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Health Workforce Shortages

Ralitsa Simeonova-Ganeva, Kaloyan Ganev*

The World Health Organization (WHO) estimates that the shortage of medical professionals in the global market is expected to reach 15 million doctors, nurses, etc. by 2030. The shortage is becoming more and more evident in the European Union and competition among countries to attract and retain medical professionals is increasing. This analysis presents key facts on the supply of medical professionals in the Bulgarian health system. We compare selected indicators with a range of European benchmarks and find shortages of staff at the national and regional levels.

The results show that in Bulgaria the number of physicians per 100 thousand population in 2021 was higher than the median calculated for the European countries under consideration (429.6 vs. 402.5). However, we identify two specific shortages for them: a shortage of approximately 1000 general practitioners along with a shortage of over 460 psychiatrists. The most serious shortage emerges in terms of nurses, which corresponds to approximately 16.9 thousand nurses.

Currently, the education system is only partially compensating for the outflow of doctors and nurses. Needs defined by existing shortages remain unmet. Overcoming the shortages is a huge challenge for the government. We suggest possible policy actions to include prioritising the training of medical professionals, retaining them in Bulgaria (including foreign trainees), attracting back Bulgarian professionals working abroad, and significantly improving working conditions and career development opportunities.

* Sofia University "St. Kliment Ohridski". Members of the Bulgarian Council for Economic Analyses. The opinions expressed in this analysis are solely those of the authors. They do not necessarily reflect the views of the Council for Economic Analysis or the Bulgarian state and its institutions. The authors would like to express their gratitude to the BCEA members, especially to Plamen Nenov, Yoto Yotov, Jeffrey Nilsen, Teodora Tsankova and Petyo Bonev, and to Andrey Vassilev from Sofia University, for their support and valuable comments. Special thanks to Anton Gladnishki and his colleagues from the Administration of the Council of Ministers, Svilen Kateliev from the National Statistical Institute, as well as the teams from the Ministry of Health and the Ministry of Education and Science for the statistical information provided. They are also indebted to the medical doctors Prof. Jeni Staykova, Jean Phillipov, Ekaterina Naydenova, Nikolay Iskarov, and Iglika Brachot for their invaluable feedback on the health workforce issues.

In recent decades, the demand for healthcare services has grown significantly on a global scale.[1] The main reasons for this can be divided into two interrelated groups: demographic and socio-economic.[2] The first group includes population growth, increasing life expectancy, and ageing. The second one involves the increase in wealth (income), the improvement in access to medical care and prevention, technological developments in medicine, the increasing prevalence of chronic diseases, the increase in the health culture of the population, etc.

Increased demand for health services leads, on the one hand, to increased pressure on public and private systems to finance medical care and, on the other hand, increases the need to provide the health system with the appropriate medical professionals. For the most part, this class of professionals falls into the realm of so-called regulated professions. Their training is characterised by a high degree of standardisation, intensity, and duration. It also requires significantly higher than average financial support. Given that private financing is limited, the latter implies substantial difficulty of access to education and training. Therefore, in this context, the importance of public funding and policies increases significantly. In particular, the formulation and implementation of public policies requires explicitly addressing not only education and training issues, but also those related to further training, retention of medical professionals, and attracting those from other health systems.

In the world's leading economies, these problems and their solutions are well understood, which is reflected in their policies in this area. In these countries, significant public and private resources are devoted to training such personnel.[3] However, this investment is severely insufficient, so the global demand for physicians, nurses, and other health professionals currently far exceeds their supply. In addition to these demographic and socio-economic factors, this is also due to the fact that some major economies prefer to avoid increasing public spending[4] by substituting it with the attraction of specialists from abroad. As a consequence, the affected countries are often forced to further reduce investments in the relevant human capital.[5]

The World Health Organization (WHO) estimates that the global shortage of medical professionals in 2006 was over 4 million physicians, nurses, midwives, etc.[6] If current trends continue and in the absence of adequate interventions, the shortage of health workers is expected to reach 15 million by 2030.[7] For example, the shortage of physicians in the US is expected to exceed 54 thousand by 2033.[8] The situation in the European Union is similar.[9]

As a result of the highly competitive global market, there is an increasingly uneven distribution of medical staff across continents, countries, and regions. The shortage is becoming more pronounced where medical professionals' remuneration is relatively low. The problem was further exacerbated in the wake of the COVID-19 pandemic. The physical and mental strain on medical staff during this period also caused a change in attitudes to work in the health worker sector. A significant number of them have reported an intention to leave the medical profession or retire early.[10]

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[1] Culyer and Newhouse (2000).
[2] Fuchs (1972), Gu (2020).
[3] See for example Frenk et al. (2022), Online Appendix, pp. 16-17.
[4] He et al. (2021).
[5] In the literature this is also known as *poaching externality*. At the microeconomic level, it is associated with employers' reluctance to invest in employee training because of the risks of them being "stolen" by competition.
[6] WHO (2006).
[7] Liu et al. (2017).
[8] IHS Markit (2020).
[9] See for example "Europe Is Struggling to Keep its Health Systems Afloat", Health Policy Watch, https://healthpolicy-watch.news/europe-struggles-to-keep-health-systems-afloat/.
[10] For example, in 2021, 43% of nurses in the U.S. reported an intention to leave the profession (Vivian Health, 2021).

The problems described imply a continuous increase in the value of medical professionals. There is increasing competition between countries to attract and retain them. Countries and regions where the level of pay, overall working conditions and opportunities for career development and progression are significantly higher are expected to have an advantage. The global and regional popularity of the official languages in which professions are practised will likely also play an important role in this respect.

In the context of European labour markets, Bulgaria falls into the group of countries with relatively lower remuneration. This is one of the factors causing outflows of medical professionals from the country. Moreover, the Bulgarian language as the main language in the working environment of medical professionals is an additional obstacle that hinders the attraction of specialists from other countries.

This analysis aims to present basic facts on the provision of medical specialists in the health system of the Republic of Bulgaria. Based on reference values of the considered indicators for a wide range of European countries, the shortage of personnel in Bulgaria at the national and regional levels is assessed. We analyse inflows and outflows of personnel and assess the capacity of the education system to compensate for the outflows from the system. We conclude with recommendations for policymaking in the health sector.

The shortage of specialists: national dimensions

Methodological notes

Determining the optimal number of medical professionals depends to a large extent on the demand for medical services from the population.[11] While several measures of demand are used in the literature and practice, there are still no clear and generally accepted formal criteria for determining these optimal values. For this reason, different countries and institutions often resort to discretionary estimates.[12] Such an approach, however, risks the presence of too strong a subjective element. Therefore, an alternative approach is applied in practice, where an objectively defined reference value (benchmark) is used to approximate the desired state.[13]

To determine the shortage of staff in Bulgaria, the second approach has been chosen. To this end, an assessment of where the country falls in the overall distribution of indicators across the set of European countries considered has been made.[14] Specifically, we define shortages as negative deviations from given reference values.

The distribution of medical staffing across countries is itself characterised by considerable variation and asymmetry. For this reason, it would not be appropriate to use the arithmetic average of the whole group of countries as a reference. The use of the maximum value is also not appropriate as it may represent an aberrant observation in the context of the sample. For the above reasons, we have chosen the median as a benchmark.[15]

Bulgaria compared to European countries: how big are the shortages?

The overall picture in terms of the number of physicians per 100 thousand population shows that for 2021 the value for Bulgaria is higher than the median calculated for the group of European countries (429.6 vs. 402.5). The situation is similar for dentists - the reported value for Bulgaria is 109.9 against a median of 78.9. It is important to note that these positive deviations should not be interpreted as surpluses, but only as the presence

[11] Of course, on the supply side, staff training costs are also an essential determinant.
[12] See, for example, Committee to Study the Role of Allied Health Personnel, Institute of Medicine (1989).
[13] Borisova and Manoilova (2020).
[14] In general, the list includes EU Member States, but depending on the specific indicator it also includes EFTA, EEA, and candidate countries. The coverage is determined by the availability of data published by Eurostat.
[15] The median is the value against which half of the values of the indicator are lower, and the other half higher.

of a relatively more favourable situation in the context of the group of countries under consideration.

However, this seemingly positive picture regarding physicians can be misleading in a sense. In particular, if the figures by individual specialist type are considered, several specific shortages can be highlighted. First of all, there is a shortage of general practitioners - with a median of 72.1 per 100 thousand population, the figure for Bulgaria is 57.4. This corresponds to a shortage of just over 1,000 physicians for the whole country. In relative terms, this represents a shortage equivalent to about 1/4 of the total number of GPs reported for 2021. They are followed by psychiatrists, where the ratio per 100,000 is 10.2, against a median of 17.0. This implies a shortage of more than 460 psychiatrists or more than 70% of the total number for 2021.[16]

A positive deviation is calculated for midwives - with a median of 34.6, the value for Bulgaria is 47.5. Moreover, for this category of specialists, their ratio to the total number of obstetricians and gynaecologists for the country is approximately 1.9:1. Such a ratio is relatively favourable, but it is still significantly lower than the WHO recommended ratio of 3:1.[17] If the latter ratio were taken as a reference, it would imply a shortage of approximately 2,000 midwives or about 60% of the total availability.

Against this background, a considerable shortage of nurses is identified - for Bulgaria their number per 100 thousand people is 419.0, while the median equals- 666.3. Relative to the total population of Bulgaria, this shortage corresponds to approximately 16.9 thousand nurses, or approximately 60% of their availability by 2021. The ratio between the number of nurses and the number of physicians for the same year is 0.97:1. It is extremely unfavourable for the adequate functioning of the health system. To reach a ratio of 2:1[18] (which is lower than the WHO recommended 3:1), the shortage to be bridged amounts to over 29 thousand nurses (more than the current number).

Are there enough physicians and nurses at the regional level?

Regional inequalities: concentration in a few regions

The results presented at the national level give some insight into the existence of certain problems related to the provision and distribution of medical professionals in the health system. However, since the indicators are averaged over the regions, these problems appear to be underestimated in some cases and completely hidden in others. Using symmetric reasoning, this also implies that some positive (relative to the calculated benchmarks for the group of European countries) phenomena at the regional level are also masked.

There is a strong imbalance in the distribution of physicians, dentists, nurses, and midwives across districts. Depending on the type of medical professionals, between 1/3 and 1/5 of them are located in the Sofia (capital) region.[19] More than half are located in six out of twenty-eight districts - Sofia (capital), Plovdiv, Varna, Pleven, Stara Zagora, and Burgas.[20] The medical universities in Bulgaria are also located in the centres of these districts. Overall, these districts have seen a dynamic increase in the number of dentists, midwives, and obstetricians over the last two decades. The situation is different for general practitioners, psychiatrists, paediatricians, and nurses - there has been a

[16] The Appendix presents the calculated variances for other medical specialties. However, they refer to 2015, which is the latest year for which statistical information is available in the Eurostat database.
[17] See, for example, WHO, "Global strategy on human resources for health: Workforce 2030", https://www.who.int/publications/i/item/9789241511131.
[18] The 2:1 ratio is accepted as the minimum to ensure the normal functioning of the health system (Ministry of Health, 2022a).
[19] To compare, the population of the district accounts for about 1/5 of the population of the entire country.
[20] The population of these six districts represents about 1/2 of the total population of Bulgaria.

downward trend. In the remaining districts, the trend is a downward one for all types of medical professionals (Figures 5 to 12 in the Appendix).

Regions versus the European median: where are the shortages?

Five of the twenty-eight districts have a higher number of physicians per 100 thousand population compared to the median for the analysed group of European countries: Sofia (capital), Plovdiv, Pleven, Varna, and Stara Zagora. In all other districts, the situation is less favourable compared to the median, with the greatest shortage of physicians in Blagoevgrad, Kardzhali, and Haskovo. In twelve of the districts, there is a shortage of dentists, i.e., they are less than the benchmark. However, it should be borne in mind that the overall shortfall represents only 3.1% of the stock available in 2021. The situation is similar for obstetricians and gynaecologists. There are shortages in thirteen districts, but these account for 2.6% of the total. Although the number of paediatricians is showing a general downward trend, in 2021 only nine districts were experiencing shortages. Again, its relative value (3.6%) indicates that the acuteness of the problems for this category of professionals is not that great, at least in the short term. The situation is quite different for general practitioners and psychiatrists. The only district where the ratio of the number of general practitioners to the median computed for the selected group of countries is above one is the Pleven district. In absolute numbers, the largest shortages are observed in the districts of Sofia (capital) (approximately 200 physicians), Burgas (over 100 physicians), and Plovdiv (over 70 physicians). In the case of psychiatrists, there is also only one district without a shortage - Lovech district. The shortage is most acute in Sofia (capital) district (over 90 psychiatrists), followed by Plovdiv district (about 50 psychiatrists) and Blagoevgrad, Burgas, and Varna districts (with shortages of over 30 psychiatrists each).

Based on the calculated benchmark (median) in terms of the number of midwives, twelve districts are identified where there are shortages of this type of medical professionals. This shortage is relatively small in aggregate, amounting to 5.3% of the total. The most significant shortage of midwives is in Veliko Tarnovo district (nearly 40), Blagoevgrad, and Burgas (with more than 20 each).

The most unfavourable situation is in the supply of nurses. There is no area where the number of nurses equals the calculated benchmark. Over 2500 nurses are needed in Sofia (capital) alone. Plovdiv is almost 1400 nurses short, and Varna is almost 1500 nurses short. If instead of the benchmark a required ratio of nurses to physicians of 2:1 is set, then in the Sofia (capital) district the shortage would amount to over 8000 nurses. In the Plovdiv district, it would reach nearly 4000, and in the Varna district - over 3000 nurses.

Again, it should be stressed that the reference value used (the median) does not necessarily correspond to an optimal (desired) state. In this sense, the calculated positive differences for some districts in Bulgaria and some types of professionals do not in themselves imply the absence of a problem. The internal distribution of medical specialists in each district separately is also associated with a concentration in regional centres, while in smaller localities access to medical services is hampered to a significantly higher degree.[21]

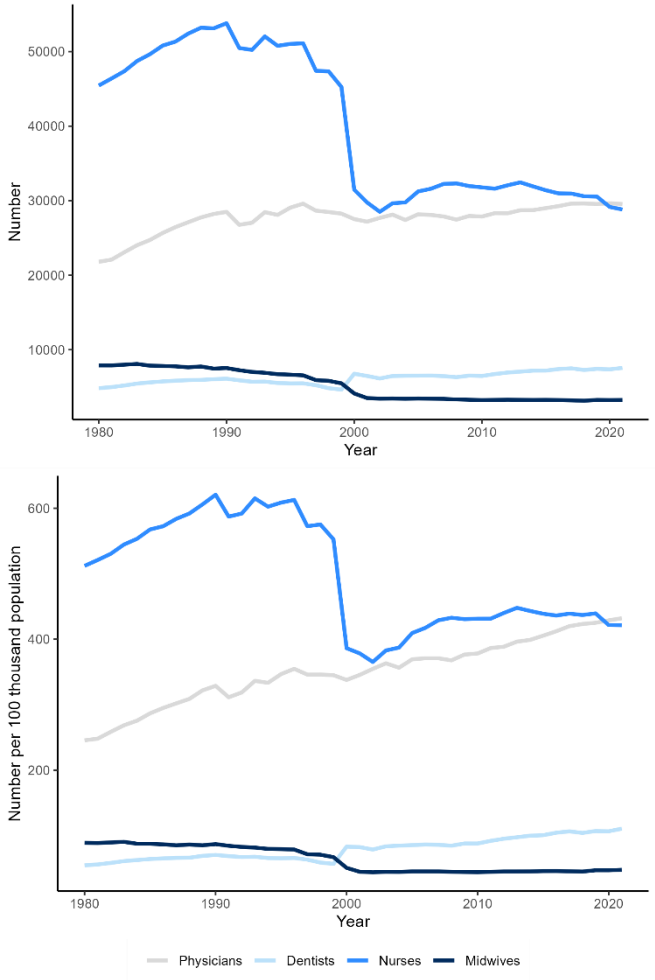
Long-term dynamics

For the period 1980-2021, the number of physicians in Bulgaria followed a generally positive trend. Until the early 1990s, it was characterised by a markedly steady rate of increase. With the beginning of the transition, the gradual establishment of market relations, and the opening of borders, this number has shown some volatility, but overall, the shocks have been relatively small. It can be said that since Bulgaria acceded to the EU,

[21] See Department of Health (2022b) for more information on regional inequalities in health services and the availability of health professionals.

the dynamics of the number of physicians has been steadily positive, but the rate of increase has been significantly lower than that observed in the 1980s. By 2021, this number reached approximately 30 thousand, compared to just under 22 thousand in 1980.

1. Medical professionals by year



Source: Eurostat, NSI, own calculations

For dentists, the long-term trend is positive, with only the 1990s seeing a marginal decline in numbers. In the 21st century, this number has slowly but steadily increased to around 7.5 thousand (by comparison, this number in 1980 was approximately 4.8 thousand).

The number of midwives in Bulgaria declined steadily from the early 1980s to the early 2000s. After that, it started to stabilise and since 2007 it has fluctuated in the range of 3.2-3.3 thousand (in 1980 this number was almost 7.9 thousand).

The most negative long-term development has been in the number of nurses. At the beginning of the 1980s it was around 45.4 thousand, and by the early 1990s it was growing rapidly and steadily, reaching its historical maximum of 53.8 thousand in 1990. The shocks caused by the crises of the 1990s led to significant fluctuations in their numbers, but the direction of development became downward. In 2000, the number of nurses fell sharply by almost 14 thousand to around 31.5 thousand. The main reasons for this drastic reduction can be sought in two directions. First, in 1999, it was decided to transform medical institutions into commercial companies. Due to insufficient financial resources, the management of these companies had a motive to optimize costs by cutting staff. Nurses turned out to be the easier option to make such cuts. Since medical institutions appeared to be practically quasi-monopsonies for the services of nurses, many of the latter were forced to leave the system permanently and seek alternative employment, including abroad. Second, in the same year, the Code on Compulsory Social Security[22] was adopted, providing for an increase in the retirement age. This created an incentive among some nurses to prefer earlier retirement under the old rules. In 2001, there was a second smaller decrease in their number, approximately 1.7 thousand. Until the effects of the global economic and financial crisis in Bulgaria in 2009, there was some recovery in the number of nurses - in 2008 it amounted to 32.3 thousand. From 2009 to the present, the dynamics of this number have been almost invariably negative (except for 2012 and 2013). By 2021, the number of nurses amounted to 28.8 thousand.

If the same indicators measured per 100 thousand population are considered the conclusions would not be substantially different. The dynamics are

[22] In 2003, its name was changed to Social Security Code.

similar. Only the upward trend observed for the number of physicians becomes steeper.

The dynamics observed in recent years in terms of the number of medical professionals still do not fully reflect the problem of ageing in these groups of professions.[23] Other things being equal, this implies a significant increase in replacement demand in the health sector in the coming years.

Does the education system compensate for medical professionals leaving?

In Bulgaria, the number of medical specialists is almost exclusively replenished by new graduates from Bulgarian medical universities. They are almost entirely Bulgarian citizens.[24]

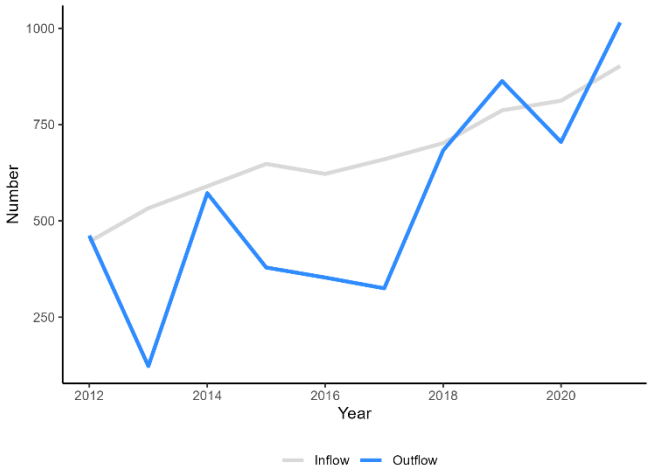
As far as the capacity of the education system in Bulgaria to produce physicians is concerned, it currently exceeds by far the number of trained Bulgarian citizens. On average, for the period 2012-2021, about 1/3 of the medical students trained are foreign citizens, and in dentistry - about 1/5.

The latter facts provide a reason to identify the inflow of medical professionals with the number of graduating students who are Bulgarian citizens (assuming that they remain to work in Bulgaria[25]). The outflow is obtained as the resultant quantity equal to the net change in the corresponding stock of specialists in a given year, less the amount of the inflow. The outflow includes retired health professionals, deceased, emigrants, and those who have left the health sector.

Specifically for the physician group, both inflows and outflows followed an increasing trend. Overall, by 2018, the inflow had fully offset the outflow.

In the last few years, however, the number of people leaving the system has started to exceed the number of people entering the sector. For 2021 in particular, estimates show that 1015 physicians have left, while 902 have entered.

2. Physicians: inflow and outflow



Source: NSI, own calculations

According to the data of the Ministry of Health for the period 2012-2021, the total number of physicians with a specialty in General Medicine who could join the stream of general practitioners (GP) amounts to approximately 1.7 thousand. Despite this relatively high figure, there was a net decrease of 647 GPs over the same period according to the NSI. Also, in recent years, the number of persons acquiring this specialty has been decreasing, reaching 59 in 2021. Assuming zero attrition, overcoming the existing shortage of approximately one thousand GPs in 5 years implies that at least 200 persons will acquire the relevant specialty per year (number achieved in 2014-2016 and 2019).

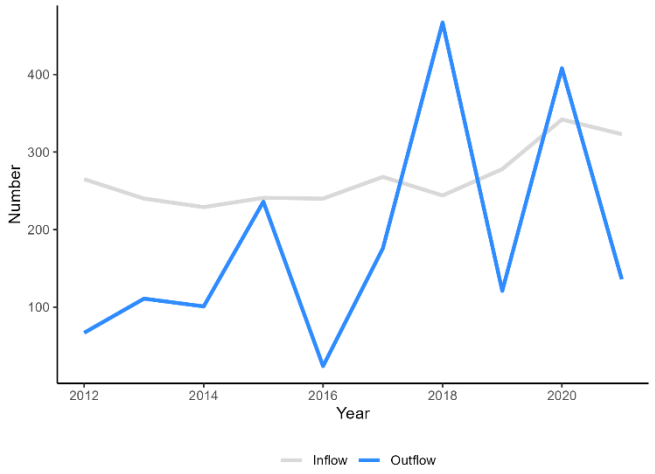
A similar development is also observed in the number of persons acquiring the specialty of psychiatry, for which there is a significant shortage. For the period 2012-2021, a total of 105 persons

[23] See, for example, NSI, "Inpatient and Outpatient Medical Facilities and Health Care Facilities as of December 31, 2022," https://nsi.bg/sites/default/files/files/pressreleases/HealthEstabl2022_P726DZA.pdf. According to this publication, 20.1% of practicing physicians are age 65 and older, and 33.8% are age 55-64. Similar results are contained in OECD/European Observatory on Health Systems and Policies (2021).
[24] According to Eurostat, in the period 2007-2021, 310 foreign-educated persons have been employed as doctors in Bulgaria, while the number of nurses is 26. By comparison, the Republic of Ireland, which has a population of around 5.3 million, attracted 19.1 thousand nurses and 14.8 thousand foreign-educated doctors (including nationals and non-nationals) over the same period.
[25] This assumption is motivated by the fact that since 2014 the number of issued certificates required for work abroad to doctors - Bulgarian citizens, graduated in Bulgaria is steadily and significantly decreasing, reaching 139 certificates in 2021, while in 2014 their number was 501. A similar trend is observed for nurses (Ministry of Health, 2022a, 82-83).

acquired such a specialty (for 2021 this number was 11). The net change over the period corresponds to a decrease of 16 persons. If there is no churn, addressing the existing shortfall of 460 psychiatrists over 5 years would require over 90 people per year to acquire the specialty (with an average of 10 people acquiring the specialty over the period 2012-2021).

Regarding the dentist flows, it can be argued that the number of entrants has successfully compensated for the decrease in availability due to departures. The only exceptions for the last decade are 2018 and 2020, during which the number of leavers was higher than the number of entrants. For 2021, the estimated inflow is 323 and the estimated outflow is 136.

3. Dentists: inflow and outflow



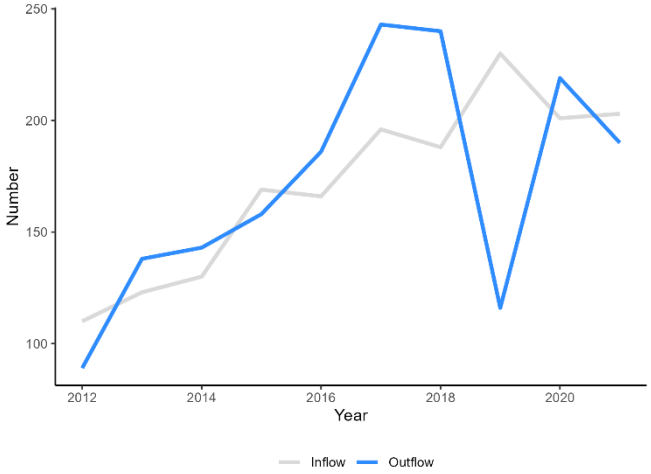
Source: NSI, own calculations

For midwives, by 2018 there was an increasing trend in both outflow and inflow, with the former generally exceeding the latter. A slowdown in the dynamics of both flows has been observed since 2019.

Nevertheless, the general conclusion is that the education system is struggling to compensate for the decline in the number of midwives available by creating new specialists. The estimated outflow for 2021 is 190 and the estimated inflow is 203.

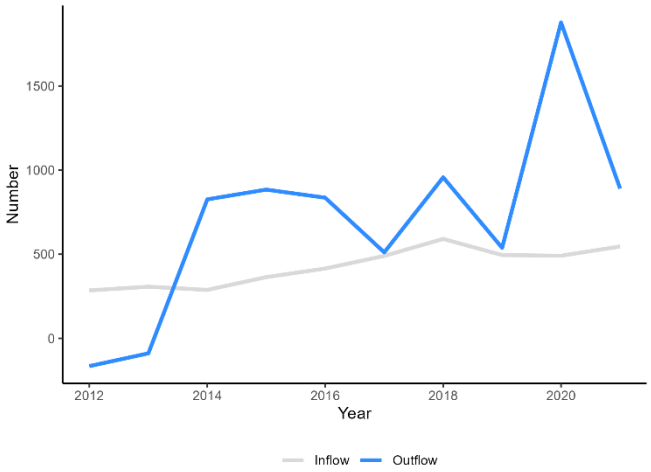
The situation for nurses is expectedly the least favourable one. Since 2014, the outflow of nurses has consistently exceeded the inflow, with the 2020 estimate of the excess reaching its maximum of 1,386. In 2021, this estimate amounts to 344 people, corresponding to an inflow of 546 nurses and an outflow of 890.

4. Midwives: input and output



Source: NSI, own calculations

5. Nurses: input and output



Source: NSI, own calculations

It can be argued that the education system is undoubtedly not covering the current losses of this type of resource in the sector. All other things being equal, an inflow of 500-600 nurses per year would be able to cover the already existing shortage of nearly 17 thousand nurses for nearly 30 years.

The general conclusion that can be drawn is that currently the education system is not

compensating for the outflow of physicians and nurses and is only partially covering the outflow. Needs, as defined by the already existing shortages of medical professionals at the national and regional levels, remain unmet. A separate problem is the ageing of the workforce in the sector and the imminent outflow of a significant proportion of medical professionals in the short and medium term.

Possible solutions and recommendations

Overcoming the existing shortage poses a huge challenge to public governance. Over the past decade, national health strategy documents have outlined some key problems and solutions. Some results have been achieved, but staff shortages are still substantial. The scale of the problems suggests a comprehensive rethinking of human resource development in the sector in the long term. In addition to securing the necessary financial resources through the national budget and EU programmes, an integrated approach is needed to address the problems. This means that the formulation and implementation of individual policies and measures should be carried out simultaneously and in a coordinated manner.

In general, policies should be aimed at building human capital and reducing the overload of specialists in the sector, as well as improving the institutional framework to develop competitive markets. In addition, it is important to improve the public image of the profession and to ensure effective protection of medical professionals from verbal and physical aggression.

Among the possible solutions, the following can be highlighted as having a direct bearing on overcoming the national shortage:

- Setting targets for the number of medical professionals by category in the long term, based on the median values observed in the EU.
- Alignment of the size of the government order by specialty with the need to achieve the targets. Reforming the structures of medical specialties to optimise the cost of training individual specialists. Ensuring adequate scholarships for undergraduate and postgraduate students, including higher scholarships for students studying in majors corresponding to pronounced shortages of specialists, linked to a commitment to work in Bulgarian healthcare. Provision of preferential student loans for medical students.
- Creating incentives for graduating students who are Bulgarian citizens, especially those trained as nurses, to remain working in Bulgaria.
- Attracting back Bulgarian medical professionals working in foreign health systems, including the provision of opportunities for partial practice of the profession in Bulgaria.
- Creating incentives to attract foreign nationals graduating from medical universities in Bulgaria to employment in the Bulgarian healthcare system. This implies applying the same admission criteria for foreign and Bulgarian citizens.
- Placing a strong policy emphasis on the problem related to the shortage of nurses, which is expected to be exacerbated in the medium term due to the ageing and overload of the current workforce. This implies ensuring competitive remuneration to prevent the brain drain and increase the attractiveness of the profession. Better remuneration should be accompanied by effective regulation of the minimum number of nurses per doctor in hospitals and the maximum weekly workload per nurse. Also, the duration of training for nurses should be optimised so that the health system can be supplied more quickly with the necessary staff. Career development and continuing professional education opportunities for nurses should be provided. The training of all related professionals supporting the work of nurses (e.g., physician assistants and so-called associate nurses, similar to other European countries) should also be developed. It is important to ensure that sanitarians and other auxiliary

staff, whose scarcity places an undue burden on professional nurses, are also attracted. The target group of students could be expanded by attracting candidates from the Bulgarian diaspora abroad and promoting opportunities for a career change towards medical qualifications among members of other professions, regardless of their age. Those who have left the system can be attracted back by providing refresher courses.

- Policies should focus on addressing the shortages of general practitioners, psychiatrists, and other medical professionals. This implies a thorough analysis of the factors determining the attractiveness of these professions: adequacy of pay; workload and availability of leave; working conditions; availability of training and research; patient attitudes; administrative burdens, etc. The incentives created should adequately reflect the role of these factors and help to attract staff into these specialties, including those who are qualified but have either not practiced or have left the profession.

As far as overcoming the shortage of medical specialists at the regional level is concerned, the main directions in which a solution to the problem can be sought are:

- Ensuring that medical specialists are paid more than the national average in less developed regions.
- Ensuring career development opportunities, including participation in research projects for medical professionals working in less developed regions.
- Significant improvement of working conditions and facilities in smaller localities through targeted investment.

The successful implementation of the above-mentioned incentives is directly dependent on the overall improvement of the quality of life of the population in the less developed regions. It also implies the development of transport connectivity, improvement of educational, cultural, and sports infrastructure, etc.

Of particular importance is linking the development of medical professionals with a significant increase in the quality of medical education and training. A primary requirement for this is to improve the facilities and the technological equipment of medical universities. The teaching content should also be modernised in line with the established world standards and the contemporary requirements of the healthcare market. The formation of good specialists also implies significant investment in highly qualified professors and quality research.

All of these possible actions require the development of a strategy for human resource development in the sector and the implementation of the necessary reforms. This would ensure a more efficient functioning of the health sector in Bulgaria and a significant improvement in the health of the Bulgarian nation in the long term.

The Appendix to this policy brief is available at: cea.egov.bg

The Bulgarian Council for Economic Analyses provides independent analyses and opinions on specific issues concerning the state of the Bulgarian economy, the challenges and risks facing it, as well as possible policies and recommendations to address them.

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