding the training process in the three studied countries completely overlaps. There were also discrepancies between what is documented and the actual numbers of completed procedures that are required in order to complete the training. When taking all of this into account, the question this paper set to answer was positively answered, proof of which is the growing percentage of Polish and Romanian trained doctors working in Germany.

### Keywords

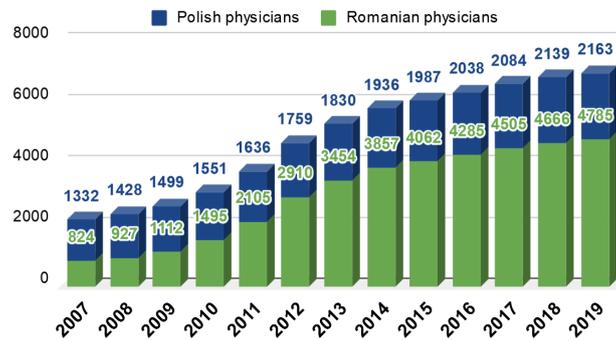
Medical Education, Medical Studies, Specialist Medical Training, Romanian Physicians, Shortage of Physicians

---

## 1. Introduction

In 2015, according to the statistics from the German Physicians Chamber, around 10% of the doctors employed in Germany were of foreign origin (BÄK, 2015). In 2018 more than 25% of doctors working in Germany are from abroad (BÄK, 2018). This percentage is low compared to numbers in other countries such as Israel (40%) or New Zealand (40%) (OECD, 2015). About 70% of migrant physicians come from Europe, and in 2018, of these, Romanian doctors (4666) were in the first place, followed by Greek (3169), Austrian (2687) and Polish doctors (2139) (BÄK, 2014). In this respect Germany resembles other European countries, with the same migration tendencies being observed in Italy, Belgium and France (WHO, 2011).

From Poland, taking into account the certificate of good standing issued between May 2004 and February 2013, 939 dentists and 8857 medical doctors may have emigrated (Kolodziej, Gresser, & Richartz, 2016). In Romania, a strong correlation between the number of requests for certificates of conformity and the economic crisis was evident in 2010, when the hardest effects of the crisis were felt in Romania and more than 2500 certificates were issued (Galan, Olsavszky, & Vlădescu, 2011). This leads to the findings of Braun and Gresser (2017), that stated that in 2012 the highest numbers of European doctors who migrated to Germany were those trained in Romania, with 2704 doctors. In the same year Romania had only 39,813 doctors, a very low number taking into account that in 1990 there were 55,000 physicians working there (Boboc, Boncea, & Boboc, 2015). **Figure 1** shows the evolution of Romanian and Polish physician's numbers in Germany starting with 2007-the year in which Romanian entered the European Union.



**Figure 1.** Number of Romanian and Polish physicians registered yearly in Germany from 2007 to 2019, Source: BÄK statistic.

Both Romania and Poland combined have provided Germany with almost a quarter of the highly trained foreign medical personnel who were working there from 2007 until 2016 (BÄK statistics), as can be seen in **Figure 2**.

As Poland and Romania are 2 European Countries with considerable numbers of doctors that emigrated to Germany, it is worthwhile to take a closer look upon the doctors' education and social background.

## 2. Methodology

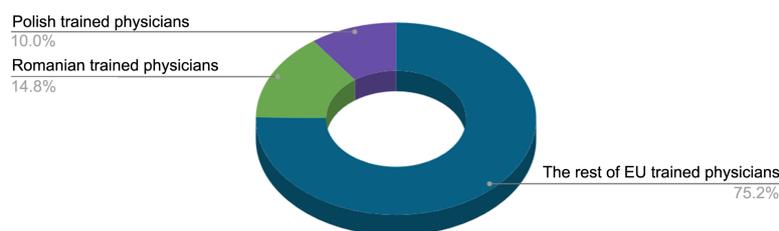
For the comparison between the medical training systems in Germany, Romania, and Poland, a literature search using Pub Med, Medpilot, Google Scholar collected data, and information was collected from the official websites of the institutions that supervise the medical fields in the above-mentioned countries. The physical sources of data were the LMU University Library, Munich City Library, Library of the Romanian Academy, Iași and U.M.F Iași Library, România. The primary source of information about the Polish health system was the research of M. Kolodziej (Kolodziej, Gresser, & Richartz, 2016) in her dissertation paper.

Taking as an example the work of Kolodziej, Gresser and Richartz (2016), two questionnaires were addressed to Romanian physicians, one to those who were already working in Germany and the other to Romanian students who were considering working in Germany after the completion of their studies. Both surveys were offered in Romanian, German and English. For the first questionnaire, 115 respondents were obtained. The second survey was conducted with students and physicians from Romanian Universities who were not working in Germany. Here, 59 respondents were obtained. Because of the similarity in the questionnaires, the results for Romania were easy to compare with the Polish results obtained by Kolodziej, Gresser and Richartz (2016).

## 3. Results

### 3.1. Comparison of the University and Specialist Training between Romania, Poland and Germany

In the EU, due to Directive 2005/36/EC which can be found in the European



**Figure 2.** Percentage of Romanian and Polish trained physicians from Germany compared with the percentage of the rest of the outside Germany trained EU doctors working in Germany, Source: BÄK, 2010, 2013, 2014, 2018.

Parliament Directives, any formal qualification obtained in a member state is recognized throughout the other member states. These should mean that the university education and the specialist training are qualitatively equal in Germany, Romania and Poland, guaranteeing a high standard of medical care. This proposition will be investigated in the following 3 subchapters.

### 3.1.1. Anesthesiology

The minimum duration of continuing medical education in Anesthesiology is 3 years, according to the EU Directive (EU-Directive 2005, Annex V, point 5.1.3). In Germany and Romania, the training period is 5 years, while in Poland it is 6 years. In all 3 countries the training is significantly longer than the minimum standard according to European law (The German Medical Association, BÄK 2013; Polish Centre for Postgraduate Medical Education, CMKP 2014; The Romanian National Centre of Perfecting the Skills of the Medical Personnel, CNPDS 2007). A comparison between the studied subfields within the anesthesiology specialisation and the time allocated to their study is shown in **Tables 1-4**.

In order to quantitatively compare the requirements for trainees, **Table 2** compares the time required to study different subfields in the above-mentioned countries. In Germany, this assessment is difficult to make, as the training program may vary throughout the country and some subfields are studied alongside others.

In all 3 countries, the training is divided between the study of anesthesia and intensive care. In Romania, as shown in the last subfield, the training takes 2 years and is divided between multivariate intensive therapy with its surgical and medical branches (diabetes, acute intoxication, neurological coma, cardiac diseases, nephrology, paediatric care), traumatic intensive therapy and emergency receiving unit (**Table 3**). In Germany, the intensive care education is divided into 2 modules of 6 months each, while in Poland, because of the skills training modules it is difficult to identify how much time is allocated to each subspecialty.

As the curriculum is slightly different in the three countries, only a small number of skills were chosen for comparison. The comparison of the minimum number of procedures, which can be seen in **Table 4**, reveals a large difference between the compared countries.

**Table 1.** Comparison between the studied subfields and the time allocated to their study in Germany, Romania and Poland, Source: for Germany, BÄK 2013, for Romania, CNPDS 2007 and for Poland, CMKP 2014.

Subfields of study in the Anesthesiology specialization process	Allocated time in Germany (total: 60 months/5 years)	Allocated time in Romania (total: 60 months/5 years)	Allocated time in Poland (total: 78.25 months/6.5 years)
Anesthesiology	48 months	36 months	44 months
Intensive care	12 months	24 months	17.75 months
Skills training	unclear	unclear	16.5 months

**Table 2.** Comparison between the time allocated to study different subfields in anesthesiology in Germany, Romania and Poland, Source: for Germany, BÄK 2013, for Romania, CNPDS 2007 and for Poland, CMKP 2014.

Anesthesiology	Germany	Romanian	Poland
Cardiac Anesthesiology	unclear	2 months	1 month
Thoracic Anesthesiology	unclear	2 months	0.5 months
Neuroanesthesiology	unclear	2 months	0.5 months
Obstetric Anesthesiology	unclear	2 months	1.5 months
Infant anesthesiology	unclear	2.5 months	3 months
Pain Therapy	unclear	2 months	0.5 months

**Table 3.** Comparison between the time allocated to study different subfields in intensive care in Germany, Romania and Poland, Source: for Germany, BÄK 2013, for Romania, CNPDS 2007 and for Poland, CMKP 2014.

Intensive Care	Germany	Romania	Poland
Multivariate Intensive Therapy	unclear	18 months	17.25 months
Paediatric Intensive Care	unclear	minimum 3 months	0.5 months
Traumatic Intensive Therapy	unclear	3 months	unclear
Emergency Receiving Unit	unclear	3 months	unclear

**Table 4.** Comparison between the minimum number of procedures that must be completed in Germany, Romania and Poland in order to complete the speciality training, Source: for Germany, BÄK 2013, for Romania, CNPDS 2007 and for Poland, CMKP 2014.

Skills Training	Germany	Romania	Poland
Central line	50 procedures	300 procedures	100 procedures
General and local anesthesia	1800 procedures	410 procedures	1500 procedures
Cardiopulmonary resuscitation	10 procedures	100 procedures	unclear
Infusions, transfusions, parenteral feeding	50 procedures	620 procedures	220 procedures
Artificial breathing	50 procedures	250 procedures	unclear

### 3.1.2. Internal Medicine

The training referred to in the EU Directive as “General (internal) medicine” has a minimum duration of 5 years. In order to receive the specialist diploma for internal medicine in Germany, a training period of 5 years is required (BÄK, 2013). The training is divided into 2 parts: “basic advanced training in the area of internal” and “further training in internal medicine”.

In Poland, the basic training module has a 3-year duration and the main module a 2-year duration, which corresponds to the German training period (CMKP, 2014). Similarly, the 5 years training period in Romania is divided between the study of internal medicine (25.5 months) and complementary studies (34.5 months) (CNPDS, 2007).

**Table 5** shows that although the length of these 2 modules may vary between Germany, Romania and Poland, the total specialisation time is the same: 5 years.

The explicit training periods in modules I and II and the comparison between countries can be seen in **Table 6** and **Table 7**.

In **Table 8**, a comparison is made between the minimum numbers of treatment procedures in the medical training of the specialists. In Germany, around 2400 procedures must be demonstrated throughout the training period. In Romania, the number of independent procedures stipulated by The Romanian National Centre of Perfecting the Skills of the Medical Personnel (CNPDS, 2007) is

**Table 5.** Comparison between the time allocated to the study of internal medicine in Germany, Romania and Poland, Source: for Germany, BÄK 2013, for Romania, CNPDS 2007 and for Poland, CMKP 2014.

Fields of study in the internal medicine specialisation process	Germany	Romania	Poland
Module I	36 months	25.5 months	36 months
Module II	24 months	34.5 months	24 months
Total	5 years	5 years	5 years

**Table 6.** Comparison between the studied subfields in the first module and the time allocated to their study in Germany, Romania and Poland, Source: for Germany, BÄK 2013, for Romania, CNPDS 2007 and for Poland, CMKP 2014.

Module I	Germany	Romania	Poland
			36 months of internal medicine, out of which:
			- 17.5 months of Internal medicine
			- 1 month of Intensive care
			- 4 months of Cardiology
			- 1.5 months of Pulmonology
			- 1.5 months of Gastroenterology
			- 1.5 months of Endocrinology
			- 0.75 months of Nephrology
			- 0.75 months of Hematology
			- 0.75 months of Rheumatology
			- 0.75 months of Infectious disease
			- 0.75 months of Neurology
			- 0.5 months of Psychiatry
			- 1.75 months of Speciality courses
	36 months of internal medicine	25.5 months of internal medicine, out of which:	
		- 12 months in the years 1 and 5	
		- 1.5 months in year 4	

**Table 7.** Comparison between the studied fields in the second module and the time allocated to their study in Germany, Romania and Poland, Source: for Germany, BÄK 2013, for Romania, CNPDS 2007 and for Poland, CMKP 2014.

Module II	Germany	Romanian	Poland
	34.5 months, out of which:		24 months of Internal medicine, out of which:
	- 3 months of Cardiology		- 11 months of Intensive medicine
	- 3 months of Pneumology		- 1 month of Cardiology
	- 3 months of Gastroenterology		- 1.5 months of Pulmonology
24	- 3 months of Diabetes		- 1 month of Gastroenterology
months,	- 2 months of Rheumatology		- 1 month of Endocrinology
out of	- 2 months of Hematology		- 1.5 months of Nephrology
which 6	- 2 months of Neurology		- 0.75 month of Hematology
months	- 2 months of Psychiatry		- 1 month Rheumatology
of	- 2 months of Nephrology		- 0.75 months of Infectious disease
intensive	- 2 months of Infectious disease		- 0.5 months Geriatrics
medicine	- 3 months of Oncology		- 0.5 months Palliative medicine
	- 3 months of General echography		- 0.5 months Health care
	- 4 months of expertise in work capacity		- 0.25 months of Speciality courses
	- 0.5 months of Bioethics		

**Table 8.** Comparison between the different minimum number of procedures during the study of internal medicine in Germany, Romania and Poland, Source: for Germany, BÄK 2013, for Romania, CNPDS 2007 and for Poland, CMKP 2014.

Procedures	Germany	Romania	Poland
Abdominal ultrasound	500	170	unclear
Bronchoscopy	25	30	unclear
Colonoscopy	20	20	5
Electrocardiography	500	500	5
Punctures	100	67	20
Resuscitation	50	75	35
Spirometrie	100	100	5
Total	2375	1585 basis + different procedures depending on the formation center	269

1585. Each training center can add its own procedures to this number. According to the Polish training regulations, only 270 procedures must be carried out independently. Kolodziej also made a comparison between the number of procedures in Germany and Poland (Kolodziej et al., 2016). She assumed that newly trained Polish internal medicine specialists would complete further training in Germany.

### 3.1.3. General Medicine

Directive 2005/36/EC of the European Parliament and of the Council of 7<sup>th</sup> September 2005 regarding the recognition of professional qualifications was amended with Decision 790 on 13 January 2016. According to these decisions, the German language professional title of general practitioner is “Facharzt/Fachärztin für Allge-

meinmedizin”, in Polish “Specjalista w dziedzinie medycyny rodzinnej” and in Romanian “Medic specialist medicină de familie”.

The general European tendency to prolong the length of residency can also be observed in Romania, Germany and Poland. According to the EU Directive of 2006, the general medicine study program requires a minimum training period of at least 3 years for future general practitioners. In Romania, this training took 3 years for those who commenced their training in 2007 (CNPDS, 2007); In 2016, according to the Ministry of Public Health (MS) order number 1109/2016, it was prolonged to 4 years.

For the training of family physicians, there is also a type of “part-time residency” that takes 5 years. In Poland, the residency program takes 4 years (CMKP, 2014) and in Germany 5 years (BÄK, 2013). In Germany, there are small differences between the training in the general medicine field in different regions of the country, but all of them require 5 years. For the purpose of comparison, the data for Germany will be taken from the guidelines on the content of continuing education from Bavaria (BLÄK, The Bavarian Chamber of Physicians, 2016). **Table 9** lists the similarities and differences between the 3 training programs in the above-mentioned countries. The EU time requirements are clearly met in all 3 countries.

The Polish advanced training system lists the practical abilities required by the trainee to successfully complete further training, but without specifying a minimum number of treatments (CMKP 2014). Comparing the number of completed procedures in Romania (3386) with the number of mandatory procedures in Germany (2335), it can be concluded that the 2 years difference between the specialisation processes in these countries does not make an important difference. As an example of some of the studied fields, the data concerning the minimum number of examinations and procedures can be seen in **Table 10**.

Following the Romanian latest law regarding the time requirements for specialisation, starting with 2016 some changes were made regarding the allocated

**Table 9.** Comparison between the studied fields and duration of training in general medicine in Germany, Romania and Poland, Source: for Germany, BLÄK 2016, for Romania, CNPDS 2007 and for Poland, CMKP 2014.

Training fields during general medicine training	Duration in Germany	Duration in Romania	Duration in Poland
Internal medicine	36 months	4 months	8 months
Family medicine	18 months	15 months	2 months
Surgery	6 months	2 months	0.75 months
Infectious diseases	unclear	1 month	1 month
Psychiatry	unclear	1 month	1 month
Neurology	unclear	1 month	1 month
Dermatology	unclear	1 month	1 month
Total	5 years	3 years	4 years

**Table 10.** Comparison between the minimum number of examinations and treatment required during the training in the general medicine field in Germany, Romania and Poland, Source: for Germany, BLÄK 2016, for Romania, CNPDS 2007 and for Poland, CMKP, 2014.

Examination and treatment methods	Minimum number in Germany	Minimum number in Romania	Minimum number in Poland
Diagnostic, consultation and therapy	100	550	unclear
Infusion, transfusion, enteral and parenteral nutrition	50	150	unclear
Electrocardiogram	500	50	unclear
Doppler sonography	300	unclear	unclear
Blood pressure measurement	50	unclear	unclear
Spirometry	100	30	unclear
Ultrasound	650	30	unclear
Proctoscopy	Basic knowledge	unclear	unclear
Effort test	100	unclear	unclear
Addiction treatment	25	unclear	unclear
Long term family medical care and documentation	20	50	unclear
Detection of behavioural problems children and adolescents	10	30	unclear
Interdisciplinary coordination	25	50	unclear
Diet regimes	25	200	unclear
Treating patients in their home	10	20	unclear
Vaccination and preventive measures	100	75	unclear
Prevention of violence and addiction	10	unclear	unclear
Monitoring physical therapy	10	20	unclear
Medical emergencies therapy	60	30	unclear
Wound care	50	70	unclear
Total	2335	3386	unmentioned

time and number of procedures. A concise comparison of the 3 programs can be seen in **Table 11**.

### 3.2. Own Study Results

A strength of the current study is the assessment of both the intentions and the actual behavior of physicians, due to the nature of data recorded through the two questionnaires. Combining the results of the two surveys offers the possibility to develop a broader overview of the phenomenon, since the first survey was aimed at students and doctors still working in Romania but aspiring to migrate to Germany, while the second was aimed at those who had already migrated.

**Table 11.** Similarities in the duration of the training subfields in general medicine in Romania, Source: for Romania before 2016, CNPDS 2007, for Romania after 2016, full attendance, MS 2016 and for Romania after 2010, partial attendance, CNPDS 2010.

Training fields during general medicine training in Romania	Duration before 2016, full-time	Duration after 2016, full-time	Duration after 2010, part-time
Internal medicine	4 months	5 months	8 months
Family medicine	6 + 9 months	6 + 18 months	9 + 12 months
General surgery	2 months	2 months	4 months
Infectious diseases	1 month	1 month	1 month
Psychiatry	1 month	1 month	1 month
Neurology	1 month	1 month	1 month
Dermatology	1 month	1 month	1 month
Pediatrics	4.5 months	5 months	8 months
Obstetrics and gynecology	2 months	2 months	3 months
Oncology	2 months	1 month	3 months
Diabetes	1 month	2 months	2 months
Bioethics	0.5 months	-	1 month
Emergency medicine	-	2 months	-
Cardiology	-	1 months	-
Total	3 years	4 years	5 years

### 3.2.1. Surveys

An interesting fact regarding the place of birth of the participants on the study is that 4 out of 129 participants were born in Germany. The great majority of the doctors participating in the survey migrated from Romania in the period 2011-2012 and more than 30% of the Romanian physicians who migrated to Germany did so by their own initiative. Most of them were young physicians (around 32 years old) who graduated between 2007 and 2011 and were working in a hospital. More than half of the respondents were females (59.7%) and most of them studied in Cluj. In second place were those who studied in Bucharest and in the third place are those who studied in Constanța. Almost half of the interviewed physicians (47.6%) completed their residency training in Romania, and the remainder trained in Germany. There were also some (29%) who studied in both countries. At the time of the survey, 10% of the physicians were doing their residency in Germany, and about 52% were working under supervision (Assistenzarzt) and 30% were specialists. Despite the fact that 76% of the respondents stated that they had problems with German language and that level B2 was the recommended language level when they left Romania, all of them found that it was necessary to have language level C1 in order to be able to effectively work. This is why 66.7% struggled learning alone or with the help of language classes; only 21.7% of respondents learned it in school. In **Figure 3**, one can observe that the vast majority of the physicians were work-

ing in Nordrhein-Westfalen.

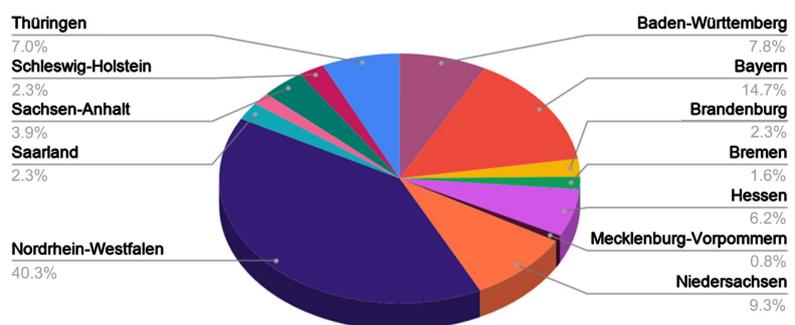
The main reasons of departure stated by the doctors interviewed were the working conditions (85.27%), and 99.2% of the respondents found the German working conditions better than in Romania. On the second place in the list of reasons for migration were the possibilities for professional development, which 79% found to be better in Germany. In third place was the fact that it was easier access to specialist training. Only 68.21% of respondents stated that a better salary was one of the reasons for moving to Germany. Even though this was not their priority, 97.7% wrote that they are able to earn more money per month in Germany, even after deducting the monthly costs. Opportunities for recreation and free time were not high on the list of rationalizations for their relocation. Only 24.03% found the recreation possibilities interesting.

Two very important preconditions for a good working environment and high confidence in one's worth or abilities, which in turn promote better results in the workplace, are the level of professional recognition and the level of work-related integration. Almost all physicians (93%) found integration courses or language lessons helpful in the integration process.

Two strong indicators that the Romanian physicians who were interviewed have grown accustomed to the working conditions in Germany are that 93% of them see their future career in Germany and that 97.7% of them recommend Germany as a work destination for their colleagues in Romania.

A concerning aspect of the migration of physicians is that this phenomenon sometimes has its roots even before the doctors start their basic training. In order to confirm the data that is already available in the media and to better understand more of about it, a survey was performed. Among the 59 survey participants, 78% were females. It is worth mentioning that the respondents were relatively young, between 20 and 30 years of age (20.3% of them were 24 years old).

Out of the interviewed students/physicians, only 57.6% saw themselves later successfully being able to work in Romania. The ability to work in the desired field is one of the factors influencing their success.

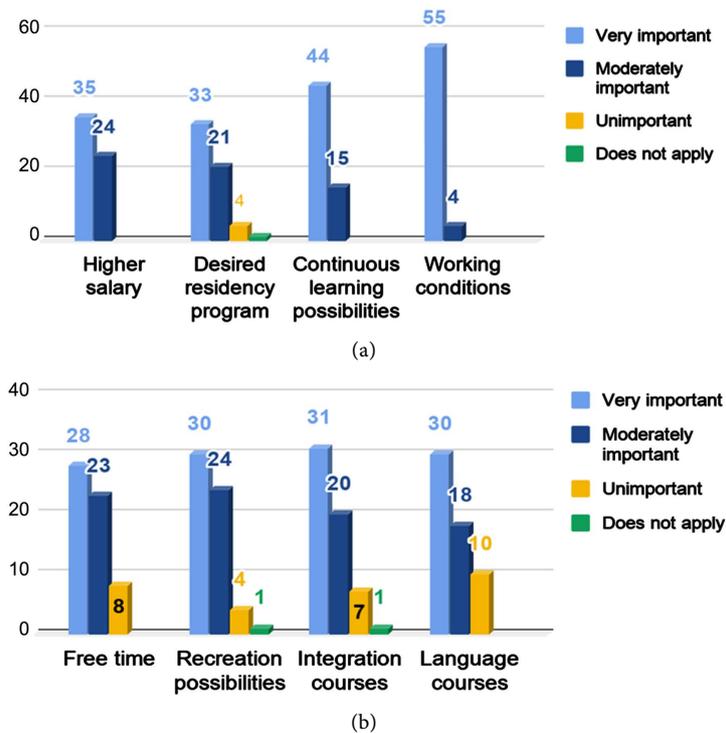


**Figure 3.** Germany's regions where most of the interviewed Romanian physicians are working. Source: own research based on own surveys, 2017.

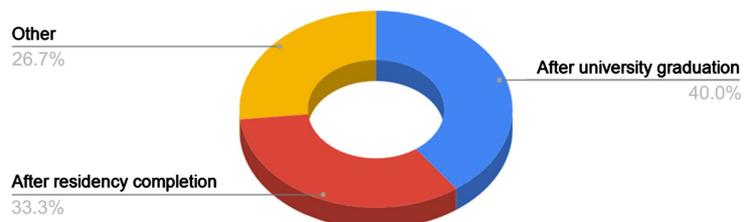
Working conditions were of utmost importance for 93.22% of the people interviewed, and 74.57% considered that continuous skills improvement possibilities of high priority. Approximately 60% would take into consideration higher salary when looking for a job, while the rest consider the salary to be of moderate importance. The considerations taken into account while searching for a job are presented in **Figure 4(a)** and **Figure 4(b)**.

Various channels are used by students and physicians in order to inform themselves about job opportunities in Germany. Through the questionnaire it became evident that information from family and friends played a similar role to self-initiative in informing the respondents of job possibilities in Germany.

When asked about their future plans, the respondents shared opinions about the time period in which they would like to start working in Germany (**Figure 5**).



**Figure 4.** (a) Matters taken into consideration when choosing a new job, Source: own research based on own surveys, 2017; (b) Matters taken into consideration when choosing a new job, Source: own research based on own surveys, 2017.



**Figure 5.** Desired moment of migrating from Romania to Germany, Source: own research based on own surveys, 2017.

### 3.2.2. Comparison of the Romanian Study with Similar Studies about Polish Doctors

In order to facilitate the comparison of the results obtained in Poland by Kolodziej, Gresser and Richartz (2016) regarding the migration of physicians to Germany, the Romanian study used the same design. As the number of respondents differed from country to country, comparison will be made using only percentages.

According to the surveys, graduates from medical universities in both Poland and Romania could imagine themselves (in percentages higher than 90%) working in Germany. In Figure 6, it can be seen that there is a correspondence between the percentages found in both countries, while differences can be observed when looking at perceptions of work-related conditions and the possibilities of free time.

Even though they stated that a better salary was not one of their priorities, 97.7% of Romanian physicians who had emigrated and 87.5% of those from Poland believed that they were receiving more money than their colleagues in their home countries.

When asked about their personal monthly earnings, the great majority from both countries revealed that they were earning more than 3 times the salary that they would have in their country of origin (Figure 7).

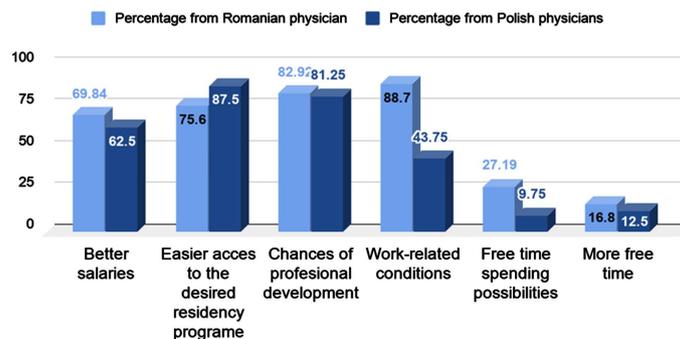


Figure 6. Comparison of the motivating factors for emigration among Romanian and Polish physicians in 2016-2017, Source: own research based on the compared results from the Kolodziej’s questionnaire and own surveys.

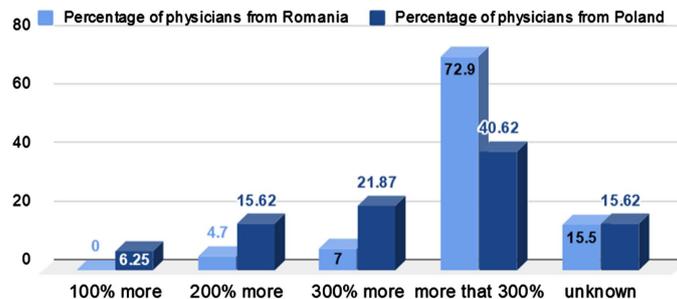


Figure 7. Compared results on the question regarding their earnings percentage communicated in 2016 and 2017 by physicians that immigrated from Romania and Poland, Source: Results of current survey and that of Kolodziej, Gresser and Richartz (2016): Salary levels in Germany compared to home country.

A concerning issue for both Romania and Poland is that a large percentage of the medicine students in these countries were considering leaving (Figure 8) and a significant percentage of them were planning a long or undetermined stay in Germany. Both studied groups expressed little interest in only staying in Germany for their period of their residency.

In order to make the transition towards their goal smoother, many of them had taken specific measures. A comparison of the measures taken by students and physicians from Romania and Poland can be seen in Figure 9.

Recognising that language presents itself as a big challenge for foreign physicians aspiring to work in Germany, special attention was paid to this subject. Very close similarities can be noticed when looking at the results of the question that addresses the German language knowledge of the students and physicians from Romania and Poland (Figure 10).

Figure 11 examines the methods employed for learning the German language. The comparison is made between Romanian students and physicians aspiring to work in Germany, the doctors that already do so and the Polish doctors who had moved to Germany.

The degree to which work colleagues offer support and help foreign doctors feel integrated is of great importance for their feeling of belonging to the work

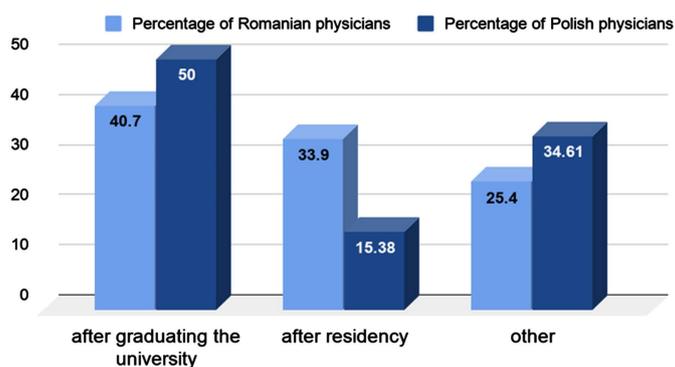


Figure 8. Comparison of the percentages of physicians from Romania and Poland grouped on intended moment of emigration, Source: own research based on the compared results from the Kolodziej's questionnaire and own surveys.

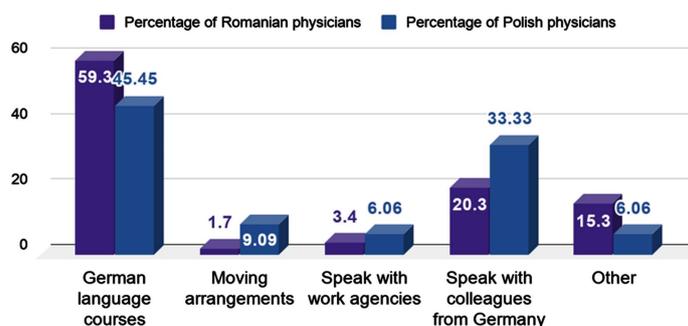
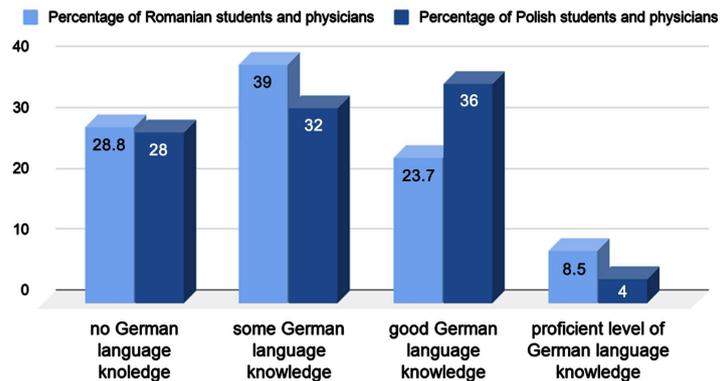


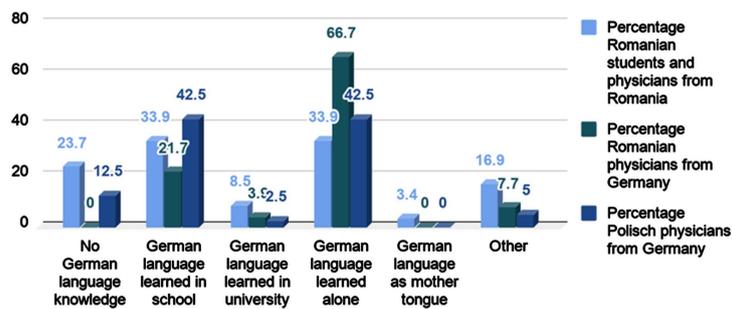
Figure 9. Comparison of the measures taken by Romanian and Polish physicians (in percentages) to facilitate their migrating process, Source: own research based on the compared results from the Kolodziej's questionnaire and own surveys.

environment. **Figure 12** compares how the Romanian and Polish doctors perceived their recognition level among patients and workmates.

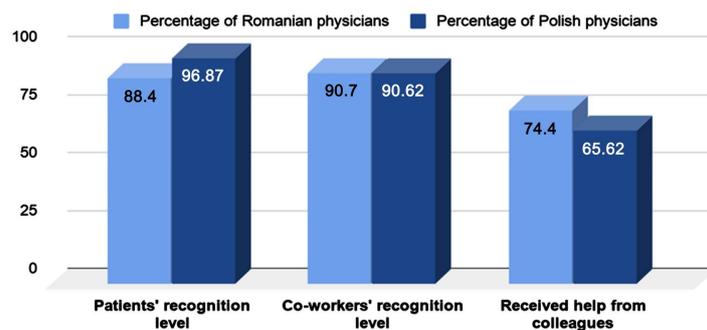
Out of the Romanian physicians who participated in the survey, 93% saw their future in Germany, whereas 78.12% of the Polish doctors did so. The explanation for this small discrepancy could be found in the statistical results which show that 99.2% of the Romanian doctors stated that they found a better working environment in Germany, while 87.5% of the Polish doctors agreed.



**Figure 10.** Comparison of the declared level of German language knowledge among students and physicians from Romania and Poland (in percentages), Source: own research based on the compared results from the Kolodziej’s questionnaire and own surveys.



**Figure 11.** Percentage comparison of German language learning manner for three groups, Source: own research based on the compared results from the Kolodziej’s questionnaire and own surveys.



**Figure 12.** Percentage comparison of the perceived recognition level among Romanian and Polish doctors, Source: own research based on the compared results from the Kolodziej’s questionnaire and own surveys.

Another small difference that can be observed when comparing the results obtained by Kolodziej, Gresser and Richartz (2016) for Poland and the current survey of Romanians is the stated main reason for remaining in Germany. For the Polish physicians the remuneration was the main reason for staying, with 81.23% declaring that they had not returned to Poland because of the stability that their salary brings. For the Romanians, the main motivation for remaining in Germany (93.8%) was their perceptions of a better working environment there.

Another element that illustrates the high level of integration of foreign physicians is that 84.37% of the Polish and 97.7% of the Romanian doctors recommended working in Germany to young physicians.

#### 4. Limitations

The literature review in this study was conducted using only papers published in English, German and Romanian. The other European languages could possibly offer further information that was not taken into consideration.

BÄK Statistik defines doctors who do not have German citizenship as foreign doctors, even though they may have been trained in Germany which means that the available data could be slightly different from the truth.

A limitation of the data analysed in the surveys is the low number of respondents. This means that only an incomplete image of the migration wishes of Romanian medical students and graduates can be formed. Suciú et al. (2017) studied the plans and emigration preferences of Romanian medical students using a much larger sample of 957 of respondents. The authors found that 84.7% of new university graduates planned to search for work abroad, and of these, 34.1% regarded Germany as their top choice of destination countries (Suciú et al., 2017). The values found in the questionnaire used in the current research were slightly higher (93.2% as opposed to 84.7%), which suggests that the percentage of physicians from less prosperous regions of Romania who are considering migration may be higher. The similarities and differences between the Romanian and the Polish results can be seen by comparing the current study with that of by Kolodziej, Gresser and Richartz, 2016. Regarding the Polish studies, even though the conclusion reached by Kolodziej, Gresser and Richartz (2016) only involved 58 selected respondents, similar results were obtained by Krajewski-Siuda et al. (2012) with a group of 1214 Polish medical students.

As statistical information about the number of physicians working in Romania is scarce and is not standardized, some of the current research was performed using articles in the mass media. In consequence, the real number of migrating Romanian physicians remains unknown.

#### 5. Conclusion

The question that this paper sets out to answer, whether Germany's deficit of physicians can be alleviated by physicians trained in Romania, is definitely answered affirmatively. Not only does the Bologna Process entitle doctors to have

their qualifications recognized, but there are also significant similarities in their training process.

The phenomenon described 10 years prior by [Kopetsch \(2010\)](#) is still current: German doctors are still emigrating, adding to the shortage of doctors in the country. This means that in order to properly function, the German health system relies on foreign doctors. Current demographics mean that in the future an increasingly large percentage of German physicians will retire, and many doctors will continue to move abroad ([Kopetsch, 2008](#)). In order to counter possible arguments that this comparison was performed only on paper and that in reality the number and quality of skills acquired during residency may actually vary significantly from country to country, the results of the personal survey were also taken into account.

In their search for better employment opportunities and conditions, many doctors from Eastern European countries such as Romania and Poland are relocating to countries such as Germany. Most available literature suggests that non-monetary factors are more important than the salaries received ([Janus et al., 2007](#)). It is notable that this study also found that the opportunity for better salaries did not rank in first or second positions in the list of reasons for migrating.

The social application of the study resides in offering a broader picture of the parameters of the migration phenomenon. Data collection systems are essential for producing statistics that help to improve policies that determine the actual state of public health. According to its Ministry of Health, Romania has the lowest number of doctors in the EU (2.7 physicians per 1000 inhabitants, MS, 2014). The most concerning characteristic of the “brain drain” phenomenon is its self-reinforcement, which results in an already weak health care system ([Karan & DeUgarte Barry, 2016](#)).

It remains a question of country policy if the state chooses to invest in the formation process and in keeping its specialists or if it makes it attractive for foreign trained physicians to relocate and work there.

## Acknowledgements

This publication contains results from the thesis of Anamaria Cudalb “Welchen Beitrag können in Rumänien ausgebildete Ärzte zur Behebung des Ärztemangels in Deutschland leisten? Vergleich von Medizinstudium und Facharztweiterbildung in Rumänien im Vergleich zu Deutschland und Polen am Beispiel von Innerer Medizin, Allgemeinmedizin und Anästhesie” at the Medical Faculty of the Ludwig Maximilian University of Munich.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- BÄK (2010). *Ergebnisse der Ärztestatistik zum 31.12.2010. Diagramme und Tabellen*. [https://www.bundesaerztekammer.de/fileadmin/user\\_upload/specialdownloads/Stat10](https://www.bundesaerztekammer.de/fileadmin/user_upload/specialdownloads/Stat10)

[Abbildungsteil.pdf](#)

- BÄK (2013). *Ergebnisse der Ärztstatistik zum 31.12.201. Diagramme und Tabellen*. [https://www.bundesaerztekammer.de/fileadmin/user\\_upload/downloads/Stat13AbbTab.pdf](https://www.bundesaerztekammer.de/fileadmin/user_upload/downloads/Stat13AbbTab.pdf)
- BÄK (2014). *Ergebnisse der Ärztstatistik zum 31. Dezember 2014. Alle Diagramme und Tabellen [PDF]* (pp. 42-44). [https://www.bundesaerztekammer.de/fileadmin/user\\_upload/downloads/pdf-Ordner/Statistik2014/Stat14AbbTab.pdf](https://www.bundesaerztekammer.de/fileadmin/user_upload/downloads/pdf-Ordner/Statistik2014/Stat14AbbTab.pdf)
- BÄK (2015). *Ergebnisse der Ärztstatistik zum 31. Dezember 2015. Alle Diagramme und Tabellen [PDF]* (pp. 27-36). [https://www.bundesaerztekammer.de/fileadmin/user\\_upload/downloads/pdf-Ordner/Statistik2015/Stat15AbbTab.pdf](https://www.bundesaerztekammer.de/fileadmin/user_upload/downloads/pdf-Ordner/Statistik2015/Stat15AbbTab.pdf)
- BÄK (2018). *Medical Statistics as of December 31, 2018. Ärztstatistik zum 31*. <https://www.bundesaerztekammer.de/fileadmin/userupload/downloads/pdf-Ordner/Statistik2018/Stat18AbbTab.pdf>
- Boboc, C., Boncea, I., & Boboc, D. M. (2015). The International Migration of Romanian Physicians. *Economic Computation and Economic Cybernetics Studies and Research*, 49, 85-102.
- Braun, J., & Gresser, U. (2017). Comparison of the Specialist Medical Training in Internal Medicine between Germany, Austria and Switzerland: An Overview. *Creative Education*, 8, 1729-1741. <https://doi.org/10.4236/ce.2017.811118>
- Galan, A., Olsavszky, V., & Vlădescu, C. (2011). Emergent Challenge of Health Professional Emigration: Romania's Accession to the EU. In M. Wismar, C. B. Maier, I. A. Glinos, G. Dussault, & J. Figueras, (Eds.), *Health Professional Mobility and Health Systems: Evidence from 17 European Countries* (pp. 449-477). Observatory Studies Series 23. Copenhagen: European Observatory on Health Systems and Policies.
- Janus, K., Amelung, V. E., Gaitanides, M., & Schwartz, F. W. (2007). German Physicians "On Strike"—Shedding Light on the Roots of Physician Dissatisfaction. *Health Policy*, 82, 357-365. <https://doi.org/10.1016/j.healthpol.2006.11.003>
- Karan, A., DeUgarte, D., & Barry, M. (2016). Medical "Brain Drain" and Health Care Worker Shortages: How Should International Training Programs Respond? *AMA Journal of Ethics*, 18, 665-675. <https://doi.org/10.1001/journalofethics.2016.18.7.ecas1-1607>
- Kolodziej, M., Gresser, U., & Richartz, B. M. (2016). Comparison of Medical Education between Germany and Poland Considering Internal Medicine, General Medicine, and Anaesthesia. *Creative Education*, 7, 2021-2034. <https://doi.org/10.4236/ce.2016.715203>
- Kopetsch, T. (2008). The Migration of Doctors to and From Germany. *Journal of Public Health*, 17, 33-39. <https://doi.org/10.1007/s10389-008-0208-7>
- Kopetsch, T. (2010). *Dem deutschen Gesundheitswesen gehen die Ärzte aus! Studie zur Altersstruktur-und Arztlzahlentwicklung* (5th ed., pp. 106-130). Berlin: Kassenärztliche Bundesvereinigung.
- Krajewski-Siuda, K., Szromek, A., Romaniuk, P., Gericke, C. A., Szpak, A., & Kaczmarek, K. (2012). Emigration Preferences and Plans among Medical Students in Poland. *Human Resources for Health*, 10, Article No. 8. <https://doi.org/10.1186/1478-4491-10-8>
- OECD (2015). *Health at a Glance 2015: OECD Indicators*. Paris: OECD Publishing.
- Suciu, Ş. M., Popescu, C. A., Ciomăgeanu, M. D., & Buzoianu, A. D. (2017). Physician Migration at Its Roots: A Study on the Emigration Preferences and Plans among Medical Students in Romania. *Human Resources for Health*, 15, 6.

<https://doi.org/10.1186/s12960-017-0181-8>

WHO (2011). *Health Professional Mobility and Health Systems. Evidence from 17 European Countries* (pp. 23-66). United Kingdom: Observatory Studies Series 23.  
<http://10665/170421/Health-Professional-Mobility-Health-Systems.pdf>